



IAS GOOGLE

Redefining your Google

Led by Raja Sir's Cracking IAS

MARCH 2022

CHAURI CHAURA CENTENARY

THE INCIDENT

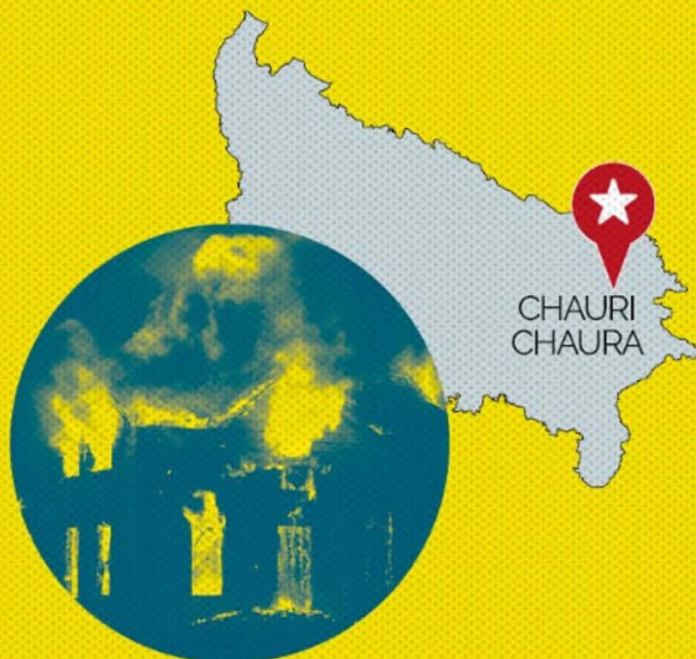
04.02.1922

The Chauri Chaura incident

occurred at Chauri Chaura in the Gorakhpur district of the United Province (now Uttar Pradesh)

A crowd of protestors set fire

to a police station in protest against the police firing on peaceful agitators participating in the non-cooperation movement



CASUALTIES

The incident resulted in deaths of several policemen and protestors.

SIGNIFICANCE

It led to Mahatma Gandhi halting the non-cooperation movement against the British rule



COVER STORY

- ❖ **ETHNOCENTRISM - VARIED DIMENSIONS**

ECONOMY

- ❖ **POLICY NORMALISATION: RBI MAY UP REVERSE REPO RATE BY 25 BPS**
- ❖ **TAX HAVENS COULD COME IN THE WAY OF CROSS-BORDER INSOLVENCY LAWS**
- ❖ **CENTRAL THEME OF ECONOMIC SURVEY 2021-22 IS THE "AGILE APPROACH"**
- ❖ **DIGITAL RUPEE ANNOUNCED BY F M NIRMALA SITHARAMAN IS IN THE NEWS?**
- ❖ **MSME MINISTRY STUDY CONFIRMS LOCKDOWN BATTERED SMALL BUSINESSES IN INDIA**
- ❖ **STEP UP AGRI-SPENDING, BOOST FARM INCOMES**
- ❖ **IT'S TIME TO TAKE A RELOOK AT PRIVATIZATION**
- ❖ **TAX ON DIGITAL ASSETS COULD GO UP, GOVT MULLING GST ON CRYPTO MINING, SUPPLY**
- ❖ **RBI MONETARY POLICY HIGHLIGHTS: REPO RATE UNCHANGED AGAIN, SHAKTIKANTA DAS-LED MPC PUTS GROWTH ON PRIORITY**
- ❖ **GOVERNMENT OPEN TO 'SOME TINKERING' IN CAPITAL GAINS TAX REGIME, SAYS REVENUE SECRETARY TARUN BAJAJ**
- ❖ **WHAT IS A RATINGS AGENCY AND WHY DO THEY MATTER?**
- ❖ **MIGRATION OF FOREIGN COMPANIES TO INDIA**
- ❖ **BUDGET 2022: GOVT RAISES FARM CREDIT TARGET TO RS 18 LAKH CR FOR FY23**
- ❖ **WHY INDIA'S LARGEST INSURER BEING LISTED?**
- ❖ **WHOLESALE PRICE INDEX BASED INFLATION MAINTAINS DECLINING TREND**
- ❖ **CENTRE CUTS AGRI-CESS ON CRUDE PALM OIL**
- ❖ **RETAIL INFLATION SPURTS TO 7-MONTH HIGH OF 6.01% IN JAN; WHOLESALE INFLATION STAYS IN DOUBLE-DIGITS**
- ❖ **CRYPTOS 'WORSE' THAN PONZI: RBI DG**
- ❖ **BUDGET SHOULD HAVE ALLOTTED MORE FUNDS FOR R&D**
- ❖ **WHY DO OIL PRICES MATTER TO THE GLOBAL ECONOMY? AN EXPERT EXPLAINS**
- ❖ **GUJARAT: NEW BIOTECH POLICY WITH RS 20,000 CRORE INVESTMENT**

INDIA AND WORLD

- ❖ **INDIA'S 'RETURN' TO CENTRAL ASIA**
- ❖ **WHY ARE THE RISE IN IMPORTS FROM CHINA A CONCERN?**
- ❖ **INDIA-ISRAEL DEFENCE TRADE AND DEFENCE INDIGENISATION**
- ❖ **INDIA-AUSTRALIA-INDONESIA MARITIME PARTNERSHIP**
- ❖ **PAKISTAN LAUNCHES FIRST-EVER NATIONAL SECURITY POLICY; HERE'S WHAT IT SAYS ABOUT INDIA**
- ❖ **A STRATEGY OF ASSERTION: WHY CHINA IS INVENTING NAMES FOR PLACES IN ARUNACHAL PRADESH**

- ❖ **INK INDIA-BRITAIN FREE TRADE, UNLOCK NEW OPPORTUNITY**
- ❖ **INDIA JOINS OTHER COUNTRIES TO OBSERVE WORLD NEGLECTED TROPICAL DISEASES DAY**
- ❖ **INDIA AND THE EUROPEAN UNION: A RELATIONSHIP YET TO ACHIEVE ITS TRUE POTENTIAL**
- ❖ **JAISHANKAR HEADS TO AUSTRALIA NEXT WEEK FOR QUAD FOREIGN MINISTERS' MEET**
- ❖ **SDGs AND STRUCTURAL VULNERABILITIES: THE CASE OF BIMSTEC COUNTRIES**
- ❖ **INDIA WILL BE HAPPY TO JOIN FRANCE IN LAUNCHING GLOBAL INITIATIVE ON SINGLE-USE PLASTIC: MODI**
- ❖ **INDIA, SRI LANKA CONCLUDE 9TH ARMY TO ARMY STAFF TALKS IN PUNE**
- ❖ **NEW DELHI NON-COMMITTAL ON FUNDING CURBS ON U.K. NGOs**
- ❖ **THE SIGNIFICANCE OF THE INDO-PACIFIC FOR INDIA**
- ❖ **JIO TIES UP WITH LUXEMBOURG FIRM TO OFFER AFFORDABLE BROADBAND SERVICES**
- ❖ **INDIA-AUSTRALIA INTERIM TRADE AGREEMENT AND FTA**
- ❖ **PHENSEDYL SMUGGLING REMAINS A CHALLENGE ON THE INDIA-BANGLADESH BORDER**
- ❖ **EXPERTS LEAVE FOR NAMIBIA TO PAVE WAY FOR RETURN OF CHEETAHS TO INDIA**
- ❖ **AUSTRALIA WARMS UP TO INDIA**
- ❖ **WORK PLAN 2022 SIGNED BETWEEN INDIA AND GERMANY TO STRENGTHEN QUALITY INFRASTRUCTURE, REDUCE TECHNICAL BARRIERS TO TRADE, ENHANCE PRODUCT SAFETY AND STRENGTHEN CONSUMER PROTECTION**
- ❖ **INDIA'S CONTRIBUTION TO GLOBAL GOVERNANCE OF PEACEKEEPING**
- ❖ **INDIA-CENTRAL ASIA SUMMIT: SHAPING GEOPOLITICS IN THE EXTENDED NEIGHBOURHOOD**
- ❖ **WHY A MADHUBANI PAINTING IS GRABBING EYEBALLS IN THE US**
- ❖ **SHRINGLA MEETS BANGLADESH COUNTERPART MOMEN, DISCUSSES WAYS TO STRENGTHEN BILATERAL TIES**
- ❖ **WORLD ECONOMIC FORUM AND THE NATIONAL INSTITUTE OF URBAN AFFAIRS SIGN A MOU TO COLLABORATE ON A JOINTLY DESIGNED 'SUSTAINABLE CITIES INDIA PROGRAM'**
- ❖ **MALDIVES: TAKING ON 'INDIA OUT' CAMPAIGN IN WORD AND DEED**
- ❖ **INDIA MUST THINK OF RECONFIGURING ITS TIES WITH RUSSIA**

INTERNATIONAL

- ❖ **LATEST MILESTONE FOR THE AFRICAN CONTINENTAL FREE TRADE AREA: THE PAN-AFRICAN PAYMENT AND SETTLEMENT SYSTEM**
- ❖ **WHAT IT MIGHT TAKE FOR THE IRAN NUCLEAR DEAL TO BE REVIVED**
- ❖ **RESEARCHERS SPOT DHOLES IN KYRGYZSTAN AFTER 3 DECADES**
- ❖ **CHINA JOINS RUSSIA IN OPPOSING NATO EXPANSION**
- ❖ **CHINA, PAKISTAN INK NEW CPEC AGREEMENT**

- ❖ **THE FRACTURED DIPLOMACY OF COUNTERING TERRORISM**
- ❖ **AFGHANISTAN-PAKISTAN RELATIONS AND THE DURAND LINE: WHY IS IT IMPORTANT?**
- ❖ **UKRAINE CRISIS AND US–RUSSIA FACE-OFF AT UN SECURITY COUNCIL**
- ❖ **BLUE OPPORTUNITIES FOR THE PACIFIC SMALL ISLAND DEVELOPING STATES (PSIDS)**
- ❖ **13 MILLION FACE SEVERE HUNGER IN HORN OF AFRICA: UN**
- ❖ **UKRAINE CRISIS AND US–RUSSIA FACE-OFF AT UN SECURITY COUNCIL**
- ❖ **STREET CHILDREN: THE NEGLECTED PATHOLOGY**
- ❖ **HARNESSING DIGITAL FINANCIAL INCLUSION UNDER THE G20 DIGITAL ECONOMY AGENDA 2023**
- ❖ **EXPLAINED: THE BILL PASSED BY US CONGRESS TO END FORCED ARBITRATION IN SEXUAL ASSAULT, HARASSMENT CASES**
- ❖ **WHY AUSTRALIA HAS LISTED KOALAS AS ENDANGERED SPECIES**
- ❖ **NAVY'S LARGEST EXERCISE MILAN TO BRING TOGETHER OVER 35 COUNTRIES**
- ❖ **PROTESTS AGAINST THE VACCINE MANDATE HAVE PARALYSED CANADA'S CAPITAL - FREEDOM CONVOY**
- ❖ **LESSONS FROM THE DRC'S 10TH EBOLA EPIDEMIC: THE PEOPLE MAY KNOW BEST**
- ❖ **ULTRA-PROCESSED FOODS: GLOBAL ANALYSIS SHOWS THEY AREN'T WELL SIGN-POSTED**
- ❖ **BIG TECH Vs RED TECH: THE DIMINISHING OF DEMOCRACY IN THE DIGITAL AGE**
- ❖ **ZAMBIAN COURT STOPS LAND CLEARING IN KASANKA NATIONAL PARK, WHERE 10 MILLION BATS ROOST ANNUALLY**
- ❖ **AFRICAN CHILDREN ARE NEGLECTED WHEN IT COMES TO HIV TREATMENT: LANCET STUDY**
- ❖ **INDIA'S ENERGY NEEDS TO DOUBLE IN 20 YEARS: PM**
- ❖ **RELEVANCE OF NORMANDY FORMAT TALKS IN THE UKRAINIAN CRISIS**
- ❖ **BIG TECH: THE PHONY KNIGHT OF DEMOCRACY**
- ❖ **AFGHANISTAN: IT ISN'T JUST ABOUT THE GIRLS**
- ❖ **TAPPING TECHNOLOGY FOR MULTILINGUAL LEARNING**
- ❖ **START OF A NEW ERA: FROM JAKARTA TO NUSANTARA**
- ❖ **WHY IS ISRAEL PM NAFTALI BENNETT'S VISIT TO BAHRAIN SIGNIFICANT?**
- ❖ **A FORGOTTEN CONTINENT FROM 40 MILLION YEARS AGO MAY HAVE JUST BEEN REDISCOVERED**
- ❖ **THE UKRAINE CRISIS: ITS IMPACT ON INDIA**
- ❖ **IRAN–RUSSIA RELATIONS UNDER RAISI: THE EURASIAN DIMENSION**
- ❖ **UN WORLD FOOD PROGRAMME APPEALS FOR FUNDS TO ASSIST THOSE AFFECTED BY CYCLONE EMNATI**
- ❖ **THE GROWING DIVERGENCE IN EUROPE OVER RUSSIA**
- ❖ **PUTIN'S MOVES ARE HARDLY 'CHESS THUMPING'**

- ❖ **WHY HAVE THE PROTESTS AGAINST BRU RESETTLEMENT IN TRIPURA FLARED UP?**
- ❖ **PHASI WOOD FOR JAGANNATH CHARIOT THIS YEAR ENTIRELY FROM PRIVATE LANDS; FOREST LOSS, CLIMATE CHANGE AFFECTING NATURAL SUPPLY**
- ❖ **GI TAG SOUGHT FOR THREE PRODUCTS FROM U.P.**
- ❖ **VETERAN SINGER LATA MANGESHKAR DEAD, SHE LIVES IN HER SONGS**
- ❖ **100 YEARS FOR 'CHAURI CHAURA' INCIDENT**
- ❖ **PM MODI UNVEILS GIANT 'STATUE OF EQUALITY' IN REMEMBRANCE OF SAINT RAMANUJACHARYA**
- ❖ **UNION BUDGET 2022 | FINANCE MINISTER NIRMALA SITHARAMAN RAISES WAGER ON CAPEX PUSH FOR GROWTH, JOBS**
- ❖ **AFSPA KILLED THE NAGA COAL MINERS IN MON**
- ❖ **BUDGET 2022: WHAT FM NIRMALA SITHARAMAN SAID ON ARTIFICIAL INTELLIGENCE, DRONES, DIGITAL PAYMENTS AND MORE**
- ❖ **JAMMU AND KASHMIR DELIMITATION COMMISSION LIKELY TO GET ANOTHER EXTENSION**
- ❖ **UNION BUDGET 2022-23: HOW WILL 'KISAN DRONES' BENEFIT FARMERS, EXPERTS ASK**
- ❖ **PRIME MINISTER'S DEVELOPMENT INITIATIVE FOR NORTH-EAST (PM-DevINE)?**
- ❖ **BENEFITS OF OROP SCHEME**
- ❖ **EVOLUTION OF MECHANISED INFANTRY**
- ❖ **WHAT IS WEST BENGAL'S 'PARAY SHIKSHALAYA', AN OPEN-AIR CLASSROOM INITIATIVE?**
- ❖ **VIRAT-ANUSHKA INVESTS IN PLANT-BASED MEAT BRAND, BLUE TRIBE**
- ❖ **PRADHAN MANTRI KISAN SAMPAD A YOJANA EXTENDED TILL MARCH 2026**
- ❖ **NO NEED TO PHYSICALLY PORT THE RATION CARD FROM ONE STATE/UT TO ANOTHER UNDER ONE NATION ONE RATION CARD (ONORC) PLAN**
- ❖ **SUICIDES DUE TO UNEMPLOYMENT HIGHEST IN COVID-HIT 2020**
- ❖ **DRONE IMPORT BANNED; DEFENCE, R&D EXCEPTIONS**
- ❖ **ATAL TUNNEL RECOGNISED AS THE LONGEST HIGHWAY TUNNEL**
- ❖ **DELHI 11TH AMONG WORLD CITIES IN CONGESTION INDEX, REVEALS REPORT**
- ❖ **AFTER SP, BSP PROMISES RESTORATION OF OLD PENSION SCHEME FOR GOVERNMENT EMPLOYEES IN UTTAR PRADESH**
- ❖ **MODERNIZING BORDER MANAGEMENT**
- ❖ **NATIONAL EMPLOYMENT POLICY**
- ❖ **PRODUCT LINKED INCENTIVE (PLI) SCHEME FOR FOOD PROCESSING INDUSTRY (FPI)**
- ❖ **INDIA'S 2030 NATIONAL RAIL PLAN EYES A GREENER AND CHEAPER NETWORK**
- ❖ **AGRICULTURAL PRODUCTS' EXPORT DEVELOPMENT AUTHORITY (APEDA) CELEBRATES 36TH FOUNDATION DAY**
- ❖ **GOVT APPROVES RS 26,275 CRORE PLAN FOR POLICE MODERNISATION; RS 18,000 CRORE FIXED FOR SECURITY EXPENDITURE IN J&K, NORTHEAST**
- ❖ **OVER 144 STUDENTS OF GMCH-32 TAKE THE NEW CHARAK SHAPATH**

- ❖ RESTORATION OF FRENCH HERITAGE STRUCTURE AT CHANDERNAGORE WILL BE COMPLETED SOON: AMBASSADOR LENAIN
- ❖ INFORMATION WARFARE AND INDIA'S LEVEL OF PREPAREDNESS
- ❖ 'ASSAULT ON THE HIMALAYAS': CHAIRMAN OF CHAR DHAM COMMITTEE RESIGNS
- ❖ WHAT IS DRIVING THE NEW LANGUAGE-DOMICILE PROTEST IN JHARKHAND?
- ❖ THE STRATEGIC ALLIANCE OF TRANS-BORDER INSURGENT GROUPS: A REASON FOR THE TURMOIL IN NORTH-EAST
- ❖ 'RUBBER BILL 2022 MAKES RUBBER BOARD REDUNDANT, DOESN'T ENSURE FAIR PRICE'
- ❖ MAHARASHTRA FARMERS SET TO RE-LAUNCH PRO-GM CROP MOVEMENT
- ❖ THE STATE OF SURVEILLANCE IN INDIA: NATIONAL SECURITY AT THE COST OF PRIVACY?
- ❖ PRADHAN MANTRI FASAL BIMA YOJANA (PMFBY) ENTERS ITS 7TH YEAR OF IMPLEMENTATION
- ❖ WORLD BANK SIGNS \$115 MILLION PROJECT TO STRENGTHEN WATERSHED MANAGEMENT IN KARNATAKA AND ODISHA
- ❖ THE STATE OF SURVEILLANCE IN INDIA: NATIONAL SECURITY AT THE COST OF PRIVACY?
- ❖ EXPLAINED | HOW DID THE ABG SHIPYARD FRAUD HAPPEN?
- ❖ SEMINAR AT EXPO 2020 DUBAI SHOWCASES INDIA'S EXPORT POTENTIAL OF MILLETS, WAYS TO UPSCALE THE VALUE CHAIN
- ❖ THERE ARE JOBS, DISCOVER THEM
- ❖ BYANJANA DWADASHI: HOW A 500-YEAR-OLD FESTIVAL IN ODISHA SYMBOLISES COMMUNITY, FOOD SECURITY AND BALANCED DIET
- ❖ 48th KHAJURAHO DANCE FESTIVAL BEGINS IN MADHYA PRADESH
- ❖ CHINA LOVES GUNTUR CHILLIS – HOW THE ANDHRA DISTRICT PRODUCED A SPICY GLOBAL PRODUCT
- ❖ EMERGING CONTOURS OF SECURITY IN JAMMU AND KASHMIR
- ❖ VACANT FOR MORE THAN A MONTH, THE CDS'S ROLE IN AN INDIA THAT IS NUCLEAR NEEDS A SERIOUS REJIG
- ❖ UNION BUDGET WILL BE OF GREAT HELP IN IMPLEMENTING NATIONAL EDUCATION POLICY
- ❖ UNION MINISTER FOR CULTURE, SHRI G. KISHAN REDDY WILL INAUGURATE ONE OF ITS KIND CONFERENCE ON INDIAN TEMPLE ARCHITECTURE 'DEVAYATANAM' AT HAMPI
- ❖ WHY LAKHS OF INDIANS GO ABROAD TO STUDY
- ❖ REVISED CALENDAR FOR AUCTION OF GOVERNMENT OF INDIA TREASURY BILLS

POLITICAL ISSUES, HUMAN RIGHTS AND GOVERNANCE

- ❖ 'MAKE IN INDIA' PROGRAMME GIVES BOOST TO INDIGENOUS PRODUCTION OF DEFENCE EQUIPMENT, SAYS CENTRAL GOVERNMENT
- ❖ DELIMITATION COMMISSION AND ITS PROPOSALS
- ❖ NC REJECTS DELIMITATION PANEL'S 2ND DRAFT PROPOSAL SUGGESTING NEW CONSTITUENCIES IN JAMMU & KASHMIR
- ❖ COLLABORATION, POLICY, REGULATORY CHANGES NEEDED TO FIGHT ANTIMICROBIAL RESISTANCE
- ❖ BENGAL CM MAMATA BANERJEE BLOCKS GOVERNOR JAGDEEP DHANKHAR ON TWITTER
- ❖ 'HC CAN STRIKE DOWN EXCEPTION TO MARITAL RAPE
- ❖ DATA 4.0 – RETHINKING RULES FOR A DATA-DRIVEN ECONOMY
- ❖ BATTERY SWAPPING POLICY WILL BOOST ADOPTION OF EVs
- ❖ GATI SHAKTI WILL HELP TACKLE INFRA HURDLES: PM MODI
- ❖ GOVT'S PROPOSALS TO POOL SOLAR TARIFFS, BUNDLE RENEWABLE ENERGY WITH THERMAL POWER
- ❖ RPF LAUNCHES NATIONWIDE OPERATION 'AAHT' TO CURB HUMAN TRAFFICKING
- ❖ FCRA REGISTRATION OF MoC, PHFI RESTORED
- ❖ THE ORISSA HIGH COURT IS LEADING THE WAY IN DIGITISING THE JUDICIARY
- ❖ SECTION 498A IPC - PROSECUTION OF HUSBAND'S RELATIVES BASED ON GENERAL & OMNIBUS ALLEGATIONS BY WIFE IS ABUSE OF PROCESS: SUPREME COURT
- ❖ J&K BECOMES FIRST UT TO BE INTEGRATED WITH NATIONAL SINGLE-WINDOW SYSTEM
- ❖ MUSLIMS BARRED FROM FRIDAY PRAYER SITES IN INDIA'S GURGAON
- ❖ ODISHA HC ISSUES NOTICE TO CHILIKA AUTHORITY OVER ILLEGAL MOTORBOATS IN SENSITIVE PART OF LAKE
- ❖ GOVERNOR'S POWERS, FRICTION WITH STATES, AND WHY THIS HAPPENS OFTEN
- ❖ TRS MPs MOVE PRIVILEGE MOTION AGAINST PM MODI OVER REMARKS ON PASSAGE OF TELANGANA FORMATION BILL
- ❖ AN EXPERT EXPLAINS: POLITICS AND HISTORY IN GOA
- ❖ UNIFORM CIVIL CODE NEED OF HOUR: GIRIRAJ
- ❖ WHAT IS THE DOCTRINE OF ESSENTIALITY - SUPREME COURT'S?
- ❖ POWER SECRETARY: 'PREPAID METERING SOLUTION FOR BANE OF BILLING AND COLLECTION ... GOOD FOR DISCOMS, CONSUMERS'
- ❖ INSTITUTES THAT COMPLETE ONE YEAR CAN SEEK PROVISIONAL NAAC ACCREDITATION
- ❖ ANTILYNCHING BILLS PASSED BY FOUR STATES HANGING FIRE
- ❖ QUESTIONING THE BAN ON ONLINE GAMING PLATFORMS
- ❖ A CASE FOR A MORE FEDERAL JUDICIARY
- ❖ WITHDRAWN 274 RECOVERY NOTICES AGAINST ANTI-CAA PROTESTORS: UP GOVT TO SC

- ❖ **INDIA BELIEVES IN 'SECURITY AND GROWTH FOR ALL IN THE REGION' TO FOCUS ON COOPERATIVE MEASURES FOR SUSTAINABLE USE OF OCEANS: PRESIDENT KOVIND**
- ❖ **VICE PRESIDENT UNDERLINED THE IMPORTANCE OF SAFE DRINKING WATER AND SANITATION FOR GOOD HEALTH AND WELL-BEING**
- ❖ **'ENACTMENT OF LAW IS SOVEREIGN FUNCTION': DELHI HIGH COURT DISMISSES PLEA FOR IMPLEMENTATION OF WHISTLE BLOWER'S PROTECTION ACT, 2014**
- ❖ **WRIT PETITION UNDER ARTICLE 32 TO QUASH FIR/CRIMINAL PROCEEDINGS CANNOT BE ENTERTAINED**
- ❖ **OMBUDSPERSON APP IS A STEP TOWARDS E-GOVERNANCE, THIS WILL MAKE MGNREGA MORE TRANSPARENT**
- ❖ **SARFAESI ACT HAS OVERRIDING EFFECT ON CENTRAL EXCISE ACT; DUES OF SECURED CREDITOR HAS PRIORITY OVER DUES OF CENTRAL EXCISE DEPT.: SUPREME COURT**

SCIENCE AND TECHNOLOGY

- ❖ **BIG FINANCIAL PUSH FOR DEEP OCEAN MISSION IN UNION BUDGET**
- ❖ **NOVEL FAST-SPREADING HIV-1 VARIANT FOUND CIRCULATING IN THE NETHERLANDS**
- ❖ **ISRO TARGETS AN AUGUST LAUNCH FOR CHANDRAYAAN 3**
- ❖ **NUCLEAR POWER IN INDIA**
- ❖ **IN THE SEARCH FOR EARTH-LIKE PLANETS, UNIVERSITY OF ROCHESTER SCIENTIST MIKI NAKAJIMA TURNS TO COMPUTER SIMULATIONS OF MOON FORMATIONS**
- ❖ **E-FASTING CAN MINIMISE E-WASTE**
- ❖ **WHY MODI'S 'GENE CARD' SCHEME WON'T SOLVE INDIA'S SICKLE-CELL ANAEMIA PROBLEM**
- ❖ **SERB CALLS FOR APPLICATIONS UNDER 'ACCELERATE VIGYAN' SCHEME**
- ❖ **CASES OF FAIRBANK'S DISEASE AND ACROMEGALY IN INDIA**
- ❖ **SCIENTISTS SET NEW RECORD IN CREATING ENERGY FROM NUCLEAR FUSION**
- ❖ **SUCCESSFUL LAUNCH OF PSLV-C52 WITH EOS-04 SATELLITE**
- ❖ **INDIA'S FIRST mRNA COVID-19 VACCINE LIKELY TO BE ROLLED OUT BY APRIL**
- ❖ **GEOMAGNETIC STORM THAT KILLED STARLINK SATELLITES**
- ❖ **COVID-19: HOW IS EXPIRATION DATE OF VACCINES DETERMINED?**
- ❖ **INCOIS PREPARES COASTAL VULNERABILITY INDEX**
- ❖ **INDIAN ASTRONOMERS CREATE AI-BASED TOOLS TO FIND 60 POTENTIAL HABITABLE PLANETS**
- ❖ **LUC MONTAGNIER, NOBEL-WINNING VIROLOGIST WHO DISCOVERED HIV, DIES AT 89**
- ❖ **SPREADING AWARENESS ON ORGANIC FOOD**
- ❖ **EXPLAINED | WHO IS MANUFACTURING INDIA'S mRNA VACCINE?**
- ❖ **RELIANCE INDUSTRIES SEEKS TO BE WORLD'S TOP BLUE HYDROGEN MAKER**
- ❖ **NASA'S NEW SPACE TELESCOPE SEES 1ST STARLIGHT, TAKES SELFIE**
- ❖ **NOD TO AT LEAST ONE GLOBAL CHIPMAKER BY MARCH 31; 2024 TARGET FOR FIRST FABRICATION UNIT**
- ❖ **DID MICROWAVE WEAPONS INDUCE HAVANA SYNDROME?**

- ❖ PERSON DIAGNOSED WITH LASSA FEVER DIES IN BEDFORDSHIRE
- ❖ ZOOMING IN ON THE POTENTIAL OF INDIA'S GEOSPATIAL SECTOR
- ❖ KATRIN EXPERIMENT CONSTRAINS THE MASS OF MYSTERIOUS NEUTRINO PARTICLES WITH UNPRECEDENTED PRECISION
- ❖ SUNLIGHT HELPS CLEAN UP OIL SPILLS IN THE OCEAN
- ❖ HOW THE SALTWATER CROCODILE ONCE LORDED OVER VIETNAM'S WATERWAYS...AND THEN DIED OUT
- ❖ ANCIENT 'MEGAFLOODS' TILTED THE VERY DIRECTION OF EARTH'S CRUST, SCIENTISTS FIND
- ❖ UNION MINISTER DR. MANSUKH MANDAVIYA LAYS FOUNDATION STONE FOR 'NANO UREA PROJECT' AND 'PHOSPHATE RICH ORGANIC MANURE (PROM)-SHEETALA' PROJECT AT THE RCF TROMBAY UNIT, MUMBAI
- ❖ METAVERSE: TECHNOLOGY THAT MERGES VIRTUAL, PHYSICAL WORLDS SOON TO BECOME A REALITY, META SAYS
- ❖ BEYOND THE HYPE OF BLOCKCHAIN, A LOOK AT ITS REALITY
- ❖ SOIL DEGRADATION IN THE EUROPEAN MEDITERRANEAN REGION: PROCESSES, STATUS AND CONSEQUENCES
- ❖ NIAB DISCOVER POTENTIAL BIOMARKER FOR JAPANESE ENCEPHALITIS VIRUS
- ❖ WHY DOES THE WORLD NEED A LIBRARY OF UNDERWATER SOUNDS? A SCIENTIST EXPLAINS
- ❖ PARTICIPATION OF MINISTRY OF AYUSH IN VIGYAN SARVATRA PUJYATE EXPO
- ❖ INDIA EVOLVING AS FRONTRUNNER IN HIGH POWER COMPUTING
- ❖ HOW TECHNOLOGY CAN HELP SAVE INDIA'S GROUNDWATER
- ❖ NATIONAL STRATEGY FOR ADDITIVE MANUFACTURING
- ❖ 25 TECHNOLOGY INNOVATION HUBS ACROSS THE COUNTRY THROUGH NM-ICPS ARE BOOSTING NEW AND EMERGING TECHNOLOGIES TO POWER NATIONAL INITIATIVES
- ❖ NEUROPATHOLOGICAL CHANGES FOLLOWING COVID-19 SIMILAR TO ALZHEIMER 's
- ❖ AVAADA ENERGY TO DELIVER BIHAR'S FIRST FLOATING SOLAR POWER PLANT
- ❖ HOW TO PROTECT THE FIRST 'CRISPR BABIES' PROMPTS ETHICAL DEBATE
- ❖ WHO WAS NARSINH MEHTA, AND WHAT IS THE CONTROVERSY OVER NAMING A SPIDER SPECIES AFTER HIM?
- ❖ SCIENTISTS CAN NOW TURN STEM CELLS INTO BONE USING NOTHING MORE THAN SOUND

SOCIAL ISSUES AND DEVELOPMENT

- ❖ HOME DELIVERY OF MEDICINES WILL BEGIN FROM 1ST FEBRUARY 2022 UNDER SERVICES E-HEALTH ASSISTANCE AND TELECONSULTATION (SeHAT).
- ❖ PM eVIDYA COULD BE A GIANT STEP IN EXPANSION OF DIGITAL EDUCATION
- ❖ WEIGHING IN ON A HEALTH DATA RETENTION PLAN
- ❖ A NEW FORM OF UNTOUCHABILITY
- ❖ SCHEME FOR PENSION AND MEDICAL AID TO ARTISTES

- ❖ STATUS OF NATIONAL INITIATIVE FOR DESIGN INNOVATION
- ❖ UNDER SBM-U 2.0 AND AMRUT 2.0, PLAN PREPARATION HAS BEGUN TO MAKE CITIES 'GARBAGE-FREE' AND 'WATER-SECURE'
- ❖ FUNDS FOR NAI ROSHNI SCHEME
- ❖ CABINET APPROVES PHASE 2 OF AMRUT
- ❖ HARYANA CABINET NOD FOR ANTI-CONVERSION BILL
- ❖ REPORT ON MGNREGS: RAISE GUARANTEED DAYS OF WORK
- ❖ NITI AAYOG AND USAID COLLABORATE TO ACCELERATE HEALTH INNOVATION AND ENTREPRENEURSHIP IN INDIA
- ❖ ATMANIRBHAR NORTH EAST THROUGH SUSTAINABLE AGRICULTURE- NERCRMS - A REGISTERED SOCIETY UNDER THE AEGIS OF NEC, MINISTRY OF DONER
- ❖ ROPEWAY FOR CONNECTIVITY; BUILDING PARVATMALA FOR HILLY AREAS
- ❖ REVIVING THE 'KERALA MODEL' OF DEVELOPMENT
- ❖ NUMBER OF BENEFICIARIES ENROLLED FOR MATERNITY BENEFIT PLAN EXCEEDED TARGET: GOVERNMENT
- ❖ CHINTAMANI PADYA NATAKAM
- ❖ PERCENTAGE OF POPULATION AS MINORITIES
- ❖ CRIME AGAINST WOMEN
- ❖ WHY AND HOW BENGAL FORGOT MARICHJHAPI
- ❖ GROWTH IN SHIPPING INDUSTRY-MARITIME INDIA VISION 2030
- ❖ CENTRE LAUNCHES WELFARE SCHEME FOR TRANSGENDERS - SMILE
- ❖ MAHARASHTRA MAY BECOME 8TH STATE TO OPT OUT OF CENTRE'S FLAGSHIP CROP INSURANCE SCHEME
- ❖ 'RASHTRIYA VAYOSHRI YOJANA' (RVY SCHEME) OF THE MINISTRY OF SOCIAL JUSTICE AND EMPOWERMENT
- ❖ GOVT APPROVES PLAN FOR 60,000 HOUSES UNDER PMAY ACROSS FIVE STATES
- ❖ TRIBAL AFFAIRS MINISTRY ALLOCATES RS 2.26 CRORE TO REKINDLE TELANGANA'S STATE FESTIVAL - MEDARAM JATHARA FESTIVAL
- ❖ IE THINC SESSION TO DISCUSS IMPACT OF PANDEMIC ON WOMEN WORKFORCE
- ❖ DOMESTIC VIOLENCE AND WOMEN'S HEALTH IN INDIA
- ❖ UNION MINISTER FOR SOCIAL JUSTICE & EMPOWERMENT DR. VIRENDRA KUMAR LAUNCHES A SCHEME FOR ECONOMIC EMPOWERMENT OF DNTS (SEED)
- ❖ GOVERNMENT APPROVES 'NEW INDIA LITERACY PROGRAMME, A NEW SCHEME OF ADULT EDUCATION FOR FYS 2022-27"
- ❖ DELHI POLICE'S 'PINK BOOTH' AT GB ROAD TO HELP SEX WORKERS REHABILITATE, SKILL-UP
- ❖ MENTAL HEALTH IN INDIA: IMPACT OF SOCIAL MEDIA ON YOUNG INDIANS
- ❖ 100 DISTRICTS IN THE COUNTRY BECOME 'HAR GHAR JAL' UNDER JAL JEEVAN MISSION
- ❖ GOVERNMENT APPROVES RASHTRIYA UCHCHATAR SHIKSHA ABHIYAN (RUSA) SCHEME TO CONTINUE TILL 31ST MARCH, 2026

- ❖ 'WILL RESUME MID-DAY MEALS ONCE WE HAVE FULL ATTENDANCE'
- ❖ PM CARES FOR CHILDREN SCHEME EXTENDED UP TO 28TH FEBRUARY, 2022
- ❖ THE PRIME MINISTER, ADDRESSED A WEBINAR ON POSITIVE IMPACT OF UNION BUDGET ON RURAL DEVELOPMENT
- ❖ INCLUSIVE, EQUITABLE AND QUALITY EDUCATION IS EVERY CHILD'S RIGHT: VICE PRESIDENT

ENVIRONMENT

- ❖ BASAI WETLANDS: AN OASIS IN THE HEART OF A CONCRETE JUNGLE
- ❖ SWACHH BHARAT! THIS MAHARASHTRA PANCHAYAT ADOPTS INNOVATIVE, LOW-COST METHODS TO ELIMINATE PLASTIC WASTE
- ❖ TONGAN ERUPTION WILL GO DOWN IN THE HISTORY OF VOLCANOLOGY
- ❖ BETTER HABITAT MANAGEMENT HELPS TIGERS FLOURISH IN SARISKA
- ❖ WHAT ARE RAMSAR SITES, AND WHAT IS THE SIGNIFICANCE OF THE LISTING?
- ❖ WHAT ARE LOW-CARBON EMITTING TECHNOLOGIES?
- ❖ NATIONAL ADAPTATION FUND FOR CLIMATE CHANGE (NAFCC)
- ❖ WORLD WETLANDS DAY CELEBRATED AT SULTANPUR NATIONAL PARK
- ❖ FREQUENT MARINE HEATWAVES IN INDIAN OCEAN DISRUPT INDIA'S MONSOON PATTERNS
- ❖ SOVEREIGN GREEN BONDS TO MOBILIZE RESOURCES FOR GREEN INFRASTRUCTURE
- ❖ CLIMATE CHANGE EFFECT: HIGHEST GLACIER ON MOUNT EVEREST MELTING AT A RAPID PACE, SAYS STUDY
- ❖ CORPORATE NET ZERO PROMISES FOUND TO BE INSUFFICIENT AND RELYING ON CHEAP OFFSETS
- ❖ KAZIRANGA NATIONAL PARK IS A NET CARBON EMITTER; CLIMATE CHANGE MAY MAKE IT WORSE
- ❖ INDIA TO HAVE TWO NATIONAL CENTRES OF EXCELLENCE IN CARBON CAPTURE & UTILIZATION AT IIT BOMBAY & JNCASR, BENGALURU, SUPPORTED BY DST
- ❖ ELECTRIC VEHICLES CAN LOWER EMISSIONS OF VOLATILE ORGANIC COMPOUNDS IN INDIA BY 2030: STUDY
- ❖ ARCI SCIENTISTS DEVELOP ENERGY-EFFICIENT METHOD FOR HYDROGEN PRODUCTION WITH LESS CARBON FOOTPRINT
- ❖ WHO'S AFRAID OF A GLOBAL PLASTIC TREATY?
- ❖ UNDERSTANDING OCEANS: WHY UNESCO WANTS TO MAP 80% OF THE WORLD'S SEABED
- ❖ THE THRILLER OF MALDIVES' DYING MANGROVES AND INDIA'S FUNCTION WITHIN THE QUEST TO SAVE LOTS OF THEM
- ❖ RENEWABLE ENERGY TO REPLACE DIESEL IN AGRICULTURE BY 2024, SAYS GOVT
- ❖ 'CLIMATE SMART' AGRICULTURE
- ❖ JUST TRANSITION DECLARATION - CAN IT BE THE WAY TOWARDS ACHIEVING UNIVERSAL ACCESS TO CLEAN COOKING FUELS AND TECHNOLOGIES?

- ❖ IN A DECADE, WETLAND AREA IN DELHI INCREASED BY 9.3%
- ❖ A STOCKTAKING OF BRICS PERFORMANCE IN CLIMATE ACTION
- ❖ THOUSANDS OF CRIMSON ROSE BUTTERFLIES FLY ACROSS OCEAN FROM INDIA TOWARDS SRI LANKA
- ❖ SCIENTISTS RAISE ALARM OVER 'DANGEROUSLY FAST' GROWTH IN ATMOSPHERIC METHANE
- ❖ NUCLEAR POWER MAY BE THE KEY TO LEAST-COST, ZERO-EMISSION ELECTRICITY SYSTEMS
- ❖ WASTEWATER, SEASONS, TIDES: HOW GANGA WATER QUALITY IN BENGAL CHANGES EVERY YEAR
- ❖ INDIAN RESEARCHER TRACES TECTONIC EVOLUTION, NATURE OF GREATER MALDIVE RIDGE
- ❖ SIGNIFICANCE OF THE BIOLOGICAL DIVERSITY AMENDMENT BILL
- ❖ A KARNATAKA ACTIVIST IS PUSHING FOR DESIGNATED FOREST DESIGNATION FOR THE WESTERN GHATS
- ❖ PM INAUGURATES MUNICIPAL SOLID WASTE BASED GOBAR-DHAN PLANT IN INDORE
- ❖ WILDFIRES WILL BE MORE FREQUENT, LARGER AND INTENSE DUE TO CLIMATE CHANGE: UNEP
- ❖ GREEN FINANCING CRITICAL TO DECARBONIZING THE INDIAN TRANSPORT SECTOR
- ❖ INVASIVE ALIEN SPECIES THREATEN AGRICULTURE AND BIODIVERSITY IN AFRICA
- ❖ IS INDIA 's DRAFT RESOLUTION TO TACKLE PLASTIC POLLUTION PRACTICAL
- ❖ ACCELERATING MELT RATE MAKES GREENLAND ICE SHEET WORLD'S LARGEST 'DAM'
- ❖ BETTER LATE THAN NEVER: EXPERTS ON TAMIL NADU'S DECISION TO GO AHEAD WITH DUGONG RESERVE IN PALK BAY
- ❖ CLIMATE CHANGE MAY REDUCE CARBON DIOXIDE UPTAKE BY FORESTS

SPORTS

- ❖ BEIJING 2022: CAN CHINA DELIVER CLEAN WINTER OLYMPIC GAMES
- ❖ BEIJING OLYMPICS: WHAT ARE SLALOM AND GIANT SLALOM, EVENTS IN WHICH INDIA'S ARIF KHAN WILL COMPETE?



ETHNOCENTRISM - VARIED DIMENSIONS

The tendency to view one's own group as ideal and all other groups with reference to this ideal could lead to prejudice, dislike, dominance, conflict, instability of democratic institutions, and even war

Ethnocentrism broadly refers to ethnic self-centredness and self-importance. This attitude could lead an individual to believe that their own culture or way of life is the correct way of living. It could also result in hostility towards other cultures. Ethnocentrism is therefore the tendency to view one's own group, the 'in-group', as the archetype and all the other groups, the 'out-groups', with reference to this ideal. The in-group's boundaries are defined by one or more observable characteristics such as language, accent, physical features or religion, indicating common descent. While initially used in anthropology, the term is now used widely in sociology, psychology, political science, economics and markets, among other disciplines.

Changing definitions

Scientific interest in the term ethnocentrism started in the late 19th and early 20th century. Charles Darwin argued that competition with other groups makes people more cooperative with members of their own group, which further influences group prosperity (Boris Bizumic, 2012). Herbert Spencer argued that societies in general are characterised by internal amity (towards members of one's group) and external enmity (towards everyone else).

Neither of them used the term ethnocentrism, however. Developing their ideas, it was the anthropologist William Sumner who is first said to have coined the term in 1906 in his book *folkways* and also used the concepts 'in-group' and 'out-group'. However, it was the geologist and anthropologist William John McGee who is said to have first used the term in print. For McGee, ethnocentrism was a particular way of thinking similar to egocentrism, but characteristic of ethnic groups.

Robert A. Levine, an anthropologist, and Donald T. Campbell, a social psychologist, argued that ethnocentrism is a set of 23 characteristics, nine of which are positive attitudes towards a perceived in-group (such as perceptions about virtue and morals) and 14 of which are negative attitudes towards a perceived out-group (such as distrust, suspicion and blame). Early anthropologists argued that this feeling of superiority about the in-group curtailed an individual's ability to understand the practices and values of other groups and to trust them. This feeling, they said, could lead to prejudice, dislike, dominance, ethnic conflict, instability of democratic institutions, and even war.

Ethnocentrism can also affect consumer choices and voting. However, later theorists argued that ethnocentrism might simply be preference for in-groups over out-groups. They said that the segregation of in-groups and out-groups should not necessarily be attributed to bias. In other words, they argued that you can be indifferent towards perceived out-groups or even like them, but less than you like your perceived in-group. Or you may dislike an out-group, but that attitude might not necessarily translate into some sort of discriminatory behaviour in a given situation. The ways of defining ethnocentrism thus keep changing and there is no definite consensus on the meaning of the term even today.

There are many examples of ethnocentric behaviour. Let's try to understand this rather fluid concept with a simple example that many of us may be familiar with. Let's assume that Ravi in India prefers to eat food with his hands. Ravi invites his American friend, Robert, to attend his sister's wedding in India. When Robert arrives at the wedding, he is horrified to see everyone eating with their hands instead of using cutlery, as they do mostly in the U.S. Robert makes a rude remark about this unfamiliar practice and Ravi is hurt and angry. Robert's attitude may be conscious

or unconscious but his inability to accept this way of eating food as another culture's practice and his tendency to view it as primitive while seeing his own culture as superior or advanced is ethnocentric.

Ethnocentrism is also quite similar to nationalism. All the expressions of ethnocentrism, such as feelings of superiority and even hostility towards out-groups, could be easily attributed to nationalism, but while ethnocentrism is at the level of an ethnic group, nationalism is at the level of a national group. Nevertheless, it is also important to note that nationalism also assumes certain factors that are not necessary for ethnocentrism. National groups are defined by the belongingness to a group that inhabits a national state or aspires to form a national state whereas ethnic groups do not require national states to be called ethnic groups, and they may lack a shared public culture or even territory (Smith, 2001). Ethnocentric feelings and attitudes such as preference for a familiar culture and group superiority have been exploited by nationalism.

A study from India

We can also understand ethnocentrism with a study from India. In a paper published in 1974 in the Journal of Cross-Cultural Psychology, Donald M. Taylor and Vaishna Jaggi tried to understand ethnocentrism and causal relations in the south Indian context. Thirty Hindus were asked to attribute the behaviour of their in-group (Hindus) and out-group (in this case, Muslims) performing socially desirable or undesirable acts to internal or external causes.

The subjects in the study were presented with a series of one paragraph-descriptions of an actor behaving in a social context. They were asked to imagine that they were in that situation and the actor was directing the behaviour at them. Each situation depicted one of four situations involving a Hindu or Muslim behaving towards them in a desirable or undesirable way. The situations included a shopkeeper being generous to the subject or cheating the subject and a teacher praising or scolding the subject.

For each paragraph, the subject was provided with four or five possible reasons for the behaviour. One of these reflected internal attributions (Hindu shopkeepers are generous or Hindus are rude) and the remaining reflected external attributions (the actor was compelled by social rules to behave as he did or there was a misunderstanding between the actor and the perceiver).

The study found that Hindus were more favourable to their in-group. They were more likely to make internal attributions for socially desirable behaviour performed by Hindus than for socially undesirable behaviour. Thus, they said Hindu shopkeepers are generous or Hindu teachers praise students. Conversely, undesirable behaviour performed by the same were not seen as reflections of internal behaviour but caused by external factors.

The subjects reversed their internal attributions for Muslim actors. Thus, they made internal attributions for socially undesirable behaviour (cheating was seen to reflect the internal characteristic of the actor) and external attributions for socially desirable behaviour. The study showed how ethnocentrism is evidenced not only in the form of generalised attitudes but also in the form of attributions for specific behaviour.



POLICY NORMALISATION: RBI MAY UP REVERSE REPO RATE BY 25 BPS

- The Reserve Bank of India (RBI) is expected to start on a gradual normalisation of the reverse repo rate, hiking it by about 25 basis points in the upcoming Monetary Policy Review.

Repo Rate and Reverse Repo Rate?

- The **repo rate** or **repurchase rate** or the **policy rate** is the rate at which **RBI lends money to the banks**, when banks face shortage of funds.
- These are short term, usually **overnight borrowings**.
- This is done using government securities. RBI buys government bonds from banks and agrees to sell them bank to banks at a fixed rate.
- Whereas, the **reverse repo rate**, is the rate at which **RBI borrows funds from other banks for the short term**.
- Here, RBI sells government bonds to banks with a promise to buy back the bonds from the banks in future.
- **When banks have excess funds with them, reverse repo allows banks to deposit these funds with RBI and earn interest on them at the same time.**

- The Reverse Repo Rate is decided by the Monetary Policy Committee (MPC), headed by the RBI Governor. The decision is taken in the bi-monthly meeting of the Committee.

Impact of increasing reverse repo rate?

- An increase in the reverse repo rate provides an **incentive to the banks** to park their surplus funds with the central banks on a short-term basis, thereby **reducing liquidity in the banking system** and overall economy.
- It can lead to **lower interest rate on loans for the bank's customers**, the decision will depend on multiple factors including the bank's internal liquidity situation and the availability of other potentially less risky and equally lucrative investment opportunities.
- **Bank will give more loan to RBI to gain profit.** It causes home-loans to become dearer.
- **Liquidity will be squeezed out** from the market hence inflation will likely to come down.

Impact of decreasing reverse repo rate?

- During the reduction of reverse repo rate **banks earn less on their excess money** deposited

with RBI. This leads the banks to invest more money in more lucrative avenues such as money markets, which increases the overall liquidity available in the economy.

Home loan become more expensive.

- RBI cuts the rate to inject liquidity into the economy.

Additional information:

Monetary Policy Committee:

- Monetary policy refers to the policy of the central bank with regard to the use of monetary instruments under its control to achieve the goals specified in the RBI Act 1934.

- The primary objective of monetary policy is to **maintain price stability** while keeping in mind the objective of growth. Price stability is a necessary precondition to sustainable growth.

Governor of RBI is the ex-officio chairman of committee.

- The committee comprises **six members** (including the chairman)-
 - Three officials of RBI
 - Three external members nominated by Government of India.
- It determines the policy interest rate (repo rate) required to **achieve the inflation targets of 4%**.

TAX HAVENS COULD COME IN THE WAY OF CROSS-BORDER INSOLVENCY LAWS

- Recently, two Indian companies owning foreign assets Videocon Oil and Nirav Modi's Firestar International have been undergoing insolvency proceedings.
- The legal, insolvency and banking experts have said that **Tax havens could come in the way of cross-border insolvency laws.**

What is the issue?

- Videocon India had set up **special purpose vehicles (SPVs) in the tax havens** and owns shares in those SPVs.
- The SPVs in turn **hold shares in the companies** that own those assets in Brazil and Indonesia.
- This complex web makes it **difficult to pinpoint the exact place of business of the company** and creates legal challenges.
- The Firestar International have **international assets held through overseas firms** located in places such as Delaware, a tax haven in the United States.

Tax Heaven:

- A **tax haven is an offshore country** that allows wealthy individuals and business owners to bank with the country's local institutions in

order to avoid paying home country taxes on gains or profits.

- These tax haven countries **offer the benefit of little to no tax liability**, and company owners or consumers with considerable wealth do not usually need to be citizens to take advantage of this kind of tax loophole.
- As a result of this tax haven structure, business owners and wealthy consumers **pay little or even no taxes on their profits or personal finances.**
- In other words, tax havens offer a way for companies and affluent individuals to **avoid higher corporate tax rates or income tax** in their home countries.

How Tax Heaven is not good for economic growth?

- The tax haven is being used to shift profits, and therefore enables businesses to **avoid having to pay considerable amounts in income tax and corporate tax rates** on their profits and personal wealth.
- Using corporate tax havens creates an **imbalance of tax liability, with smaller companies** and middle-class consumers having to make up the share of the burden from enterprises that use tax havens.

- When multinationals use corporate tax havens to **escape paying their contributions to these public goods and services**, they are free-riding off the taxes paid by other people.

Shell company:

- A shell company is a **legal entity** created in a tax haven.

- Shell companies **typically exist only on paper**, with no full-time employees, and no office.
- Shell companies can **hold money, luxury homes, intellectual property, businesses** and other assets.

CENTRAL THEME OF ECONOMIC SURVEY 2021-22 IS THE “AGILE APPROACH”

The **Economic Survey 2021-22** has called for embracing this framework for policy making under conditions of extreme uncertainty. It is based on feed-back loops, real time monitoring of actual outcomes, flexible responses, safety net buffers and so on. It was behind India's informed response to the Covid-19 shock.

Agile Framework?

- It is a framework for project and policy implementation that is considered highly efficient for getting work done. It was developed in 2001 and is based on 12 principles which include customer satisfaction, collaboration, adapting to change, feedback loops, breaking project silos, etc.

Waterfall approach used by India?

- This involves analysis of the issue, detailed planning and meticulous implementation. India's earlier five-year plans were based on this.
- **Waterfall Framework is linear** and is developed systematically from phase to phase.
- It is said that this approach works best for projects with concrete timelines, well-defined deliverables and little uncertainties.
- The Waterfall methodology is a **sequential development process** that flows like a waterfall

through all phases of a project (analysis, design, development, and testing, for example), with each phase completely wrapping up before the next phase begins.

India went for Agile Framework?

- Real time availability of data allows **constant monitoring of a policy at a time** when there are lot of uncertainties. This helps governments to adopt the Agile Framework.
- Short term policy responses can be tailored to an evolving situation rather than what a model may have predicted.
- Projects implemented through Agile Framework are **four times cheaper than a similar project** implemented through Waterfall Strategy.
- Dynamically changing environment makes requirement to change in the software development process an inevitable task.

Road Ahead:

Each framework has its own unique set of strengths and weaknesses. It is necessary to evolve oneself with changing perspectives and arenas of economy to cope with it. New approaches should always be experimented for good, innovative and efficient governance.

DIGITAL RUPEE ANNOUNCED BY F M NIRMALA SITHARAMAN IS IN THE NEWS?

Recently, the finance minister has announced that India will have its own digital currency soon which will use the blockchain technology.

Central Bank Digital Currency?

- According to the Reserve Bank of India, a central bank digital currency (CBDC) is the legal tender issued by a central bank in a digital form.
- It is the same as fiat currency and is exchangeable one-to-one with the fiat currency.

Why India needs a digital currency?

- Central banks dwindling with usage of paper currency, seek to popularise a more acceptable electronic form of currency (like Sweden).
- Jurisdictions with significant physical cash usage seeking to make issuance more efficient (like Denmark, Germany, Japan, USA etc.)
- Central banks seek to meet the public's need for digital currencies, manifested in the increasing use of private virtual currencies.
- To avoid damaging socio-economic consequences of private currencies as they are not controlled by any central authority.

Significances of digital currency to India?

- It will reduce the dependency on cash.

- It will provide high seigniorage due to lower transaction costs.
- It will reduce settlement risks.
- It will be more robust, efficient, trusted, regulated and legal tender-based payments option.
- It will reduce huge capital expenditure for government of printing currencies.

Road Head:

Rupee Digital Currency is likely to play a catalyst in creating a future of value transfer platform that will contribute to a more resilient, innovative and competitive payment system for households, businesses and the economy at large.

MSME MINISTRY STUDY CONFIRMS LOCKDOWN BATTERED SMALL BUSINESSES IN INDIA

For years now, a small section of economists, have contended that the Micro, Small and Medium Enterprises ecosystem in India has faced widespread devastation.

MSMEs

- The **Micro; Small and Medium Enterprises Development (MSMED) Act was notified in 2006** provides the first-ever legal framework for **recognition of the concept of "enterprise"** which comprises both manufacturing and service entities.
- It defines medium enterprises for the first time and seeks to integrate the three tiers of these enterprises, namely, **micro, small and medium.**
- The **primary responsibility of promotion and development of MSMEs** is of the **State Governments.** However, the Government of India, supplements the efforts of the State Governments through various initiatives.
- The role of the M/o MSME and its organizations is to assist the States in their efforts to **encourage entrepreneurship, employment and livelihood opportunities and enhance the competitiveness** of MSMEs in the changed economic scenario.
- On 9 May 2007, subsequent to an amendment of the **Government of India (Allocation of Business) Rules, 1961, erstwhile Ministry of Small-Scale Industries and the Ministry of Agro and Rural Industries were merged to form the Ministry of Micro, Small and Medium Enterprises (M/o MSME).**
- This Ministry now designs policies and promotes/ facilitates programmes, projects and schemes and monitors their implementation with a view to assisting MSMEs and help them to scale up.

Pre-Covid challenges with MSMEs

- **Demonetisation** sucked out the liquidity out of the economy and put millions of small and vulnerable MSMEs out of business.
- The architectural framework of the **GST** is tilted in favour of the formal sector and the informal or the unorganised sector was decimated as there was no hand-holding or business relief from the government.
- The regulatory loopholes that cause a **delay in getting licenses, insurance, and certifications** also hamper the prospects of MSMEs and **lack of financial expertise.**

- **Technology remains a major deterrent.** Most businesses fail to reap the benefits of the latest technological developments in their sector due to a **lack of expertise and awareness**.
- **Banks refrain from extending MSME loan** since the amount remains small and also, banks believe **MSMEs lack the required repayment capacity**.
- **Ease of doing remains a bottleneck.** Most start-ups in India face the problem in the initial stages because of too many regulations and approvals.

Post-Covid challenges with MSMEs

- **Halt on sales and earnings.**
 - Around 66% of the respondents reported a decline in profitability on account of stable fixed costs and a decline in revenue.
- Most SMEs face frequent **labour issues** during Covid-19, due to migrant crisis.
- In India, 89 percent of MSME owners reported a **decrease in profits**.
- MSMEs are also **depleting their savings** and **leaning heavily on debt to survive**.
- MSMEs might test a digital platform to sell their product, but do not continue doing so, perhaps due to **lack of digital literacy** or challenges with onboarding.

Steps to ensure financial resilience for MSMEs

- **Digitalization** can help MSMEs to build resilience and scale their businesses through the access and **use of digital financial and communication tools**.
- MSMEs need ongoing support from government assistance programs, such as **job retention schemes, debt moratoria, and loan guarantees and skills development**.
- **Emergency cash transfer payments to low-income households** to help them make ends meet during the crisis.
- MSMEs need access to a wide range of financial services, especially **insurance and innovative social protection measures**, to increase resilience to shocks.
- RBI took some initiatives like decrease the repo rate; as a result, the **bank can lend at a cheaper rate**, giving some help to the MSMEs sector.
 - In Mumbai, the State Bank of India has targeted to allocate Rs. 700 crore to MSME

Road Ahead:

- MSMEs are engines of growth and employment. They make up about 90 percent of formal and informal firms globally, and on average, account for about 70 percent of employment and about 50 percent of GDP. Their performance is crucial to the financial health of MSME owners, employees, and communities, particularly for low-income populations.
- Investing in MSMEs and supporting their digitalization efforts will help these businesses navigate the challenges of the COVID-19 pandemic and help them prepare for future shocks and crises.

STEP UP AGRI-SPENDING, BOOST FARM INCOMES

While the overall budgetary allocation towards the **agricultural sector has marginally increased by 4.4%** in the Union Budget 2022-23, the rate of increase is lower than the current inflation rate of 5.5%-6%.

- The Food and Agriculture Organization (FAO) of the United Nations (UN) report for 2001 to 2019 shows that, globally, India is among the top 10

countries in terms of government spending in agriculture, constituting a share of around **7.3% of its total government expenditure**.

- However, India lags behind several low-income countries such as Malawi (18%), Mali (12.4%), Bhutan (12%), Nepal (8%), as well as upper

middle-income countries such as Guyana (10.3%) and China (9.6%).

India is ranked low

- The picture changes and rather looks disappointing when we look at the Agriculture Orientation Index (AOI) – an index which was developed as part of the Goal 2 (Zero Hunger) of the 2030 Agenda for Sustainable Development in 2015.
- The Sustainable Development Goal (SDG) 2 emphasizes an increase in investment in rural infrastructure, agricultural research and extension services, development of technology to enhance agricultural productivity and eradication of poverty in middle- and lower-income countries.
- The AOI is calculated by dividing the agriculture share of government expenditure by the agriculture value added share of GDP.
- In other words, it measures the ratio between government spending towards the agricultural sector and the sector's contribution to GDP.

- India's index is one of the lowest, reflecting that the spending towards the agricultural sector is not commensurate with the sector's contribution towards GDP.

Measures to implement

- The intensification in government spending towards the agricultural sector is the key to attain the sustainable development goals of higher agricultural growth and farm income.
- The focus on development of irrigation facilities, urban infrastructure and development of national highways must be complemented.
- There should be an emphasis on the development of rural infrastructure and rural transportation facilities, along with an increase in the number of markets, as suggested by the National Commission on Farmers.
- These measures will play a crucial role in enhancing farmers' access to markets and integrating small and marginal farmers into the agricultural supply chain to a greater extent.

IT'S TIME TO TAKE A RELOOK AT PRIVATIZATION

India's fiscal deficit (for the Centre) in FY22 is expected to be **6.8% of the GDP**, or in **layman's terms about 15.06 lakh crore**.

- There is consensus that **privatisation is the panacea**. Policymakers often cite the private sector's ability to grow faster. This may not always be true.
- The studies indicate that the gap in growth (and service) between public sector undertakings (PSUs) with autonomy and private firms is not significant.
- The **Disinvestment Commission**, under the Ministry of Industries, was set up in 1996 to provide inputs on which **firms to privatise in over a five-10-year period**.
- Beyond the institutional set-up, privatisation as a policy has also singularly failed to raise significant funds – actual receipts from

disinvestment have always fallen significantly short of targets.

- There is also the challenge of valuation, for example, about 65% of about 300 national highway projects have been recording significant toll collection growth; any valuations of such assets will need to ensure they capture potential growth in toll revenue, as NHAI's highway expansion bears fruit and the economy recovers.
- PSUs have been significant generators of employment in the past, with multiplier effects – there were about 348 CPSUs in existence in 2018, with a total investment of 16.4 trillion and about 10.3 lakh employees in Central Public Sector Enterprises (in 2019).
- In India, about **70% of all profits generated in the corporate sector in FY20 were with just 20 firms** (in comparison, the situation in FY93 was about 15%).

- The time has come to take a **relook at privatisation**. Simply pursuing this path, while utilising such proceeds for loan write-offs or populist giveaways in the election cycle will not

do. A hunt for immediate revenue should not overshadow the long-term interest of the ordinary Indian.

TAX ON DIGITAL ASSETS COULD GO UP, GOVT MULLING GST ON CRYPTO MINING, SUPPLY

The government is **examining the applicability of goods and services tax (GST)** on various **cryptocurrency transactions** including mining of these digital assets.

- The issue is being examined internally at the Central Board of Indirect Taxes and Customs

(CBIC) and a proposal will be taken to the GST Council, CBIC chairman Vivek Johri said.

- There are several aspects of the operation which intersect with GST as a tax.
- The budget has proposed a flat 30% capital gains tax on virtual digital currencies beginning.

RBI MONETARY POLICY HIGHLIGHTS: REPO RATE UNCHANGED AGAIN, SHAKTIKANTA DAS-LED MPC PUTS GROWTH ON PRIORITY

Recently, the six-member Monetary Policy Committee (MPC) of the Reserve Bank of India (RBI) has kept key policy rates – Repo rate, Reverse repo rate and the Bank rate – unchanged for the 10th time in a row, and retained the accommodative policy stance.

Highlights:

No change in Repo rate

- The central bank has retained the repo rate – the rate at which the RBI lends funds to banks – at 4 per cent to boost growth.
- This means banks won't hike lending and deposit rates and EMIs on loans will remain unchanged.
- The RBI has reduced key policy repo rate by 115 bps to 4.0 per cent and reverse repo rates by 155 bps to 3.35 per cent since February 2020.
- Banks had since then reduced their interest rates (both deposits and lending) significantly.
- The large size of the FY23 market borrowings, and with no progress on the inclusion of Indian debt market in the global bond indices, might have prompted the RBI to delay the liquidity normalisation in an effort to keep the cost of large borrowings programme under control, said an analyst.
- It also retained the marginal standing facility (MSF) rate, and kept the Bank Rate unchanged at 4.25 per cent.

Reverse repo rate unchanged

- Contrary to expectations of a hike, the RBI has retained the reverse repo rate – the rate at which the RBI borrows money from banks – at 3.35 per cent.
- Bond yields had spiked after the government announced higher market borrowing of Rs 14.95 lakh crore in the next fiscal.

Accommodative policy stance to continue

- The policy panel decided to continue with the accommodative stance “as long as necessary to revive and sustain growth on a durable basis and continue to mitigate the impact of Covid-19 on the economy, while ensuring that inflation remains within the target going forward”.
- While the current stance of ‘accommodative policy for as long as necessary to revive growth’ was up for a review, analysts said the RBI is likely to wait for some more time as the economic recovery is uneven and the Omicron variant has dented the sentiment.

Inflation to moderate

- The RBI has projected a 5.3 per cent consumer price (retail) inflation for the current financial year 2021-22 (FY22) despite rising crude oil prices.

- Retail inflation for the next fiscal (FY23) is projected at 4.5 per cent, below the earlier projections.
- The MPC noted that inflation is likely to moderate in the first half of 2022-23 and move closer to the target rate, thereafter providing room to remain accommodative.
- Food inflation is also expected to increase further due to supply bottlenecks and adverse weather conditions on the back of the waning base effect.
- Oil prices are already above \$90 per barrel and threatening to go higher.

Monetary Policy Committee:

- MPC is a government-constituted body of the RBI, which is **responsible for framing the monetary policy of the country**, using the tools like **repo rate, reverse repo rate, bank rates etc.**
- The MPC has six members, **three nominated by the government** and three members of RBI. The **RBI Governor is the ex-officio chairperson** of the committee.
- MPC usually meets **six times a year** and has and each member has a tenure of four years.
- MPC decisions are taken by voting, where a **simple majority** (4 out of 6) is necessary for a decision to be passed.

- **RBI Act, 1934** empowers the RBI to take **Monetary Policy Decisions.**

Why Is MPC Important?

- The rates fixed by the MPC determine the **interest rates on deposit accounts** as well as loans in the country.
- The higher interest rates are generally mean that the RBI wants people to spend less, this is done to control rising inflation.
- In case of falling inflation, the interest rates are decreased by the RBI to let people spend more money. This stance is being followed by RBI, and other central banks across the globe, since the inception of the Covid-19 pandemic.
- Now, after Budget 2022, MPC is meeting for the first time and it is important to see what stance does the RBI take now.
- The interest rates also have a bearing on the Indian share markets. During periods of higher interest rates, investors like to keep their money in the banks because it offers security and assured return.
- According to various media reports, experts, including RBI Governor, have been reiterating that Indian share markets are experiencing a big bubble. If the bank rates are revised upwards, it will increase the chances of the bubble bursting.

GOVERNMENT OPEN TO 'SOME TINKERING' IN CAPITAL GAINS TAX REGIME, SAYS REVENUE SECRETARY TARUN BAJAJ

In an almost **10-fold increase in tax collections from stock markets**, the government is expecting to collect Rs 60,000-80,000 crore this financial year as a **tax on capital gains** in the stock markets as against Rs 6,000-8,000 crore in the previous fiscal.

- The government is estimating a "good amount" from the tax levy on capital gains despite a low tax rate for long-term and short-term.
- The government is open to 'some tinkering' in the varied rates and holding period for computation of capital gains tax on shares, debt and immovable property.

Rise in collections from capital gains tax levy

- At an estimate of Rs 80,000 crore of taxes from capital gains, it implies almost 6.4 per cent of the total direct tax collections of Rs 12.5 lakh crore were estimated in the revised stats for 2021-22.

Capital gains tax

- Under the Income Tax Act, **gains from the sale of capital assets**, both movable and immovable, are subject to '**capital gains tax**'.
- **Movable personal assets** such as cars, apparel, furniture is **excluded** from this tax.
- In the Budget for 2018-19, the government had introduced a tax for long term capital gains exceeding Rs 1 lakh at the rate of 10 per cent

without allowing the benefit of any indexation but grandfathered gains till January 31, 2018.

- Equity shares or units of equity-oriented mutual funds held for more than 12 months are considered long-term, while house property held for 24 months is considered a long-term capital asset.
- Short-term capital gains are chargeable to tax at normal slab rates applicable to the taxpayer, except where such gain is arising from the sale of equity shares in a company or units of equity-oriented mutual fund or unit of a business trust (where STT has been paid), which attracts a tax of 15 per cent, while long-term capital gains in excess of Rs 1 lakh for equity is taxed at 10 per cent.
- The Budget for 2022-23 has introduced a capping of surcharge at 15 per cent for long-term capital gains on all types of assets irrespective of the capital gain.

- At present, the surcharge is capped at 15 per cent only for long-term capital gains on listed equity shares or a unit of an equity-oriented mutual fund or a unit of a business trust and other long-term capital gains are subject to a graded surcharge which goes up to 37 per cent.

What is Surcharge?

- The **surcharge is a fee added to any tax** that has already been paid. The surcharge is a term that refers to an **extra fee or levy**.
- Personal income tax (on high-income slabs and the ultra-wealthy) and corporate income tax are the two largest surcharges.
- Surcharge revenue also goes to the Consolidated Fund of India (CFI), where it can be used for any reason, just like regular tax revenue.
- A surcharge is a tax on tax that is not levied for any particular reason, and the proceeds of surcharges are used by the Union government for whatever purpose it sees fit.

WHAT IS A RATINGS AGENCY AND WHY DO THEY MATTER?

Recently, Finance Secretary T.V. Somanathan has accused ratings agencies of “**double standards**” when assessing emerging markets and developing economies.

What did the rating agencies say?

- **Fitch, a rating agency**, had stated that **higher deficits and continued lack of clarity on medium-term consolidation plans** in the recent Union Budget was its **rationale for projecting of a downward trajectory in the country's debt/GDP**.
- The report concluded saying, “**The government has little fiscal headroom at its current level to respond to possible shocks to growth.**”
- Another agency, Moody's, said the Union Budget was growth-oriented, credit positive for many issuers but the budgetary provisions posed fiscal challenges.
- Focus on capital expenditure, it said, supported near-term growth but challenged long-term fiscal consolidation.
- Additionally, the budget projected only a slight narrowing in the central government deficit.

Rating agency?

- Ratings agencies **assess the credit worthiness or potential of an equity, debt or country**.
- Their reports are read by investors to make an informed decision on whether or not to invest in a particular country or companies in that geography.
- They assess if a country, equity or debt is financially stable and whether it at a low/high default risk. In simpler terms, these reports help investors gauge if they would get a return on their investment.
- The agencies periodically **re-evaluate a previously assigned ratings after new developments** (example, Coronavirus pandemic or a geography-specific climate change), geopolitical events or a significant economic announcement by the concerned entity.
- Their reports are sold and published in financial and daily newspapers.

What grading pattern do they follow?

- The three prominent ratings agencies, viz., **Standard & Poor's, Moody's and Fitch** subscribe to largely similar grading patterns.
- **Standard & Poor's** accord their highest grade, that is, **AAA**, to countries, equity or debt with the exceedingly high capacity to meet their financial commitments.
- Its **lowest grade is 'D'**, accorded to entities with high probability of payment default or breach of an imputed promise.
- This is particularly accorded in case the concerned entity has filed for bankruptcy.
- Its grading slab includes letters A, B and C with an addition a single or double letter denoting a higher grade.

- Moody's separates ratings into short and long-term definitions.
- The former involves obligations maturing in thirteen months or less whereas the latter involves obligations maturing in eleven months or more.
- Its longer-term grading ranges from Aaa to C, with Aaa being the highest. The succession pattern is similar to S&P.
- The short-term ratings scale ranges from P-1 to NP, with P-1 being the highest.
- Fitch, too, rates from AAA to D, with D being the lowest. It follows the same succession scheme as Moody's and Fitch.

MIGRATION OF FOREIGN COMPANIES TO INDIA

Measures taken by the Government including on FDI Policy reforms have resulted in increased FDI inflows in the country year after year. India registered its highest ever annual FDI inflow of US\$ 81.97 billion (provisional figures) in the financial year 2020-21 despite the COVID related disruptions.

- These trends in India's FDI are an endorsement of its status as a preferred investment destination amongst global investors. In the last seven financial years (2014-21), India has received FDI inflow worth US\$ 440.27 billion which is nearly 58 percent of the FDI reported in the last 21 years (US\$ 763.83 billion). This indicates increasing inclination of global companies to set up their business in India.

Why migration of Foreign Companies to India?

- India's economic growth has been exceptional in recent years.
- Buoyed by a **robust democracy, key structural reforms, private consumption, and a rise in government investment**, India has achieved a **high macroeconomic stability ranking in the World Economic Forum's (WEF) Global Competitiveness Index**.
- In a bid to attract foreign investment, the Indian government has **eased foreign direct**

investment (FDI) restrictions, such as raising foreign equity caps for insurance and defense, leading to significant progress in terms of **improving its overall business environment**.

- New business reforms have also earned India a place among the **world's top ten improvers for the third consecutive year** according to the same study.
- India has become a **powerhouse in terms of technology innovation**.
- High-tech companies in sectors such as **telecommunications, information technology, pharmaceuticals, textiles, and engineering** are equal in their sophistication and prominence to international counterparts.
- Indeed, India is now recognized as a major force in global technology innovation alongside the United States and China.
- India has a **large and healthy middle class**, making it an **attractive consumer market**.
- Indeed, India is the world's largest market for manufactured goods and services, and ranks number 3 out of 141 economies for market size

according to the WEF's Global Competitiveness Index.

Risk faced by Foreign Companies in India for investment

- India still lags behind many larger nations in **critical metrics such as starting a business, enforcing contracts and registering property.**
- There are indications of a **rise in protectionist policies.**
- In fact, India has increased import tariffs to reduce the market for cheap goods from overseas and support small- and medium-sized manufacturers within its own borders.
- The **sheer size and fragmented nature of the Indian market** can also present a challenge for investors and businesses.
- Indian states are often compared to individual nations, given their size and diversity in language, culture, talent and infrastructure. This creates a considerable variance in business landscapes.
- Additionally, regulations, rules, and policies can vary from state to state, as can subjective interpretations of prevailing laws.
- **Massive population growth, growing urbanization, and rising incomes put pressure on the government to improve the country's infrastructure.**
- It's important to understand intellectual property issues within India. **Bureaucratic delays** and a general **lack of transparency** are both areas of concern in terms of protecting sensitive intellectual assets.

Advantages enjoyed by India after immigration

- Job vacancies and skills gaps can be filled.
- Economic growth can be sustained.
- The pension gap can be filled by the contributions of new young workers and they also pay taxes.
- Infrastructural development in the country.
- Technological advancement brought by foreign countries.

Steps taken by Government of India to attract Foreign Companies

- The **Make in India programme** was launched on 25th September, 2014 with aim of facilitating **enhanced investment, foster innovation, build best in class infrastructure, and make India a hub for manufacturing, design, and innovation.**
- Measures have been taken to improve the country's investment climate, as a result of which **India jumped to 63rd place in World Bank's Ease of Doing Business [EODB] ranking as per World Bank's Doing Business Report (DBR) 2020 from a rank of 142 in 2014.**
- **Department for Promotion of Industry and Internal Trade (DPIIT)**, in consultation with the State Governments, has also started a comprehensive reform exercise in States and UTs under **Business Reforms Action Plan (BRAP).**
- An **Empowered Group of Secretaries** has been constituted to fast-track investments in the country.
- Similarly, **Project Development Cells (PDCs)** have been set up across Central Government Ministries/Departments to handhold investors and spur sectoral and economic growth.
- Further, a **GIS-enabled India Industrial Land Bank** has been launched to help investors identify their preferred location for investment.
- **National Single Window System (NSWS)** has also been soft launched in September, 2021 to facilitate clearances for investors.
- Keeping in view India's vision of becoming 'Atmanirbhar' and to **enhance India's manufacturing capabilities and exports**, an outlay of INR 1.97 lakh crore (over US\$ 26 billion) has been announced in Union Budget 2021-22 for **Production Linked Incentives (PLI) schemes for 14 key sectors of manufacturing starting from fiscal year (FY) 2021-22.**

- With the announcement of PLI Schemes, significant creation of production, employment, and economic growth is expected over the next 5 years and more.
- Government has taken various other steps in addition to ongoing schemes **to boost domestic and foreign investments in India**. These include measures to reduce compliance burden for industry, opportunities under:
 - National Infrastructure Pipeline,
 - Reduction in Corporate Tax,
 - Easing liquidity problems of NBFCs and Banks,
 - Policy measures to boost domestic manufacturing through Public Procurement Orders,
 - Phased Manufacturing Programme (PMP), etc.

Road Ahead:

- It is clear that immigration can be beneficial for migrants, but only if their rights are protected properly. It can also be economically beneficial for both countries of origin and host countries; however, with present economic and trading structures it is the rich and powerful countries that benefit most.
- Migration brings social and cultural pressures that need to be taken into account in planning for future services. Migration also has the potential for bringing peoples together culturally but friction occurs if efforts are not made to dispel negative myths held by local people. It is also essential to provide good information about the local way of life to newcomers and ensure opportunities for people to mix and integrate. Where the economic preconditions exist, migration is inevitable.

Additional Information

Foreign Direct Investment vs Foreign Portfolio Investment

Foreign Direct Investment (FDI):

- Foreign investors take the FDI route when they have a long-term interest in mind.
- In FDI, an investor usually acquires foreign business assets, establishing ownership or controlling interest in a company.
- With FDI, foreign companies are directly involved with day-to-day operations in the other country. This means they are not just bringing money with them, but also knowledge, skills and technology.
- According to the rules prescribed by the Indian government, FDI can either come via automatic route or via government route.
- FDI's own controlling stake in a company by investing in its physical assets.
- FDI is a more stable long-term investment.

Foreign Portfolio Investment (FPI):

- Foreign Portfolio Investment or FPI is meant for short-term profit booking.
- Through this route, foreign investors put capital in financial assets, such as stocks and bonds.
- FPI involves the purchase of securities that can be easily bought or sold.
- Such an investment is made with the aim of making short term financial gain and not for obtaining significant control over managerial operations of the enterprise.
- FPIs invest only in financial assets.
- FPI money is usually considered 'hot money'.
- FDI and FPI are both important sources of funding for most economies. However, FDI is preferred by most countries for attracting foreign investment, since it is much more stable than FPI and signals long-lasting commitment.
- FPIs, on the other hand, have a higher degree of volatility because of its tendency to flee at the first signs of trouble in an economy. These massive portfolio flows can exacerbate economic problems during periods of uncertainty.

BUDGET 2022: GOVT RAISES FARM CREDIT TARGET TO RS 18 LAKH CR FOR FY23

The government has increased the **agricultural credit target to Rs 18 lakh crore** for 2022-23 from Rs 16.5 lakh

crore for the current fiscal, with an **allocated subsidy of Rs 20,870 crore**.

- The budget speech as well as the **Economic Survey 2021-22** recommended that priority should be given to **crop diversification and allied sectors including horticulture, organic farming, dairying and fishing** to increase farmers income.
- While the volume of credit has grown over the decades, its quality and impact on agriculture has deteriorated.
- Over the years, the growth rate in the agriculture sector has been falling: It was 6.8 per cent in 2016-17, whereas it is 3.9 per cent in 2021-22.
- Agricultural credit has become less efficient in delivering growth.
- In the last 10 years, agriculture credit increased by 350 per cent, but it has not reached even 15 per cent of the 12.56 crore small and marginal farmers.
- Institutional credit will help delink farmers from non-institutional sources, where they are compelled to borrow at usurious rates of interest.
- The RBI has asked if agricultural households with the lowest landholding (up to two hectares) get only about 15 per cent of the subsidised loan from institutional sources.
- The share is 79 per cent for households belonging to the highest size class of land possessed (above 2 hectares).
- As per the Situation Assessment Survey of Agricultural Households by NSSO, the share of

institutional loans increases with an increase in land possessed.

- Clearly, the bulk of subsidised Agri-credit is grabbed by a handful of big farmers and agri-business companies.
- A loose definition of Agri-credit has led to the leakage of loans at subsidised rates to large agri-firms.
- The flow of agricultural credit has not been uniformed across states.
- Institutional development across states is a priority area for equitable flow of subsidised credit.
- The state governments should work in close coordination with the banking system for the promotion of more Joint Liability Groups (JLGs) as per NABARD guidelines to ensure that formal credit reaches financially-excluded farmers.
- The state governments should **regularly monitor credit flow**.
- The **rate of interest** for long-term loans should be kept at **4 per cent**.
- A comprehensive list of all farm-related activities should be prepared by the banks in consultation with NABARD, agriculture experts, farmers and administration.
- The eligibility conditions/criteria for providing agriculture loans should be further simplified and liberalised.
- The repayment schedule should be according to the farmers' capacity.

WHY INDIA'S LARGEST INSURER BEING LISTED?

India is embarking on the blockbuster listing of the country's largest insurer as part of a wider privatisation drive to bolster public coffers drained by the coronavirus pandemic and fund new infrastructure.

- The analysts expect the **IPO of the Life Insurance Corporation of India (LIC)** to be India's largest to date, potentially earning the government more than \$10 billion.
- After the listing, which is expected in March, LIC will be one of India's biggest publicly listed

companies alongside giants such as Reliance and TCS.

About LIC?

- LIC was created in 1956 and was synonymous with life insurance in post-independence India until private firms were allowed entry in 2000.
- The company holds a two-thirds share in the domestic life insurance market.

- It **manages assets of 36.7 trillion rupees** (\$491 billion), which equates to nearly **16 per cent of India's gross domestic product**.
- It has more than 100,000 employees and one million insurance agents.
- LIC's real estate assets include big offices at prime locations in various Indian cities, including a 15-storey building in the southern city of Chennai and a distinctively curved head office in the heart of Mumbai's financial district.
- The firm is also believed to own a large collection of rare and valuable artwork that includes paintings by MF Hussain -- known as the **Pablo Picasso** of India.

Why is the IPO taking place?

- **Asia's third-largest economy** was already grappling with a prolonged slowdown even before the start of the coronavirus pandemic. India has recorded its worst recession since independence due to the Covid-19 crisis.
- Efforts to contain the spread of the virus, such as through stringent lockdowns, created a

significant budget deficit and pushed millions into joblessness and poverty.

- The IPO of LIC will give a boost to the government's efforts to raise much-needed cash through privatisations, which are running badly behind schedule.
- The government has raised just 120.3 billion rupees by selling stakes in various state-owned entities this financial year, well short of its target of 780 billion rupees.

Significance of LIC's IPO

- LIC is a household name in India and has a strong grip on the life insurance market in the vast South Asian nation despite the entrance of private players.
- The company is offering its millions of policyholders the opportunity to invest in the IPO at a discount, promoting the offer through television advertisements and full-page newspaper ads.
- Analysts expect retail investors, including many first-timers, to show strong appetite for snaring a stake in the venerable company.

WHOLESALE PRICE INDEX BASED INFLATION MAINTAINS DECLINING TREND

The **annual rate of inflation is 12.96%** (Provisional) for the month of January, 2022 (over January, 2021), which is a **continuous decline** from 14.87% in November, 2021 and 13.56% in December, 2021.

- The high rate of inflation in January, 2022 is primarily due to rise in prices of mineral oils, crude petroleum & natural gas, basic metals, chemicals and chemical products, food articles etc as compared the corresponding month of the previous year.

Wholesale Price Index (WPI)?

- A wholesale price index (WPI) is an index that **measures and tracks the changes in the price of goods in the stages before the retail level**.
- This refers to **goods that are sold in bulk and traded between entities or businesses** (instead of between consumers).

- Usually **expressed as a ratio or percentage**, the WPI shows the included goods' average price change; it is often seen as one indicator of a country's level of inflation.
- A wholesale price index (WPI) **measures and tracks the changes in the price of goods before they reach consumers**: goods that are sold in bulk and traded between entities or businesses (rather than consumers).
- Wholesale price indexes (WPIs) are one **indicator of a country's level of inflation**.

Importance of WPI

- The inflation rate calculated on the basis of the movement of the Wholesale Price Index (WPI) is an important measure to **monitor the dynamic movement of prices**.
- As WPI captures price movements in a most comprehensive way, it is widely **used by**

Government, banks, industry and business circles.

- The movement of WPI serves as an influential determinant, in the **formulation of trade, fiscal and other economic policies by the Government of India.**
- The WPI indices are also **used for the purpose of escalation clauses in the supply of raw materials, machinery and construction work.**
- WPI is **used as a deflator of various nominal macroeconomic variables, including Gross Domestic Product (GDP).**

Other measures of tracking inflation

Consumer Price Index

- The Consumer Price Index (CPI) is a measure that examines the weighted average of **prices of a basket of consumer goods and services, such as transportation, food, and medical care.**
- It is calculated by taking price changes for each item in the predetermined basket of goods and averaging them. **Changes in the CPI are used**

to assess price changes associated with the cost of living.

- The CPI is one of the most frequently used statistics for identifying periods of inflation or deflation.

Difference between WPI and CPI

- WPI measures the average change in prices of goods at the wholesale level while CPI calculates the average change in prices of goods and services at the retail level.
- WPI data is published by the **Office of Economic Adviser, Ministry of Commerce and Industry**, while CPI data is published by the **National Statistical Office (NSO), Ministry of Statistics and Programme Implementation (MoSPI).**
- The base year for WPI is **2011-12** while the base year for CPI is **2012.**
- **WPI takes into account the change in price of goods only, while CPI takes into account the change in process of both goods and services.**

CENTRE CUTS AGRI-CESS ON CRUDE PALM OIL

Recently, the government has reduced the Agri-cess on crude palm oil (CPO) from 7.5 per cent to 5 per cent.

- The Union Minister of Commerce & Industry has said that this will benefit the domestic edible oil refiners and also check prices of cooking oils.
- After **reduction of the agri-cess**, the import tax gap between CPO and Refined Palm Oil has increased to 8.25%.
- The increase in the gap between the CPO and Refined Palm Oil will benefit the domestic refining industry to import crude oil for refining.
- The rate of import duty on Refined Palm Oils at 12.5%, Refined Soyabean oil and Refined Sunflower Oil at 17.5% will remain in force up to 30th September, 2022.
- This measure will help in cooling down the prices of edible oils which are witnessing an upward trend in the international market due to lower availability and other international factors.

What is a Cess?

- A cess is a form of tax levied by the government on tax with specific purposes till the time the government gets enough money for that purpose.
- Different from the usual taxes and duties like excise and personal income tax, a cess is imposed as an additional tax besides the existing tax (tax on tax).
- For example, the Swachh Bharat cess is levied by the government for cleanliness activities that it is undertaking across India.
- A cess, generally paid by everyday public, is added to their basic tax liability paid as part of total tax paid.
- A cess is different from taxes as it is imposed as an additional tax besides the existing tax (tax on tax).

Agriculture Infrastructure Development Cess?

- The Agriculture Infrastructure and Development Cess (AIDC) is a tax that the government imposes

on the commercial production of agricultural produce.

- The rate charged depends on the production capacity.
- The money that the government will collect through this cess is used for infrastructure development in agriculture across the country.

- The purpose of the new AIDC is to raise funds to finance spending on developing agriculture infrastructure.
- The AIDC is proposed to be used to improve agricultural infrastructure aimed at not only boosting production but also in helping conserve and process farm output efficiently.

RETAIL INFLATION SPURTS TO 7-MONTH HIGH OF 6.01% IN JAN; WHOLESALE INFLATION STAYS IN DOUBLE-DIGITS

Recently, the National Statistical Office (NSO) has said that the retail inflation rose to a seven-month high of 6.01 per cent in January.

- It has breached the upper tolerance level of the medium-term inflation target of 4+/-2 per cent set by the Reserve Bank of India (RBI).
- The rise was mainly on account of high food inflation, which jumped to a 14-month high of 5.43 per cent, along with an unfavourable base.
- Inflation at the wholesale level in January softened to 12.96 per cent from 13.56 per cent a month ago but marked the tenth consecutive month of being in double digits.
- There was a delicate balance between inflation and growth and the Reserve Bank was fully aware of its commitment to inflation.
- Wholesale food inflation was, however, at a 24-month high of 9.6 per cent.
- Wholesale Price Index (WPI)-based inflation rate is reflective of the price pressures on the inputs

side and of manufacturers passing on the higher input costs to their output prices.

- The rise in CPI inflation during October-December is mainly on account of the statistical effect of a low base.
- The RBI had projected India's average inflation to soften to 4.5 per cent in 2022-23, down from an estimated 5.3 per cent in 2021-22.
- The RBI's inflation projections are "robust" but contingent on downside and upside risks associated with the movement of global crude oil prices.
- The RBI has projected 5.3 per cent retail inflation for FY22, with Q4 inflation seen at 5.7 per cent before easing to 4.9 per cent in Q1 FY23.
- The MPC notes that inflation is likely to moderate in H1:2022-23 and move closer to the target rate thereafter, providing room to remain accommodative.

CRYPTOS 'WORSE' THAN PONZI: RBI DG

Strongly recommending for a **ban on private virtual currencies** in India, Reserve Bank Deputy Governor T Rabi Sankar has said **cryptocurrencies** are very much like "a **speculative or gambling contract** working like a Ponzi scheme".

- He also expressed that, they can (and if allowed most likely will) **wreck the currency system**, the monetary authority, the banking system, and in general Government's ability to control the economy.

- They threaten the financial sovereignty of a country and make it susceptible to strategic manipulation by private corporates creating these currencies or Governments that control them.
- He said increased acceptance of cryptocurrencies would result in effective 'Dollarization' of our economy.
- Dollarization would undermine the ability of authorities to control money supply or interest rates, as monetary policy would not have any

impact on the non-Rupee currencies or payment instrument.

- India loses not just its currency, a defining feature of its sovereignty, but its policy control of the economy.

What Is a Ponzi Scheme?

- A Ponzi scheme is a fraudulent investing scam promising high rates of return with little risk to investors.

- A Ponzi scheme is a fraudulent investing scam which generates returns for earlier investors with money taken from later investors.
- This is similar to a pyramid scheme in that both are based on using new investors' funds to pay the earlier backers.
- Both Ponzi schemes and pyramid schemes eventually bottom out when the flood of new investors dries up and there isn't enough money to go around.

BUDGET SHOULD HAVE ALLOTTED MORE FUNDS FOR R&D

According to UNESCO's stats, the global expenditure on research and development (R&D) has crossed \$1.7 trillion. The **most used indicator** to measure country-wise investments in R&D is the **gross domestic expenditure on R&D (GERD)** as the percentage of gross domestic product (GDP).

- A comparison of the R&D spending in terms of GERD as a percentage of GDP shows **India to be a low spender** (only **0.66 per cent** of the GDP) in comparison to the developed countries and emerging economic powers of East Asia.
- The percentage expenditure for the last couple of years is showing a downward trend. A quick analysis of the allocations to various R&D organisations in the recently presented 2022-23 budget shows **continued stagnation**.

Budget 2022-23:

- Budget speech for 2022-23 contains two references to R&D-related issues.
 - One, **defence R&D will be opened for industry, start-ups, and academia with 25 per cent of the defence budget** earmarked for such activities.
 - The other, **identification of sunrise opportunities in areas like artificial intelligence, geospatial systems and drones, semiconductors, space, genomics and pharmaceuticals, green energy, and clean mobility systems**.
- For R&D in these sunrise opportunities, in addition to **efforts of collaboration among academia, industry and public institutions,**

government contribution will be provided. However, the budget has no extra provisions for R&D in the flagged sunrise opportunities.

Challenges in making India Self-Reliant

- India is dependent on China for imports related to **electronics, solar equipment, pharmaceutical (Active pharmaceutical ingredients) and Capital goods**.
- **Information asymmetry** with respect to Central and State governments can act as a roadblock on ease of doing business.
- India missed out on the '**third industrial revolution**' comprising electronic goods, micro-processors, personal computers, mobile phones and decentralised manufacturing and global value chains.
- **Mere setting up of manufacturing facilities in India is no guarantee of absorption of technologies.**
- **Lack of Human Capital in R&D field.**

Need of the Hour

- Economic Survey 2020-21 suggested that the **country needs to increase its GERD from around 0.7 per cent to over 2 per cent of its GDP** as is the situation with the Western and East Asian economies.
- The survey suggested that the **private sector needs to raise its share of spending from 37 per cent to 68 per cent of the total spending on R&D** like the other high spenders.

- The Centre needs to cover the current deficits in R&D and **cater to the present and future needs by committing to raise the spending on R&D to 1 per cent of the GDP.**
- In most of the **developed capitalist countries, defence-related R&D is undertaken by the private sector. In India,** this expenditure is mostly **borne by public funding.**

What can be done to cater R&D in India?

- **The SERB (Science Engineering Research Board),** that's already performing the job of funding projects on a competitive basis, can be upgraded to play the role envisaged for NRF.
- **A virtual platform** that will hold all the information on the projects **granted with public funding** could be developed for better information sharing.
- With increased allocations, **joint R&D projects between public institutions and start-ups/industries can also be supported.** Funding of projects could become comprehensive and cover their entire expenditure.
- **To make India self-reliant,** the country requires the **upgradation of human resources in R&D.**

- In the next five to six years, **around 5,000 students/scientists need to be trained at the doctoral and post-doctoral level in the best laboratories abroad in areas of R&D** where India needs to do better for national prosperity and areas of strategic importance.
- **Joint projects with some of the leading laboratories worldwide** could also be funded by the enhanced funding allocation. India should be an equal partner in such projects and **share the benefits of intellectual property** that emerges from the joint work.

Way forward

- To move from stagnation in R&D to a more dynamic ecosystem would require action on many fronts. Science and technology departments will have to work out how to fast-track decision-making, information sharing, and allow investigators more flexibility in utilising the funds. It will be useful if the science academies of India become more communicative, both with the public and government, on issues related to R&D.
- A commitment from the Centre to raise GERD to 1 per cent of the GDP in the next three years could be one of the most consequential decisions taken in the 75th year of India's independence.

WHY DO OIL PRICES MATTER TO THE GLOBAL ECONOMY? AN EXPERT EXPLAINS

Demand for oil plunged in 2020 during the pandemic when lockdowns led the **price to fall below zero** first time in history due to a major downturn in economic activity.

- Oil prices have since risen sharply to nearly \$100 per barrel following strong economic recovery post-lockdowns. As the economy grows so does the demand for oil. Moreover, rising geopolitical tensions between Russia and Ukraine and in the Middle East are stoking supply fears. This is contributing to rising inflation and concerns about economic recovery.

why are oil prices so volatile?

- **Booming economic growth driving demand for oil.** Surprising economic rebound, driving demand for oil and oil products post-lockdown.
- **Limited oil supply due to long investment cycles and cautious capital allocations.** OPEC has been scaling up oil production slowly, but it also has limited spare capacity and is probably cautious not to oversupply the market again. There is strong pressure on the industry not to develop new fields, to hold or decrease investment in maintaining and growing production and to divert the capital to green investments.

- **Geopolitical tensions** between Russia and Ukraine and increased instability in the Middle East add to oil market nervousness.

How do oil price increases affect inflation and what does that mean for the global economy?

- Oil is **3% of global GDP**. So, if 3% of global GDP is twice as expensive tomorrow, clearly, this will have some impact on inflation.
- Oil prices will not be the biggest factor when it comes to inflation but it is still important because oil is basically in everything, so it's not a volumetric impact, but it **impacts price of almost everything**.
- An **increase oil price will not only be seen at the gas station, but it will be felt in virtually all the goods and services we use**. Because oil is a feedstock, source of energy and is used in the transportation of many things.
- High oil prices are a **challenge for importing countries** while at the same time work to the **advantage of exporting countries**. It is really a **zero-sum game**. With price changes, there is a shift in profiting between oil producing and oil consuming countries.
- **High oil prices improve the economics of electric vehicles (EVs)** and other alternatives like **hydrogen and other potential solutions** for mobility.

Current surge in oil prices is temporary or marks a more permanent shift? If so, how would that affect the global economy?

- It is very **difficult to predict level of prices** or even direction of change.
- In the **medium-term supply should catch up with demand growth** while hopefully **geopolitical tensions ease**.
- The **demand will plateau and maybe start decreasing at a certain point**.
- If the energy transition is not a concerted **effort between the demand side changes followed by supply side adjustments**, temporary oil price spikes are very likely.
- **Forcing supply curtailment without adjusting demand will create structural imbalances** that will be difficult to address due to the very long investment cycles to produce oil.

Road Ahead:

- There is this pressure to stop investing in oil production as we transition but there is a need for an understanding that we also need this supply. So, we need to find this **balance with the energy transition between now and 2050**.
- The point is not to undermine the transition, but the transition needs to be led on the demand side by consumers, individual and industrial. It is a **task for each and every one of us, not just for "Big Oil"**. Otherwise, the risk is that it could be quite an erratic future.

GUJARAT: NEW BIOTECH POLICY WITH RS 20,000 CRORE INVESTMENT

Chief Minister Bhupendra Patel on Thursday unveiled the **Gujarat Biotechnology Policy 2022-27** with an expected **capital investment of "over Rs 20,000 crore"**, providing assistance to "more than 500 industries in the state" and creating "over **1.20 lakh new employment opportunities**", according to a press release from the state government.

New Biotechnology Policy of Gujarat:

- **MSMEs with a capital investment of less than Rs 200 crore** will be given a maximum assistance of Rs 40 crore with a maximum of Rs 5 crore assistance per annum.

- **Mega or large projects with a capital investment of more than Rs 200 crore** as well as special projects like "**ecosystem empowerment, emerging technologies in challenging areas and of strategic importance**" will be given up to 25 per cent of the total capital expenditure up to a maximum of Rs 200 crore, provided in the form of 20 quarterly instalments over five years.
- For large, mega and special projects with capital investment of more than Rs 200 crore, OPEX assistance of up to 15 per cent of the total

operating cost up to a maximum of Rs 25 crore per annum will be provided, which includes **expenses for power tariff, patent assistance, marketing development assistance, lease rental subsidy, bandwidth leasing, and quality certification.**

- According to the state government, it will also provide **support to special projects such as preclinical testing, genome sequencing in the private sector, private sector BSL-3 lab-vaccine development and manufacturing and testing and certification laboratories.**
- To **incentivise industries**, the policy will provide 100 per cent reimbursement on electricity duty and 100 per cent EPF assistance to female employees and 75 per cent reimbursement for male employees. To incentivise local hiring, the policy plans to provide assistance to the said employee who has been associated with the applicant company for more than one year of Rs 50,000 (to men) and Rs 60,000 (to women).
- The objective of the new policy is **“to make Gujarat competitive in the biotechnology market... and maximise the benefits”**, while adding that **various stakeholders such as educational institutes, research institutes, start-ups and entrepreneurs were consulted to frame the five-year policy plan.**
- The new policy **“will promote partnerships between various stakeholders such as NGOs, scientific establishments and industries”** and also includes **“various financial assistance for technology acquisition, skill development, alternative energy production, quality certification, and bandwidth leasing,”** with such provision of assistance not being part of the previous policy.

About Biotechnology

- Biotechnology is the use of biology to solve problems and make useful products. The most prominent approach used is genetic engineering, which enables scientists to tailor an organism's DNA at will.

- Biotechnology uses living cells to develop or manipulate products for specific purposes, such as genetically modified foods. Biotechnology is thus linked to genetic engineering and emerged as a field in its own right at the beginning of the 20th century in the food industry, which was later joined by other sectors such as medicine and the environment.

Why is biotechnology important?

- Biotechnology is particularly important in the field of medicine, where it facilitates the production of therapeutic proteins and other drugs.
- Synthetic insulin and synthetic growth hormone and diagnostic tests to detect various diseases are just some examples of how biotechnology is impacting medicine.
- Biotechnology has also proved helpful in refining industrial processes, in environmental clean-up, and in agricultural production.

When did modern biotechnology emerge?

- The first molecular and cellular tools of modern biotechnology emerged in the 1960s and '70s.
- A fledgling “biotech” industry began to coalesce in the mid- to late 1970s.
- Modern biotechnology stands in contrast to older forms of “biotechnology,” which emerged thousands of years ago, when humans began to domesticate plants and animals.
- Humans have also long tapped the biological processes of microorganisms to make bread, alcoholic beverages, and cheese.

Applications of Biotechnology

Medicine

- The **development of insulin**, the growth hormone, molecular identity and diagnostics, gene therapies and vaccines such as hepatitis B are some of the milestones of biotechnology and its alliance with genetic engineering.

Industry

- The revolution of the new smart materials hand-in-hand with biotechnology has only just begun. Soon we could have self-healing concrete, plants that change colour when they detect an

explosive, clothing and footwear made with synthetic spider web, etc.

Food

- In addition to the **genetically modified foods** mentioned above, thanks to biotechnology products such as WEMA have been created, a type of crop resistant to droughts and certain insects that may prove essential in fighting hunger in Africa.

Environment

- Through **bioremediation** processes, very useful for ecological recovery, the catabolic properties of microorganisms, fungi, plants and enzymes are used to restore contaminated ecosystems.

Types of Biotechnology

Red biotechnology:

- This is the health branch and responsible, according to the Biotechnology Innovation Organization (BIO), for the development of more than 250 vaccines and medications such as antibiotics, regenerative therapies and the production of artificial organs.

Green biotechnology:

- It is used by more than 13 million farmers worldwide to fight pests and nourish crops and strengthen them against microorganisms and extreme weather events, such as droughts and frosts.

White biotechnology:

- The industrial branch works to improve manufacturing processes, the development of biofuels and other technologies to make industry more efficient and sustainable.

Yellow biotechnology:

- This branch is focused on food production and, for example, it carries out research to reduce the levels of saturated fats in cooking oils.

Blue biotechnology:

- This exploits marine resources to obtain aquaculture, cosmetics and health care products. In addition, it is the branch most widely used to obtain biofuels from certain microalgae.

Grey biotechnology:

- Its purpose is the conservation and restoration of contaminated natural ecosystems through, as mentioned above, bioremediation processes.

Gold biotechnology:

- Also known as bioinformatics it is responsible for obtaining, storing, analysing and separating biological information, especially that related to DNA and amino acid sequences.

Benefits of Biotechnology

- It **reduces CO₂ emissions by 52 %**, optimises the use of water and **reduces waste and chemical processes** thanks to techniques such as recombinant DNA.
- It improves **medical diagnosis**, **reduces infection rates**, **minimises the side effects** of medications and favours progress in developing countries.
- It favours **healthy and sustainable agriculture**, it provides more nutritious, toxin and allergen-free food, it limits the use of pesticides and chemicals.
- It prepares a large base for **employment generation**.
- It enhances the arena of **innovation and development**.

Challenges of Biotechnology

- The proliferation of laboratory foods could **end crop diversity**. It may also **affect the balance of ecosystems**.
- The risks include **unforeseen allergies**, **poisoning of living organisms and modified bacteria** escaping from a laboratory.
- **Cloning**, the modification of the human genome and assisted reproduction are matters of **ethical debate and social controversy**.
- There are **lack of skill sets** and **lack of laboratories with high-end scientific infrastructure**.
- Requirement of ethical and regulatory clearance, make the process **long, expensive and cumbersome**.

Road Ahead:

- Discoveries in biotech may help us some of pressing societal issues of our time: cleaning river water, producing life-saving drugs, feeding growing population with nutritious food and helps to clean the air.
- The need for use of Artificial Intelligence based tools and apps of big-data in biology will leverage

India's strength in IT and move biotech innovations faster to marketplace. The future of biotech is bright in India. Just what to do her is to provide skill set and innovation as well as encourage the participation of private sector and various stakeholders.



INDIA'S 'RETURN' TO CENTRAL ASIA

- India-Central Asia Dialogue, and the **Regional Security Dialogue on Afghanistan** has collectively indicated a renewed enthusiasm in New Delhi to engage the Central Asian region.
- India has limited economic and other stakes in the region, primarily due to lack of physical access.
- India's mission Central Asia today reflects, and is responsive to, the new geopolitical, if not the geo-economic, realities in the region.
- India's renewed engagement of Central Asia is in the right direction for the simple reason that while the gains from an engagement of Central Asia may be minimal, the disadvantages of non-engagement could be costly in the longer run.

Great power dynamics

- The decline of American presence and power in the broader region (due primarily to the U.S. withdrawal from Afghanistan) has led to a

reassertion by China and Russia seeking to fill the power vacuum.

- While China dominates the geo-economic landscape, Russia is the dominant politico-military power in the region.
- But in the end, geo-economics might gain more traction. A somewhat anxious Moscow considers India to be a useful partner in the region.
- For the U.S., while growing India-Russia relations is not a welcome development, it recognizes the utility of Moscow-New Delhi relations in Central Asia to offset Beijing's ever-growing influence there.
- As for China, India's engagement of the region and the growing warmth in India-Russia relations are not a cause for concern yet, but they could be eventually.
- For New Delhi, it is about breaking out of a continental nutcracker situation it finds itself in.

- In the wake of the U.S. withdrawal from Afghanistan, New Delhi faces a major dilemma in the wider region, not just in the pre-existing theatres like the Line of Control and the Line of Actual Control.
- There are growing and legitimate concerns within the Indian strategic community that India in the region might get further hemmed in due to the combined efforts by China, Pakistan and Taliban-led Afghanistan.
- India must ensure that there is no China-led strategic gang up with Pakistan and the Taliban against India in the region, which, if it becomes a reality, would severely damage Indian interests.

Focus on Afghanistan

- India's engagement of Central Asia would also help it to consolidate its post-American Afghan policy.
- New Delhi is forced to devise new ways of engaging Afghanistan and that's where the Central Asian Republics (CARs) and Russia could be helpful.

- Tajikistan holds immense geopolitical significance for India given its location bordering Afghanistan as well as its close geographical proximity to Pakistan-occupied Kashmir.
- The announcement of a Joint Working Group on Afghanistan during the summit between India and the CARs is surely indicative of such interest.

Challenges in Central Asian Republics (CARs)

- China, which shares a land border with the region, is already a major investor there.
- China is the region's most important economic partner, a reality that worries Russia and sharpens India's relative irrelevance in the region.
- India's best shot at reaching the CARs is by using a hybrid model – via sea to Chabahar and then by road/rail through Iran (and Afghanistan) to the CARs.
- India's ongoing outreach to Iran and the now-postponed visit of the Iranian foreign minister to New Delhi help repair some of the damage done to the relationship over the years.

WHY ARE THE RISE IN IMPORTS FROM CHINA A CONCERN?

The need to reduce reliance on China particularly in the wake of COVID-19 and disruption to supply chains.

India's concern:

- While many countries, including India, have spoken of the need to reduce reliance on China:
- **Economic concern:** Trade figures released last month showed **imports have only continued to surge in 2021**, rebounding after the pandemic.
- **Security concern:** With the rising trade **comes amid continuing tensions with China** along the Line of Actual Control (LAC), where disengagement negotiations have been slow moving.
- **Concern of stagnation:** Areas, such as **investment, remain in a deep freeze** amid the continuing chill in bilateral relations.

India imports from China in 2021?

- **China's General Administration of Customs (GAC) Reported:** India's trade with China in 2021 reached **\$125.6 billion**.
- **First time** that trade crossed the **\$100 billion mark**.
- **Exports to China:** Slide up to **56%**.
- **Trade deficit:** Jumped up by **22% since 2019**, having declined last year (2020) but once again rebounding.

What is driving India's imports?

- India imports are **electrical and mechanical machinery**.
- A **range of chemicals** that are **intermediate imports** used by industries, **active pharmaceutical ingredients (APIs)**.
- **Auto components**.
- Since 2020, a **large number of medical supplies**.

- **India's Ministry of Commerce: All key imports continued to rise in 2021.**
- Finished goods such as **integrated circuits (up 147%), laptops and computers (up 77%).**
- **Oxygen concentrators** (up four-fold).
- **Intermediate products** such as chemicals (of these, acetic acid imports were up eight-fold).

Recent trend of trade figures suggests?

- **No signs of easing:** India's dependence on China for finished goods has shown no signs of easing, is a cause for concern.
- The rise in intermediate imports is, however, less of a concern as it is a sign of industrial recovery and greater demand for inputs.

What was the concern, despite rise on exports to China?

- Indian exports to China have also grown, up by **more than 50%** in the last two years, but these are mostly **raw materials** such as **ores, cotton and seafood**, and **not finished products**.
- **Trade deficit:** The five-year trend shows the trade deficit **continues to widen** (from **\$51.8 billion in 2017 to \$69.4 billion in 2021**).

Implications for India-China relations?

- **LAC crisis April 2020:** New Delhi's message was that it **cannot be business as usual** while there are tensions along the border.
- **Tighter curbs:** Investments from China in the past year have plunged amid tighter curbs.
- **Example:** Investments in start-ups including from **tech giants such as Alibaba and Tencent**, has come to an abrupt halt, more than **200 apps remain banned**, and **Chinese firms have been kept out of 5G trials**.
- **China's concern:** "Provide a fair, transparent and non-discriminatory environment for Chinese businesses".
- **Scrutiny:** India has also tightened scrutiny on Chinese firms in India, recently **conducting tax investigations** into smartphone manufacturer **Xiaomi**.

Road Ahead:

The trade pattern is unlikely to dramatically change in the near future, as India considers a **long-term plan to reduce some of these import dependencies** by **either accelerating** which was on discussion for a long time. Better shift plans to manufacture **critical goods in India or source elsewhere**, while the rest of the India-China economic relationship remains in a **state of freeze** as talks continue to resolve the tensions along the border.

INDIA-ISRAEL DEFENCE TRADE AND DEFENCE INDIGENISATION

The **Ministry of Defence (MoD)** is laying a lot of stress on **defence indigenisation**, domestic procurement and defence exports. During the period 2015–2021, over 60 per cent of capital procurement contracts of the MoD by number (190 out of 304) and 43 per cent by value (Rs 1,39,038 crore out of Rs 3,21,376 crore) were secured by the domestic industry.

Defence indigenisation?

- The **capability of developing and producing any defence equipment within the country for the dual purpose of achieving self-reliance and reducing the burden of imports** is defence indigenisation.
- The key objective of Department of Defence Production is **Self-reliance in defence manufacturing**.

- **Defence Research Development Organisation (DRDO), Defence Public Sector Undertakings (DPSUs), Ordnance Factory Board (OFB)** and private organisations are playing a critical role in indigenisation of defence industries.

Need for defence indigenisation?

- **To make India self-reliant in defence sector.** The government's **Aatmanirbhar Bharat Abhiyan (ABA)** aims to unlock the potential of the domestic industry and manufacturers to meet the country's growing requirements.
- The aim will be to **foster innovation and technological development** in the defence and aerospace sector.

- The aim is to **procure such items from the domestic industry**, within specific timeframes, while embargoing their imports.
- The aim is to **achieve defence exports target of US\$ 5 billion by 2025**.
- India aims to become an **essential part of the global defence value chain**. At the same time, the aim is to **reduce the country's dependence on defence imports**.

Impact on defence trade between India and Israel?

- **India is Israel's third largest trade partner in Asia and seventh largest globally**.
- In recent years, the **bilateral trade has diversified** into several sectors such as pharmaceuticals, agriculture, IT and telecom, and homeland security.
- **Indian companies are marking their presence in Israel** through mergers and acquisitions and by opening branch offices.
- There are **over 300 investments from Israel in India** mainly in the high-tech domain and in agriculture.
- **Out of 90 per cent of defence imports, 8% is from Israel**. The Srijan defence indigenisation

portal, a limited but concrete example of the implications of India's defence indigenisation efforts on key strategic partnerships like with Israel.

Road Ahead

- Even as the three decades old India-Israel defence partnership is set to grow and solidify in the coming future, India's defence self-reliance drive will impact, to an extent, the quantum of the relationship.
- India's modernisation needs are huge, as well as the need to effectively meet the growing security concerns across the internal and external spectrum.
- India and Israel have developed an all-round defence and security partnership, with increasing focus on joint development and production.
- Exports of Indian-manufactured Israeli products like unmanned aerial vehicles (UAVs) to countries in Southeast Asia is another arena of cooperation where the two countries could focus their efforts, especially by the private sector companies.

INDIA-AUSTRALIA-INDONESIA MARITIME PARTNERSHIP

- The prospect of furthering cooperation between India, Australia and Indonesia within a trilateral framework is premised on their shared interest in establishing a stable and rules-based order in the Indo-Pacific Region.
- In recent years, this has become increasingly crucial for the prosperity and security of the nations.

- To this end, the three countries must find a convergence of strategic interests, with their respective sizes and strategic resources complementing one another.
- Through trilateral trade and investment, the growth of one can serve as a tailwind for the others; at the same time, the security and economic conditions of one will also likely impact the others.

PAKISTAN LAUNCHES FIRST-EVER NATIONAL SECURITY POLICY; HERE'S WHAT IT SAYS ABOUT INDIA

Recently, Pakistan released its new **National Security Policy**. It lays down the Pakistani establishment's vision of the regional security environment and threats to its national security.

India figures prominently in the document—a **good reminder about Pakistan's threat perception of its eastern neighbour**. The document also mentions that geoeconomics will anchor Pakistan's geostrategic orientation.

What is Pakistan's National Security Policy?

- It is **first such policy document** with guidelines for achieving the set national security goals.
- The document has been prepared by **National Security Division (NSD)**.
- It envisions Pakistan **safeguarding its sovereignty by “ensuring national cohesion and harmony, preserving territorial integrity, enhancing economic independence and ensuring the writ of the state.”**
- The document is meant **for five years, starting from 2022**, and is supposed to be updated by NSD in demanding circumstances that have implications for Pakistan's security.
- The NSP is **divided into eight sections**. Placing **economic security at the core**, it seeks to identify some national security objectives and priority areas where it wants Pakistan's federal and provincial governments to invest resources in coming years.

Pakistan's NSP is anti-India?

- The document talks about the **conventional military threats, maritime competition, deterrence in the South Asian region, space and cyber security issues**.
- Expressing concerns over the **alleged ceasefire violations by India**, the document wants Pakistan to shift attention towards the Line of Control and the Working Boundary.
- The **expansion of India's triad and investment in modern technologies** is seen as something that disturbs the regional balance.
- The document sees the prospects of violent conflict growing with the increase in what it calls **“regressive and dangerous ideology”** in Pakistan's immediate neighbourhood.
- It calls for a **renewed focus on strengthening Pakistan's capabilities** including the **deterrence regime** and an astute investment for **modernisation of armed forces**.

Issues between India and Pakistan?

- Pakistan resorted to the policy of bleeding India with 'thousand cuts' through **sub-conventional warfare**.
- Pakistani military's active support to **separatist insurgencies** in J&K and Punjab in the 1980s and activities of anti-India terrorist groups such as Lashkar-e-Taiba (LeT) and Jaish-e-Mohammed (JeM) subsequently fostered 'jihad under the nuclear umbrella.'
- The two countries disagree over **use of the water flowing down rivers** that rise in Indian Kashmir and run into the Indus river basin in Pakistan.
- Pakistan has amped up activities against India in another domain—**cyberspace**, as evident from the recently scaled-up cyberattacks against Indian computer networks and the propaganda drive on social media platforms.
- Launching penetrating malware attacks like **'ReverseRat 2.0'**, which target government officials and computer networks **to steal confidential data** and disrupt the functioning of critical infrastructure services.
- Pakistan's economy is currently in the doldrums, its **GDP growth fell from 5.6% to -0.4%** and experiencing **trade ban with India**. It has also been stuck in the **debt trap of China**.

India should tackle Pakistan's NSP:

- To ensure that Pakistan remains on its toes and deterred by Indian actions, India will need to make sure that Pakistan doesn't evade accountability on terrorist financing.
- India needs to strengthen the resilience of its critical infrastructure and prepare for potential China-Pakistan collaboration in cyberspace.
- The document calls for the promotion of undefined **“inclusive national discourse”** and bats for the preservation of the Islamic character as enshrined in the country's constitution.
- Pakistan's geo-economic transition can't succeed without a fundamental shift in its India policy. Hence, with the new NSP, India can focus on closer economic ties with Pakistan.

- India and Pakistan can re-open the two-way trade traffic and expand ready-made border customs infrastructure – the Wagah border.

Road Ahead:

“Bold visions and big ideas lie at the heart of human progress and prosperity. Policies that encapsulate these contribute towards galvanising national sentiments in line with the vision and goals a nation sets for itself.”

A STRATEGY OF ASSERTION: WHY CHINA IS INVENTING NAMES FOR PLACES IN ARUNACHAL PRADESH

On 29 December 2021, China has renamed fifteen more places in India's north-eastern Arunachal Pradesh, following the six places it had standardised in 2017.

- In Chinese, China calls **Arunachal Pradesh Zangnan** as the **southern part of the Tibetan Autonomous Region (TAR)** and claims, “**China's territorial since the ancient time**”, which is not accepted by India.

Historical background of Indo-China border conflict

- The constant border tensions and subsequent disputes between India and China are simply because of the ‘**absence of definite and agreed-upon borders**’ that demarcates the two countries.
- The border conflict between both the countries can be divided into three different sectors:
 - the **Eastern sector** that lies in the proximity of Arunachal Pradesh with Tibet;
 - the **Western sector**, which covers Ladakh with Tibet, along the line of Pakistan-occupied Kashmir with Sinkiang;
 - the **Middle sector** which covers the state of Uttarakhand and Himachal Pradesh with Tibet.
- The frequent border tension in the Eastern sector is due to the infamous **McMahon line, signed in 1914 between British India and Tibet** as a part of the **Shimla Convention**.
- After the **1962 Indo-China war**, China considers **Arunachal Pradesh as Zangnan**, as **South Tibet**.
- India and China have signed several border agreements including **Border Peace and Tranquillity Agreement (BPTA) in 1993**, **Border Defence Cooperation Agreement (BDCA) after Daulat Beg Oldi Standoff in 2013**.

- A series of skirmishes such as **Chumar Standoff in 2014, Burtse in 2015, Doklam in 2017, Galwan skirmish 2020**, current impasses in Eastern Ladakh.

What is Politics of Renaming?

- Arunachal Pradesh is one of India's most strategically important states because of its border with many South Asian nations and China's TAR.
- After China established TAR in 1965, China's keen interest is to control and occupy the Tawang district because it is bordering with Tibet and Bhutan and entry point to India's northeast.
- China's future goal is to **occupy Tibet's five fingers, that is Ladakh, Sikkim, Arunachal Pradesh, and Bhutan**.
- Not only claiming the Indian territory, but China is also trying to legitimise these places by renaming them in Chinese characters.

Security implications for India?

- Newly constructed villages in Arunachal Pradesh can be used as “**extended troop cantonments**” against India at the time of standoff.
- China tries to garner villagers' support, and its final aim is to transform the demography of the people living in the area.
- Under its expansionist policy, China will further lay claim to other parts of India along the LAC, including Aksai Chin, Uttarakhand, Himachal Pradesh and more portions of Arunachal Pradesh.

Road Ahead:

- India must re-examine its policy regarding boundary issues with China.

- India must upgrade its border management programmes by **increasing the number of personnel**, building **optical fibre cable (OFC)** to improve communication in long distances, installing **high speed-connectivity** including **4G/5G and hybrid surveillance** to assist military personnel in logistics, intelligence and other related parameters on the border.
- Border area in Arunachal Pradesh is most underdeveloped, neglected and disconnected from other parts of the state due to poor connectivity and infrastructure. The government must **allocate adequate budget to build all-weather roads, railways, progress digital**

connectivity and improve the living standard of the people as it is done by China through subsidising for village development.

- **Tourism** is another platform where the government needs to pay its state attention. Inner Line Permit (ILP) should be relaxed for religious tourists from Southeast Asian nations who wish to visit **Tawang's Monastery**, the second biggest after Lhasa.
- Maintaining a healthy and accountable relationship with people in the area is needed. Providing **awareness among the masses about China's actions** in the border is essential from time to time.

INK INDIA-BRITAIN FREE TRADE, UNLOCK NEW OPPORTUNITY

In May last year, Prime Ministers Narendra Modi and Boris Johnson announced their shared vision for a transformative decade for the India-United Kingdom partnership.

- That they met in the middle of India's second wave of COVID-19, shows their determination to turn their shared political will into action.

- As part of that transformation, the two leaders declared their ambition to more than double bilateral trade by 2030, which totalled over £23 billion in 2019.

INDIA JOINS OTHER COUNTRIES TO OBSERVE WORLD NEGLECTED TROPICAL DISEASES DAY

- Observing the 3rd World Neglected Tropical Diseases (NTDs) Day on Jan 30, as a key moment to highlight the global community's commitment to **ending NTDs, India joined close to 40 other nations to illuminate the iconic New Delhi Railway Station in purple and orange hues**, which is one of the busiest railway stations in the country in terms of train frequency and passenger movement.
- At the virtual event organized by **National Centre for Vector Borne Diseases Control (NCVBDC)** to observe World NTD Day, Union Ministry of Health and Family Welfare highlighted that, the aim of illuminating the iconic New Delhi Railway Station was to generate awareness about NTDs in the visiting

public and showcase progress and achievements towards their elimination.

- It emphasized on creating a **people's movement** to eliminate the NTDs. "There is a need for a **behavioural change**. We must fight it together and engage school children, social workers, activists etc. to create a mass movement to elimination NTDs."

What is Neglected Tropical Diseases?

- NTDs are a **diverse group of 20 conditions** that are caused by a variety of **pathogens including viruses, bacteria, parasites, fungi and toxins**.

Impact:

- They cause devastating **health, social and economic** conse

quences to more than **one billion people**. The epidemiology of NTDs is complex and often related to **environmental conditions**.

- Many of them are **vector-borne (not all)**, have **animal reservoirs** and are associated with complex life cycles. All these factors make their public-health control challenging.
- NTDs are prevalent **mainly in rural areas, in conflict zones and hard-to reach-regions**. They thrive in areas where access to clean water and sanitation is scarce – worsened by climate change. Addressing these diseases **requires cross-sectoral approaches** and tackling associated mental health and other issues such as stigma and discrimination.
- WHO's road map for **2021-2030**, aligned with those of the Sustainable Development Goals, sets out ambitious targets in tackling many of these diseases in an integrated manner.

London Declaration on NTDs:

- It was adopted on 30th January, 2012 to recognise the **global burden of NTDs**.
- Officials from the **World Health Organization (WHO), the World Bank, the Bill and Melinda Gates Foundation, representatives from leading global pharmaceutical companies** as well as representatives of several national governments met at London's Royal College of physicians to **pledge to end the diseases**.

WHO's New Roadmap for 2021–2030:

- From measuring process to measuring impact.
- From disease-specific planning and programming to collaborative work across sectors.
- From externally driven agendas reliant to programmes that are country-owned and country-financed.
- They affect over **1.7 billion** people globally.

- They are “**neglected**” because they are **almost absent from the global health agenda** of the **developed countries** and are **associated with stigma and social exclusion**.

Indian Initiatives to Eliminate NTDs:

- The **Accelerated Plan for Elimination of Lymphatic Filariasis (APELF)** was launched in **2018**, as part of intensifying efforts towards the elimination of NTDs.
- A **WHO-supported regional alliance** established by the governments of **India, Bangladesh, and Nepal in 2005** to expedite early diagnosis and treatment of the most vulnerable populations and improve **disease surveillance and control of sandfly populations (Kala-azar)**.
- India has already **eliminated several other NTDs, including guinea worm, trachoma, and yaws**.

India joins the global movement to illuminate 100 landmarks across the globe to raise the awareness on NTDs:

- Lauding India's efforts towards eliminating these diseases, with a keen focus on **Lymphatic Filariasis, Dengue and Visceral Leishmaniasis**.
- “Most people **don't know about NTDs** because these diseases **affect the poor and marginalized communities**.”
- In Jharkhand, Gujarat and Karnataka too, iconic landmarks and monuments were illuminated as part of their commitment to eliminate NTDs.
- In Jharkhand, renowned **Rajendra Circle** in Ranchi and **Clock Tower** in Godda district were lit up in pink and orange colours in observance of the World NTD Day. The office building of the Department of Health and Family Welfare in Bangalore was also illuminated to mark the World NTD Day.

INDIA AND THE EUROPEAN UNION: A RELATIONSHIP YET TO ACHIEVE ITS TRUE POTENTIAL

This year i.e., 2022, India celebrates 60 years of friendship with the European Economic Community (now the European Union).

Genesis of India-EU relations

- India was one of the first countries and the first Asian country to extend diplomatic relations with the **European Economic Community in 1962**,
- Since then, India-EU relations have progressively developed, where it evolved into a strategic partnership in the 21st century.
- The EEC extended its cooperation in **India's Operation Flood**, which was launched on 13 January 1970, and changed India's dairy architecture also commonly known as the '**White Revolution**'.
- **In the 1960s**, India's largest trade partners in the European community were the United Kingdom and West Germany as India-EU trade incrementally increased from US\$ 1.638 billion in the 1960s and 1970s to US\$ 5.701 billion in 1980.
- The **trade relations between India and the EU began blossoming in the 1990s** as the Indian economy underwent liberalisation after seeking support from the International Monetary Fund (IMF).

Recent activities between India and European Union:

- In **2020**, at the **15th EU-India Summit**, the two sides also adopted "**India-EU Partnership: A Roadmap to 2025**" to further strengthen the India-EU Strategic partnership.
- The roadmap highlights cooperation in five critical domains—
 - **Foreign Policy and Security Cooperation;**
 - **Trade and Economy;**
 - **Sustainable Modernisation Partnership;**
 - **Global governance;**
 - **people-to-people relations.**
- In **2021**, the EU announced its **Indo-Pacific Strategy** which aims to **promote rules-based regional security architecture** in the region by aligning with like-minded allies.

- The region is the new epicentre for geopolitics as it homes **more than 60 percent of the world's population and accounts for more than two-thirds of the global economic output.**

Significance of India-EU relations:

- In order to resolve pressing security issues such as **counter-terrorism, maritime security, and nuclear non-proliferation**, the EU and India have introduced many frameworks for greater cooperation.
- EU is supporting the **Mobilize Your City (MYC) programme** in India currently in three pilot cities to reduce their urban transport-related Green House Gas (GHG) emissions.
- India and the EU organize **Festivals of culture** (e.g., **Europalia-India festival**), exchanges on heritage such as yoga & Ayurveda etc.
- There are **over 50,000 Indian students currently studying in various European Universities**, many of whom are under EU's Erasmus Mundus scholarship programme for higher education.
- As EU seeks to move away from a **global supply chain** that is overly dependent on China, India can emerge as its most natural ally. EU and India could find a common path in ensuring supply chain resilience to reform the global system in response to health emergencies.

Bottleneck between India-EU

- For both India and the EU, **China forefronts a major challenge** that requires specific attention.
- European companies are **sceptical about the Indian market**, not only because of access problems due to **protectionist measures**, but also due to **bureaucracy, corruption, lack of infrastructure and weak consumption.**
- **Abrogation of Article 35A and 370 and passage of Citizenship Amendment Act, 2019** received considerable attention from EU speaking out on the **violation of human rights.**

- Exemption of Indian vaccines like Covishield and Covaxin are for the EU Digital Covid certificate or “**green pass**”.
- Stalling of **BTIA (Bilateral Broad-based Trade Investment Agreement)** since 2007.

Road Ahead:

- India and the EU are two of the largest democracies in the world sharing common values and principles and with the rise of multipolarity, both sides can elevate their strategic partnership to realise the true potential between New Delhi and Brussels to find solutions for impending geopolitical challenges.
- Connectivity is one of the major pillars of engagement between the two as physical connectivity, human connectivity and digital connectivity can be the newer areas of cooperation. The India–EU Roadmap also specifically highlights the need to build cooperation on data protection and regulation.
- Additionally, green investment and green infrastructure building are the need of the hour, and the EU can be an important partner to India as Brussels can further its energy relations with India by providing resources, technical know-how, and capabilities in the renewable energy sector.

European Union:

- The European Union is a **group of 28 countries** that operate as a cohesive economic and political block.
- 19 of these countries use EURO as their official currency. 9 EU members (Bulgaria, Croatia, Czech Republic, Denmark, Hungary, Poland, Romania, Sweden, and the United Kingdom) do not use the euro.
- The EU grew out of a desire to form a single European political entity to end centuries of warfare among European countries that culminated with World War II and decimated much of the continent.
- The EU has developed an internal single market through a standardised system of laws that apply in all member states in matters, where members have agreed to act as one.

Military Exercises between India and EU (and its members):

- France- Ex SHAKTI, Ex VARUNA, GARUDA
- UK- Ex AJEY WARRIOR, KONKAN, INDRADHANUSH
- Blue Flag- Greece, Poland, France, Germany and Italy

JAISHANKAR HEADS TO AUSTRALIA NEXT WEEK FOR QUAD FOREIGN MINISTERS’ MEET

External affairs minister S Jaishankar will travel to Australia next week for the **fourth meeting of foreign ministers of the Quadrilateral Security Dialogue or Quad** that is expected to focus on the grouping’s Covid-19 vaccine partnership and security across the Indo-Pacific.

- One of the issues expected to figure prominently in the meeting is the Quad vaccine partnership, and expediting the roll out of one billion doses of Covid-19 vaccines across the Indo-Pacific.
- A vaccine experts’ group is working to align the plans of Quad members to support health security and the Covid-19 response across the Indo-Pacific.

- Military cooperation between the Quad members has increased in recent months and the navies of the four countries participated in the Malabar exercise for the second consecutive year in 2021.

What is QUAD?

- The **Quad** is an informal strategic forum comprising four nations, namely -- **United States of America (USA), India, Australia and Japan**.
- One of the primary objectives of the Quad is to **work for a free, open, prosperous and inclusive Indo-Pacific region**.
- The group met for the first time in 2007 on the sidelines of the Association of Southeast Asian Nations (ASEAN).

- It is considered an **alliance of maritime democracies**, and the forum is maintained by meetings, semi-regular summits, information exchanges and military drills of all the member countries.

- The motive behind the Quad is to **keep the strategic sea routes in the Indo-Pacific free of any military or political influence**.
- The core objective of the Quad is to **secure a rules-based global order**, freedom of navigation and a **liberal trading system**.

SDGs AND STRUCTURAL VULNERABILITIES: THE CASE OF BIMSTEC COUNTRIES

Despite improvements in certain SDGs such as increasing per-capita income levels, improving healthcare, and providing universal education—other socio-economic factors affect the resilience of BIMSTEC countries' economies in the face of structural vulnerabilities: among them, inequality, unemployment, and natural resource dependence.

- At the same time, the informal economy plays a crucial role by cushioning the impact of shocks on the most vulnerable populations.

Structural Vulnerabilities and what led to structural vulnerabilities?

- 'Structural vulnerabilities' can be defined as a **country's exposure to various economic and environmental shocks** owing to its economic trajectory or certain geo-physical factors intrinsic to the economy.
- The economic shocks could include spillover effects of **financial market disruptions or exchange rate shocks, arising in other parts of the world and disrupting the stability of domestic markets**.
- At the same time, **geo-physical features such as long coast lines, large extents of dry or semi-arid regions, and monsoon-dependence of agriculture**, leave an economy vulnerable to frequent environmental shocks and the rising risks associated with climate change.

Impact of Structural Vulnerabilities

- It can limit the development opportunities of a country by generating inefficient resource use;
- Lowering savings and consumption rates (at a macro level);

- Increasing livelihood stresses like death or disease, loss of shelter, damage to property, and job losses; and
- Lowering business sentiments by causing the process of structural economic transformation to stagnate.

Outcomes of increasing Structural Vulnerabilities?

- Economic inequality despite rising income levels.
- Gender disparity.
- Unwarranted migration rates adding to population pressure.
- Increasing threats of climate change.

Monitoring Structural Vulnerabilities in the Developing World

- To monitor the developing countries, the **Committee for Development Policy (CDP)**, a subsidiary of the **UN Department of Economic and Social Affairs (UNDESA)**, uses three criteria
 - capturing their growth prospects,
 - the vulnerabilities they are subject to, and
 - their resilience towards these structural vulnerabilities.
- The UN established a **separate category of Least Developed Countries (LDCs) in 1971** to cover low-income developing countries that are faced with structural economic, social and geo-physical constraints to achieving sustainable development.
- The UNDESA's **Economic and Environmental Vulnerability Index (EVI)** provides a measurement of a country's exposure to structural, geographical, and environmental

shocks, without considering the transitory current domestic or international policies

- Another important measure of structural vulnerability is the **Physical Vulnerability to Climate Change (PVCC) Index**. It has a narrower scope and does not consider socio-economic challenges that impact the risks associated with climate change in developing countries.

Contextualising the Scope for the BIMSTEC Economies

- The bloc has remained substantially dormant since its inception because the **member countries have been preoccupied with their own national development agenda**, as well as contentious issues that carry geopolitical implications.
- **Four out of the seven member countries—i.e., Bangladesh, Bhutan, Myanmar, and Nepal—belong to the LDC category.**
- The year **2019 marked the beginning of the 'decade of action' for the 2030 Agenda**. However, the progress of BIMSTEC economies over the last three years towards the SDGs has remained largely stagnant.
- The BIMSTEC countries therefore need to give **renewed attention to the SDG framework**. The countries can use the grouping as a platform to identify complementary strategies for SDG implementation and further development that will serve the interest of all its members.
- They can **enhance cooperation across the key sectors that BIMSTEC has identified: trade, investment and development; environment and climate change; security; agriculture and food security; people-to-people linkages; science, technology and innovation; and connectivity.**
- **Addressing Structural Vulnerability through Economic Resilience and Sustainable Development**

- **Income growth, and improvements in education and health** outcomes can substantially augment a country's financial and human capital.
- **Encouraging higher participation of women in the economy** can lead to more efficient resource allocation and higher total factor productivity by driving the economy towards a more competitive market.
- **Gender parity in labour force participation** improves the economic opportunities for a large share of the population through the inclusion of women.
- **Decreasing dependence on natural resources** and preventing liquidation of a country's natural assets, by increasing diversification of the export bundle through development of intermediate and finished goods industries not only reduces export concentration but is also in line with the ideas of sustainable development.
- **Addressing large-scale unemployment in the economy can improve economic opportunities** for those newly employed, reduce stress leading to improvements in health outcomes, and also improve business sentiments leading to higher economic growth.
- To combat structural vulnerabilities arising from environmental degradation or geophysical factors, **conservation efforts** are most crucial today. Besides infrastructural support in terms of **monitoring and surveillance, rehabilitation and promotion of eco-tourism, ensuring participation of local communities** can significantly aid conservation efforts.

Conclusion

- The **2030 Agenda for Sustainable Development** recognises and internalises this need for resilience and capacity-building through the inclusion of specific targets relating to disaster risk reduction.

- The imperatives for sustainable development of the BIMSTEC countries, enabling greater economic resilience-building against structural vulnerabilities, can be realised through renewed focus of the members on specific sectors of cooperation, namely, trade, investment and development; environment and climate change; and agriculture and food security.
- Cooperation to promote regional trade and investment can significantly improve the scope for growth of domestic industries as well as increase the stability of trade volumes and capital flows for all the countries within the region.

Additional information

BIMSTEC:

- BIMSTEC is a cooperation initiative involving seven countries, namely, **Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand.**
- The region is home to around **22 percent of the global population**, with a combined GDP of approximately **USD 3.7 trillion a year.**
- The region has vast **reserves of natural and human capital**, which if mobilised in the right

direction can significantly and sustainably augment its physical and social capital as well.

- This has crucial implications for the **growth and development potential of the region.**

About SDGs

- The Sustainable Development Goals (SDGs), also known as the **Global Goals**, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity.
- The **17 SDGs are integrated**—they recognize that action in one area will affect outcomes in others, and that development must balance social, economic and environmental sustainability.
- Countries have committed to prioritize progress for those who're furthest behind. The SDGs are designed to end poverty, hunger, AIDS, and discrimination against women and girls.
- **The creativity, knowhow, technology and financial resources** from all of society is necessary to achieve the SDGs in every context.

INDIA WILL BE HAPPY TO JOIN FRANCE IN LAUNCHING GLOBAL INITIATIVE ON SINGLE-USE PLASTIC: MODI

Noting that India is committed to eliminating single-use plastic, Prime Minister Narendra Modi on Friday said the country will be happy to join France in launching a global initiative on it. Modi made the remarks in a video message to the high-level segment of the One Ocean Summit.

- India recently undertook a nationwide awareness campaign to clean plastic and other waste from coastal areas.
- India supports the French initiative of a high ambition coalition on biodiversity beyond national jurisdiction.

What is Single-Use Plastic?

- Single-use plastics, or disposable plastics, are used only once before they are thrown away or recycled.

- These items are things like plastic bags, straws, coffee stirrers, soda and water bottles and most food packaging.
- Petroleum based plastic is not biodegradable and usually goes into a landfill where it is buried or it gets into the water and finds its way into the ocean.

Why Is Single-Use Plastic Bad?

- Single-use plastics are a glaring example of the problems with throwaway culture.
- Instead of investing in quality goods that will last, we often prioritize convenience over durability and consideration of long-term impacts.
- Our reliance on these plastics means we are accumulating waste at a staggering rate.

- We produce 300 million tons of plastic each year worldwide, half of which is for single-use items. That's nearly equivalent to the weight of the entire human population.

COVID-19: INDIA TRIPS ON ITS PATENT WAIVER PROPOSAL

Reports from Brussels speak of secret parleys in Geneva involving the European Union, US, India and South Africa at a senior political level, to thrash out a deal on the proposal that has been moribund since October 2020.

- The **waiver will allow generic manufacturers to override IPRs on medical products**, especially vaccines and make these available sufficiently across geographic locations at a much cheaper cost.
- This has become an imperative since Big Pharma, in particular Pfizer-BioNTech and Moderna, has been supplying its costly vaccines to rich nations and leaving the populations of poor countries in Africa, Asia and Latin America majorly unprotected.

Patent:

- A patent is an **exclusive right granted for an invention**, which is a product or a process that provides, in general, a new way of doing something, or **offers a new technical solution** to a problem. To get a patent, technical information about the invention must be disclosed to the public in a patent application.
- The protection is granted for a **limited period, generally 20 years** from the filing date of the application.
- In principle, the patent owner has the **exclusive right to prevent or stop others from commercially exploiting the patented invention**. In other words, **patent protection means that the invention cannot be commercially made, used, distributed, imported or sold by others without the patent owner's consent**.
- Patents are **territorial rights**. In general, the **exclusive rights are only applicable in the country or region in which a patent has**

been filed and granted, in accordance with the law of that country or region.

WIPO play with regards to patents?

- WIPO works to **develop a balanced and effective international intellectual property (IP) system**, a key part of which is dedicated to patents.
- WIPO's member states **collaborate in various areas**, including **on agreeing the treaties and conventions** that underpin the international IP system and that **make the global exchange of creativity and innovation possible**.
- The IP services that WIPO offers, such as the **facilitation of international patent protection under the PCT System, complement services available at the national and/or regional level**.
- It's important to remember that **WIPO does not actually grant patents per se; the grant or refusal of a patent still rests with the relevant national or regional patent office**.

TRIPS

- The TRIPS Agreement, which came into effect on **1 January 1995**, is to date the most comprehensive multilateral agreement on intellectual property.
- The areas of intellectual property that it covers are:
 - **copyright** and related rights;
 - **trademarks** including service marks;
 - **geographical indications** including appellations of origin;
 - **industrial designs**;
 - patents including the **protection of new varieties of plants**;
 - the **layout-designs of integrated circuits**; and
 - **undisclosed information including trade secrets and test data**.
- The **three main features** of the Agreement are:
 - the Agreement sets out the **minimum standards of protection** to be provided by each Member. Each of the main elements of protection is defined, namely the subject-matter to be

protected, the rights to be conferred and permissible exceptions to those rights, and the minimum duration of protection.

- The Agreement lays down certain general principles applicable to all IPR **enforcement procedures**. In addition, it contains provisions on civil and administrative procedures and remedies, provisional measures, special requirements related to border measures and criminal procedures
- The Agreement makes disputes between WTO Members about the respect of the TRIPS obligations subject to the WTO's **dispute settlement** procedures.

TRIPS and India

- The patent law system in India has undergone significant changes and amendments since the country's incorporation of the World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights
- **In 2001, the WTO signed the Doha Declaration**, which clarified that in a public health emergency, governments could compel companies to license their patents to manufacturers, even if they did not think the offered price was acceptable.
- This provision, commonly referred to as "**compulsory licensing**", was already built into the TRIPS Agreement and the Doha declaration only clarified its usage.
- Under **Section 92 of the 1970 Indian Patents Act**, the central government has the power to allow compulsory licenses to be issued at any time in case of a national emergency or circumstances of extreme urgency.
- In view of the COVID-19 pandemic, India and South Africa had proposed to the WTO in October 2020 that the **TRIPS Agreement (that included patent protection to pharmaceutical products including COVID vaccines) be waived off for COVID vaccines, medicines and diagnostics for the time period of the pandemic** in order to make

vaccines and drugs for COVID available to a maximum number of people worldwide.

Significances of relaxing TRIPS rules

- This would make the vaccines **more available to people of developing countries and also LDCs**.
- Ethically, **life-saving drugs and vaccines should be made available to everyone** and pharmaceutical companies should not be looking to make profits out of these.
- With particular reference to the COVID-19 pandemic, it is said that **no one is safe unless everyone is safe**. In this respect, it is imperative that vaccines are made available to everyone in countries affected since it can easily spread to all countries as seen in the first wave.
- **Rules granting monopolies that place the right to access basic healthcare in a position of constant peril must end**.

Challenges associated with TRIPS waiver

- **Unless corporations are rewarded for their inventions, they would be unable to recoup amounts invested by them in research and development**.
- **Without the right to monopolise production there will be no incentive to innovate**.
- They also claim that **companies in the developing world do not have the capacity to manufacture vaccines or drugs on a large scale**.

Way forward

- Waiving of intellectual property rights will neither lead to increased production of vaccines or increased deployment nor practical solutions to fight the virus of COVID-19 vaccines since IP is not the barrier. **Waiving of intellectual property rights could impact patient safety by opening doors for counterfeit vaccines to enter the supply chain**.
- Our top most priority should be to **address the supply side constraints**, including IP barriers, to augment the manufacturing of vaccines, therapeutics and diagnostics, essential for

treatment, prevention and control of the ongoing pandemic.

- The Indian Drug Manufacturers Association on the other hand has supported, with a caveat, the waiving off of intellectual property rights for covid drugs to expand availability.

- What is more important is **grant of voluntary licences** by the patent holders to Indian companies with **sufficient expertise** in this field and similarly **transfer technology to Indian companies against reasonable royalties**.

HOW INDIA'S BRAHMOS DEAL IS NOT JUST ABOUT PHILIPPINES BUT GIVES A STRONGER MESSAGE TO THE REGION

In a major boost to its defence export plans, India has signed a \$375 million deal to export the BrahMos supersonic cruise missile to the Philippines.

- According to the Philippines Defence Secretary, Delfin Lorenzana, they had sent a written request to the BrahMos Aerospace Private Limited "to accept a proposal to buy three batteries of the supersonic missile system for \$375 million".

BrahMos

- An agreement was signed by India and Russia to design, develop, manufacture and market a **Supersonic Cruise Missile System in 1998**. By 2006, it has been successfully accomplished.
- It can be **launched from submarines, ships, aircrafts or land**.
- The acronym BrahMos is perceived as the two rivers- **the Brahmaputra of India and the Moskva of Russia**.
- It is a **two-stage (solid propellant engine in the first stage and liquid ramjet in second) missile**.
- It operates on the **"Fire and Forgets" principle** i.e., it does not require further guidance after launch.
- Brahmos is one of the fastest cruise missiles currently operationally deployed with **speed of Mach 2.8, which is nearly 3 times more than the speed of sound**.

Significance of Defence Deals for India

- **China has rapidly expanded its defence and military capabilities** which has made the Southeast Asian claimant countries very vulnerable.

- This has forced them to reach out to like-minded countries like India for further strengthening the bilateral ties especially in the realm of defence.
- The defence relations of importer countries have also been on an **upward trajectory** with India.
- India to ensure its place as a **reliable defence partner to its Southeast Asian neighbours**.
- India is engaging in **"proactive defence diplomacy"** in response to China's naval incursions in the Indo-Pacific and also China's encroachments in the disputed land border with India.
- The Indian government is looking to **reduce its arms imports by boosting domestic production**.

India- Philippines Defence Relation

- Manila and Delhi are both **engaged in active territorial disputes with Beijing**, and both are (mostly) invested in the rules-based order.
- The pace of high-level political and defense exchanges did begin to increase in the 1990s following the launch of **India's "Look East" policy**, with head-of-state exchanges in 1991, 1997, 2006, and 2007.
- India's relationships in East and Southeast Asia, gradually changing under a reinvigorated **"Act East" policy**.
- During a 2006 meeting between the two countries' presidents, they signed a **Memorandum of Understanding (MoU) on Defense and Security Cooperation** and established several high-level commissions and dialogues.

- By the mid-2010s the two had established a **Joint Commission on Bilateral Cooperation, a Joint Committee on Defense Cooperation**, a new foreign policy consultations and security dialogue, and a joint working group on **counterterrorism**.

Road Ahead:

- India has been essentially known globally to be **among the top five arms importers**, according to a March 2021 report by the **Stockholm International Peace Research**

Institute (SIPRI). But recently, New Delhi is seeking a boost in defence exports in order to strengthen its defence manufacturing and production.

- At present, India is the **twenty-fourth largest arms exporter in the world**, but **India's vision is "to expand its defence manufacturing sector and become a bigger arms exporter generating a revenue of \$5 billion by 2025"**.

INDIA, SRI LANKA CONCLUDE 9TH ARMY TO ARMY STAFF TALKS IN PUNE

Recently, the ninth edition of the **Army-to-Army Staff Talks (AAST)** between delegations from the Indian and Sri Lankan armed forces concluded in Pune.

- A delegation of six Sri Lankan armed forces officers was on a three-day visit to India as part of AAST from February 10 to 12.
- Both countries discussed agenda points focusing on key issues related to training, conduct of bilateral and multilateral exercises, enhancing relations in fields of arts, sports and cultural exchanges.

Army-to-Army Staff Talks (AAST)?

- AAST was organised by the Agnibaaz Division under the aegis of Headquarters, Southern Command of the Indian Army, with an **aim to**

foster better coordination between the militaries of the two neighbours.

- The first edition of the talks was held back in 2011, and have since focused on defence cooperation, training, joint military exercises and exchanges in other areas between two countries who are neighbours in the strategically significant Indian Ocean Region (IOR).
- These annual talks, alternately held in India and Sri Lanka, also include guest delegations' visits to various places of interest.
- The aim of AAST was to foster better coordination between the two militaries, with both countries discussing agenda points focusing on key issues.

NEW DELHI NON-COMMITTAL ON FUNDING CURBS ON U.K. NGOs

Recently, the United Kingdom officials discussed foreign funding restrictions placed on the Oxfam and other British NGOs with the Indian government.

- It requested the Union Home Ministry to reconsider **its decision to deny Oxfam India's registration renewal application** under the Foreign Contribution Regulations Act (FCRA).
- India had given the British side no assurances on whether the cases would be reviewed, as the MHA had decided to do with the Missionaries of Charity, whose registration request was denied around the same time, but subsequently restored.

- India expressed concern regarding "anti-India activities of certain extremists and radical elements in the U.K."
- According to diplomatic sources, the delegation had also raised the denial of FCRA registration to UK-NGO Freedom Fund, which was one of 10 American, Australian, British and European NGOs dealing with environmental, climate change and child labour issues, who had lost their licenses due to what the government called "adverse inputs" on their partnerships in India.

What is the FCRA?

- The **FCRA** was enacted during the **Emergency in 1976** in an **atmosphere of apprehension that foreign powers were interfering in India's affairs by pumping in funds** through independent organisations.
- These concerns had been expressed in Parliament as early as in 1969.
- The law sought to **regulate foreign donations to individuals and associations** so that they functioned "in a manner **consistent with the values of a sovereign democratic republic**".
- An amended FCRA was enacted under the UPA government in 2010 to "**consolidate the law**" on **utilisation of foreign funds**, and "to prohibit" their use for "**any activities detrimental to national interest**".
- The law was amended again by the current government in 2020, giving the government tighter control and scrutiny over the **receipt and utilisation of foreign funds** by NGOs.
- Broadly, the FCRA requires every person or NGO wishing to receive foreign donations to be registered under the Act, to open a bank account for the receipt of the foreign funds in State Bank of India, Delhi, and to utilise those funds only for the purpose for which they have been received and as stipulated in the Act.
- They are also required to file annual returns, and they must not transfer the funds to another NGO.
- The Act prohibits receipt of foreign funds by candidates for elections, journalists or newspaper and media broadcast companies, judges and government servants, members of legislature and political parties or their office-bearers, and organisations of a political nature.

How is FCRA registration granted?

- NGOs that want to receive foreign funds must apply online in a prescribed format with the

required documentation. FCRA registrations are granted to individuals or associations that have definite cultural, economic, educational, religious, and social programmes.

- Following the application, the MHA makes inquiries through the Intelligence Bureau into the antecedents of the applicant, and accordingly processes the application.
- Under the FCRA, the **applicant should not be fictitious or benami; and should not have been prosecuted or convicted** for indulging in activities aimed at conversion through inducement or force, either directly or indirectly, from one religious' faith to another.
- The applicant should also not have been prosecuted for or convicted of creating communal tension or disharmony; should not have been found guilty of diversion or misutilisation of funds; and should not be engaged or likely to be engaged in the propagation of sedition.
- The MHA is required to approve or reject the application within 90 days. In case of failure to process the application in the given time, the MHA is expected to inform the NGO of the reasons for the same.

For how long is approval granted?

- Once granted, FCRA registration is **valid for five years**.
- NGOs are expected to **apply for renewal within six months** of the date of expiry of registration.
- In case of failure to apply for renewal, the registration is deemed to have expired, and the NGO is no longer entitled to receive foreign funds or utilise its existing funds without permission from the ministry.

THE SIGNIFICANCE OF THE INDO-PACIFIC FOR INDIA

An imminent early harvest trade deal with Australia and the sale of the Brahmos supersonic cruise missile systems

to the Philippines lend a sharper edge to India's engagement with the Indo-Pacific.

- A new emphasis on strategic trade liberalisation and the turn to military exports should begin to plug two major weaknesses in India's regional strategy. The two agreements should also widen the focus of India's Indo-Pacific debate from the current obsession with the nature of India's partnership with the US and its implications for Delhi's "strategic autonomy".

India and the Indo-Pacific

- India's definition of the Indo-Pacific region stretches **from the western coast of North America to the eastern shores of Africa**.
- The vast Indo-Pacific region comprises at least 38 countries, shares **44 percent of the world surface area, is home to more than 64 percent of the world's population, and accounts for 62 percent of the global GDP with more than 50 percent of global trade** traversing through its waters.
- The **region is highly heterogeneous** with countries at different levels of development **connected by a common thread of the ocean**.
- India's Indo-Pacific concept as the **SAGAR doctrine – 'Security and Growth for All in the Region'**, an aspiration that depends on ensuring prosperity for all stakeholder nations, guided by norms and governed by rules, with freedom of navigation.
- In 2019, at the **East Asia Summit in Bangkok, India announced the Indo-Pacific Oceans' Initiative (IPOI)** to support the building of a rules-based regional architecture centred on seven pillars – **maritime security; maritime ecology; maritime resources; capacity building and resource sharing; disaster risk reduction and management; science, technology and academic cooperation; trade, connectivity and maritime transport**.

Significance of India's Indo-Pacific Relations

- India's Indo-Pacific strategy walks on two legs – **strengthening its national engagement with the region, and stronger partnerships with like-minded nations**. The former elevates

India's salience in the Indo-Pacific and raises Delhi's value for its partners.

- The Indo-Pacific is emerging as a new area of importance, driven by the **common interests and convergences of several strategic powers**, each with their own set of influences and ambitions, reflective of three emerging geostrategic and geoeconomics shifts.
- Strategic competition over the next several decades will be dominated by **maritime and blue economy**.
- The Indo-Pacific covers a **diverse and big region that envelopes Southeast Asia, South Asia and the littoral nations of the Indian Ocean**.
- **The rise of China, its outward expansion and the heightening of the US-China rivalry**. The rivalry peaked during the pandemic, with countries jostling to identify partners for long-term strategic and economic cooperation, to go beyond unipolar or bipolar dynamics (US and China) of uncertainty, instability and supply chain risks.

Issues between India and Indo-Pacific region

- **Delhi's decision to walk away from the Regional Comprehensive Economic Partnership (RCEP)** – an Asia-wide free trade agreement – at the end of 2019 and its new **emphasis on Atmanirbhar Bharat, or a "self-reliant India"**, have generated widespread concerns about India returning to protectionist ways.
- **China has been a threat to the Asia Pacific countries and is posing threat to Indian interests in the Indian Ocean as well**.
- China has a **hold over Hambantota port (Sri Lanka)**, which is just a few hundred miles off the shores of India.
- China is **supplying military equipment to India's neighbours such as submarines to Myanmar, frigate to Sri Lanka, equipment to Bangladesh and Thailand**, thus, in a way, colonising the region.

- **China is ASEAN's largest trading partner** and can hardly be side-lined by the entire grouping which further threatens India's relations with the grouping.
- Amongst the enduring **challenges driving the sub-regional geopolitics are, climate change, oceanic degradation, jihadist terrorism, transnational crime, piracy, human trafficking and state/sub-regional fragility.**

Advancing India's interest in the Indo-Pacific

- The **revival of the QUAD and SCRI** grouping were motivated by shifts in the regional order in the Indo-Pacific.
- However, the degree of shared ambition among the countries in these groups vary, driven by their outlooks, interests and approaches, specifically on trade liberalisation and membership of multilateral organisations – for instance, **Australia and Japan are members of Comprehensive and Progressive Agreement for the Trans-Pacific Partnership, APEC, RCEP and Organisation for Economic Cooperation and Development.**
- **Economic growth in Indo-Pacific countries** can only be revived by sound economic (power, water and transport) and social infrastructure (education and health).
- **Private investment in infrastructure must be mobilised.** Out of the US\$ 50 trillion global stock of capital managed by pension funds, sovereign wealth funds, insurance companies and other institutional investors, only 0.8 percent is allocated to infrastructure.

- India should prioritise **creating a full-fledged Ministry of Blue Economy**, with an **effective institutional mechanism for coordination and leadership.**
- This will put all components of a blue economy, including security, maritime budgetary allocation, naval acquisitions, maritime trade, energy needs, transportation, connectivity, fisheries and marine exploration, under a single ambit.
- **Sectors like automobiles, pharmaceuticals, medical devices, advance manufacturing, critical minerals, healthcare, education, infrastructure, science and innovation, and technology transfer could offer opportunities for regional recovery** and also build substantial intellectual capital to address shared challenges.

Road Ahead:

- The **'new normal' economic diplomacy** should seek for **balance between competition and cooperation, aspirations and the achievable, and regional and global.** It should be navigated on the strong foundation of rules-based collaboration.
- India's concerted actions in the Indo-Pacific region will determine its evolution as a key player. This requires a reimagination, reform, resolve and resilience based on trust and transparency. It is no longer about rising India, but how India could lead.

JIO TIES UP WITH LUXEMBOURG FIRM TO OFFER AFFORDABLE BROADBAND SERVICES

Digital services company Jio Platforms has formed a joint-venture with Luxembourg-based satellite-linked content connectivity solutions provider SES to deliver satellite broadband services across India.

Highlights

- The companies said that the joint venture will use multi-orbit space networks.

- It is a combination of GEO (geostationary equatorial orbit) and MEO (medium earth orbit) satellite constellations.
- It is capable of delivering multi-gigabit links and capacity to enterprises, mobile backhaul and retail customers across the length and breadth of India and neighbouring regions.
- The joint venture will be the vehicle for providing SES's satellite data and connectivity

services in India, except for certain international aeronautical and maritime customers who may be served by SES.

- It will have availability of up to 100 Gbps capacity from SES and will leverage Jio's sales reach in India to unlock this market opportunity.
- As part of the investment plan, the joint venture will develop extensive gateway infrastructure in India to provide services within the country.

What are GEO, MEO and LEO?

- GEO is also called geosynchronous (or synchronous) orbits, which have 23 h, 56 min., 4.091s, or 24 hours period of revolution but are inclined with respect to the equator.
- Orbits that are below a mean altitude of about 35,784 km have periods of revolution shorter than 24 hours and hence are termed as non-GEO.
- GEO satellite has the ability to provide coverage of an entire hemisphere at one time.
- Satellites are designed to last only about 15 years in orbit, because of the practical inability to service a satellite in GEO and replenish consumables (Fuel, battery cells, and degraded and failed components).
- An MEO satellite is in orbit somewhere between 8,000 km and 18,000 km above the earth's surface.
- MEO satellites are similar to LEO satellites in functionality.

- The MEO satellites are visible for much longer periods of time than LEO satellites, usually between 2 to 8 hours.
- MEO satellites have a larger coverage area than LEO satellites.
- LEO satellites are much closer to the earth than GEO satellites, ranging from 500 to 1,500 km above the surface.
- LEO satellites don't stay in a fixed position relative to the surface and are only visible for 15 to 20 minutes each pass.
- A network of LEO satellites is necessary for LEO satellites to be useful.

Advantages and Disadvantages of GEO, MEO and LEO

- GEO and LEO satellites are considered to be the two extremes in satellite communications.
- While GEO satellites provide a larger coverage and therefore only three satellites can cover the whole earth, hundreds of LEO satellites are needed to provide coverage to a larger area.
- LEO satellites are smaller and are cheaper to launch than GEOs or MEOs.
- For MEO satellites, on the other hand, while a simple equatorial orbit covers 96 per cent of the global population, it shares some disadvantages of GEO satellites such as the need for a high inclined antenna for locations away from the equator.

INDIA-AUSTRALIA INTERIM TRADE AGREEMENT AND FTA

India and Australia have announced that they are set to conclude an interim trade agreement in March and a **Comprehensive Economic Cooperation Agreement (CECA)** 12-18 months thereafter.

What is the early harvest agreement likely to cover?

- An interim or early harvest trade agreement is used to liberalise tariffs on the trade of certain goods between two countries or trading blocs before a comprehensive FTA is concluded.
- The interim agreement will cover "most areas of interest for both countries" including goods,

services, rules of origin, sanitary and phytosanitary measures and customs procedures.

- Bilateral trade between the two countries stood at about \$12.5 billion in FY21 and has already surpassed \$17.7 billion in the first 10 months of FY22.
- India has imported merchandise worth about \$12.1 billion from Australia in the first 10 months of the fiscal and has exported merchandise worth \$5.6 billion in the same period.
- Key imports from Australia include coal, gold and LNG while key exports to the country from

India include diesel, petrol and gems and jewellery.

Significance of FTAs

- The agreement with Australia was set to bring opportunities across sectors including mining, pharmaceuticals, health, education, renewables, railways, gems and jewellery, tourism, defence and textiles.
- India is also likely to seek easier visa access for both students and professionals visiting Australia.
- Australia is likely to seek market access for wines and agricultural products which are not produced on a large scale in India.
- The agreement would lead to deeper cooperation between the two countries in critical minerals and rare earth elements which are critical to future industries including renewable energy and electric vehicles.

Impact of QUAD on trade between India & Australia

- India and Australia are both members of the Quad (Quadrilateral Security Dialogue) along with the US and Japan.
- Both countries have noted that the coalition has given impetus to increasing trade relations between all members of the Quad.
- Australia noted that it already had FTAs with both the US and Japan and that all four countries could start building a framework for economic cooperation within the countries of the Quad after they announced a deal with India.

What other Free Trade Agreements is India currently negotiating?

- India is currently in the process of negotiating FTAs with the UAE, the UK, Canada, the EU and Israel, besides Australia.
- India is also looking to complete an early harvest agreement with the UAE and the UK in the first half of 2022.

PHENSEDYL SMUGGLING REMAINS A CHALLENGE ON THE INDIA-BANGLADESH BORDER

Despite the drop in cattle smuggling and other narcotics, Phensedyl remains a challenge for the border guarding forces along the India-Bangladesh border.

- On February 14, personnel of the Border Security Force (BSF) arrested two youths for allegedly smuggling near Hakimpur border outpost in West Bengal's North 24 Parganas district.
- Phensedyl New Cough Linctus is a combination medicine used in the treatment of dry cough. It relieves allergy symptoms such as runny nose, stuffy nose, throat irritation, sneezing, watery eyes and congestion or stuffiness.

Border Security Force

- Till 1965 India's border with Pakistan were manned by the State Armed Police Battalion.

- On 09th April, 1965 Pakistan attacked Sardar Post, Chhar Bet and Beria Bet in Kutch.
- This exposed the inadequacy of the State Armed Police to cope with armed aggression due to which the Government of India felt the need for a specialized centrally controlled Border Security Force, which would be armed and trained to man the International Border with Pakistan.
- As a result of the recommendations of the Committee of Secretaries, the Border Security Force came into existence on 01st Dec 1965, with Shri K F Rustamji as the first chief and founding father.

EXPERTS LEAVE FOR NAMIBIA TO PAVE WAY FOR RETURN OF CHEETAHS TO INDIA

A team of five experts will leave for Namibia February 17, 2022, to finalise details on translocating African cheetahs to India. The tour had to be postponed in September 2021 due to floods and the subsequent omicron wave of the COVID-19 pandemic.

- The **cheetah translocation project** aims to bring African cheetahs to India, where the Indian cheetah was declared extinct in 1952.

Need for cheetah translocation?

- Cheetahs face a variety of pressures to their existence in the wild, including habitat loss, hunting of their prey base for bush-meat, illegal international trade and conflict with livestock owners.
- Since the trade in wild animals and plants crosses borders between countries, the effort to regulate it requires international cooperation to safeguard certain species from over-exploitation.
- According to NTCA, reintroduction of cheetah would be a matter of great conservation significance, as it would be the only large animal that peninsular India has lost in its historical times and bringing focus on country's most productive yet neglected grassland ecosystem.
- After an extensive study, Kuno was selected as the ideal location and adequate prey base for shifting cheetahs.

About Cheetah

- They keep prey species healthy by **killing the weak and old individuals**.
- They also act as a population check which helps plants-life by **preventing overgrazing**.
- Without predators like the cheetah, the savanna ecosystem in Namibia would be very different and the current ecological trend toward **desertification would be accelerated**.
- Currently, cheetahs are listed as **Vulnerable on the IUCN Red List**.
- The **Convention on International Trade in Endangered Species (CITES) lists them as an Appendix 1 species**.
- The reasons for the cheetah's endangerment
 - **human-wildlife conflict,**
 - **loss of habitat and loss of prey,**
 - **poaching and illegal wildlife trafficking,** with cubs being taken from the Horn of Africa and smuggled into the exotic pet trade, primarily in the Gulf States.

Cheetah in India

- The animal is charismatic and has a very special significance for the **national conservation ethic and ethos**.
- The word, 'Cheetah', originates from Sanskrit, meaning '**the spotted one**', and **Neolithic cave paintings in India have been found to depict the animal**.
- **The animal was found in the entire country, except the high mountains, coasts and the northeast region**, according to different accounts.
- The large-scale capture of animals from the wild for **coursing, bounty, and sport hunting, and extensive habitat conservation** along with consequent decline in prey base were the main reasons behind the decline of cheetah in India.
- The number of cheetahs in India had **decreased significantly by 1900**.
- The **last cheetahs in the wild were recorded in 1948** where three of them were shot in the Sal (*Shorea robusta*) forests of Koriya District (in present-day Chhattisgarh), and a few sporadic reports from Central and Deccan regions till the mid-1970s.

Kuno National Park

- Kuno-Palpur Wildlife Sanctuary, which was upgraded to a National Park in 2018, has been designated the new habitat of the cheetah.
- It is located in the **Chambal Region of Madhya Pradesh** and is spread over an area of 750 sq. km.
- It currently has **leopards, jackals, spotted deer, sambhar, nilgai, chinkara, wild-boar and four-horned antelope, a prey based ideal for Cheetah**.
- It will have all **four major cat species**- lion, tiger, cheetah and leopard after the Cheetah re-introduction.

AUSTRALIA WARMS UP TO INDIA

India and Australia have been looking at each other with greater interest in the past year. External Affairs Minister

S Jaishankar's visit to Australia last week marks a new phase in the relationship between the two countries.

Genesis

- Australia turned from being a close partner of China to an adversary, all within the space of four years. **In 2014, the two countries agreed to a 'comprehensive strategic partnership'. Four years later, the relationship hit an iceberg.**
- Though New Delhi never quite warmed up to Beijing as Canberra did. But the **Wuhan and Chennai summits of 2018 and 2019** seemed to suggest that everything was going great, despite issues like Doklam.
- It all was the **outcome of China's changed behaviour** – its assertiveness along its maritime edge with Japan and the South China Sea and on the landward side with India. This was accompanied by crackdowns in Xinjiang and then Hong Kong and the launch of its 'wolf warrior' diplomacy.
- The signs of trouble were evident in Beijing when **Canberra banned Huawei from its 5G network in 2018.**
- By the end of 2020, **China had systematically blocked a range of Australian exports** – coal, barley, beef, copper ore, sugar, wine and timber. But for their part the Aussies participating in the enhanced Quad meetings, tearing up the Victoria state's BRI deals, and at the end of 2021, **supporting the diplomatic boycott of the Winter Olympics.**
- All of this began to nudge both India and Australia closer to the United States.

India-Australia Relations

- **India is Australia's seventh-largest trading partner and our fifth-largest export market.** Major exports to India include coal, copper and gold; major imports from India include refined petroleum, pearls and gems, and medicaments.
- Both are **strong, vibrant, secular and multicultural democracies.** They both have a **free press and an independent judicial system**; the English language is an important link.

- The relationship has **grown in strength and importance since India's economic reforms** in the nineties and has made rapid strides in all areas - **trade, energy and mining, science & technology, information technology, education and defence.**
- **People-to-people ties between India and Australia have been growing** since the beginning of this millennium. Some 6,19,000 people said in the last census that they were of ethnic Indian background.
- **Indians are migrating to Australia in large numbers** and 1,15,000 students were studying there in 2020 before the Covid disruption.
- Both are **members of the Commonwealth of Nations.** They also share political, economic, security, lingual and sporting ties.
- The **Quad leadership** widened the remit of their organisation towards shared partnerships in areas like vaccine manufacture and distribution, climate change, critical and emerging technologies. India and Australia are now on track to build durable relations. While one part of the security equation has been taken care of by AUKUS, the two can perhaps **shape defence ties based on their common interests in the Indian Ocean Region.**

Way forward

- India-Australia annual two-way trade in goods and services is just about \$18 billion, whereas Australia's trade with China is in excess of \$150 billion. Efforts are on to finally work out an FTA. With its resources like coal, iron ore, other minerals, agricultural products, education and skills training and healthcare, it could become a major partner in India's growth story.
- But a lot of that presupposes India being able to get its act together, not only in terms of reviving its economic growth and revitalising its trade policies, but also ensuring social peace in an increasingly divided country.

WORK PLAN 2022 SIGNED BETWEEN INDIA AND GERMANY TO STRENGTHEN QUALITY INFRASTRUCTURE, REDUCE TECHNICAL BARRIERS TO TRADE, ENHANCE PRODUCT SAFETY AND STRENGTHEN CONSUMER PROTECTION

The **8th Annual Meeting of the Indo-German Working Group on Quality Infrastructure**, led by the Indian Ministry for Consumer Affairs, Food and Public Distribution and the German Federal Ministry for Economic Affairs and Energy was held virtually here today.

- The Working Group meets annually since 2013, and identifies areas of cooperation to **support and strengthen quality infrastructure in country** taking into account needs and requirements of relevant stakeholders from diverse technology areas so as to support bilateral trade.
- Two countries to **collaborate in quality infrastructure for mobility, energy, circular economy, smart farming/ agriculture, medical devices, digitalization (AI, Industry 4.0 and other new technology areas), machinery safety, medical devices and equipment and market surveillance.**
- **Global Quality Infrastructure Index (GQII)** study places India at 7th position on standardization aspect, 9th for Accreditation activities and 19th for the Metrology related activities.

India-Germany Relations

- India and Germany have a **“Strategic Partnership” since 2001**, which has been further strengthened with the **Inter-Governmental Consultations (IGC)** at the level of Head of Governments which allows for a comprehensive review of **Cooperation and identification of new areas of engagement.**
- There is an **Indo-German Parliamentary Friendship Group, in German Bundestag since 1971.** The Indo-German Parliamentary Friendship Group (constituted in May 2018) for the present term of German Parliament consists of 24 Members from all the six parties represented in the German Parliament. Visit by

Parliamentarians from both sides take place regularly.

- Several **institutionalized arrangements** exist between India and Germany to discuss bilateral and global issues of interest namely, **Foreign Office Consultations, High Defence Committee, Indo-German Energy Forum, Indo-German Environment Forum, S&T Committee, and Joint Working Groups** in various fields, including **skill development, automotive, agriculture, coal, tourism, water and waste management.**
- **India-Germany Defence Cooperation Agreement (2006)** provides a framework for bilateral defence cooperation. To further enhance the Defence Industry and defence cooperation between Germany and India, an Arrangement on Implementation of the Agreement of 6th October 2006 concerning **Bilateral Defence Cooperation** was signed on **February 12, 2019.**
- **Germany is India's largest trading partner in Europe.** Bilateral trade grew from Euro 15.96 billion to Euro 20.41 bn in 2018. In the period January to November 2019, total bilateral trade stood at Euro 19.35 bn. **Germany is the 7th largest foreign direct investor in India** since April 2000. Germany's total FDI in India from April 2000 until June 2019 amounted to US\$ 11.9 billion.
- Indo-German **Science & Technology cooperation** started with the signing of the **Intergovernmental S&T Cooperation Agreement in 1971 and 1974.** There are more than 150 joint S&T research projects and 70 direct partnerships between Universities of both countries.
- India and Germany have a **long tradition of academic and cultural exchange.** Max Mueller was the first scholar of Indo-European languages to translate and publish the Upanishads and the

Rigveda. German interest in the Indian philosophy and languages resulted in the setting up of the first

- Chair of Indology at the University of Bonn in 1818. **Indian films and artists regularly feature at the Berlin International Film Festival and at Indian Film festivals held in other parts of Germany.**
- There are about **1.7 lakh Indians and people of Indian origin in Germany.** The Indian diaspora mainly comprises of **professionals, technocrats, businessmen/traders and nurses.** There has been an increase in the last few years in the number of qualified Indian professionals in Germany in the **fields of IT, banking, finance, etc.**

INDIA'S CONTRIBUTION TO GLOBAL GOVERNANCE OF PEACEKEEPING

On 14 February 2022, India participated in the Annual Debate of the **UN Special Committee on Peacekeeping Operations**, or the C34.

- This year's intervention by India highlighted the need for optimum use of technology in aid of peacekeeping operations, setting of mandates in consultation with troop contributing countries (TCCs), the need to keep missions time bound, the caution required in adopting new doctrines of peacekeeping, ensuring accountability for crimes against peacekeepers and the need to limit post-deployment caveats to ensure operational successes.

About C34

- The C34 was **formed in 1965** as an entity under the 4th Committee of the General Assembly with 34 member states; it now consists of 147 member states.
- The C34 is one among the many UN forums whose deliberations **contribute to the governance of peacekeeping.**
- The notable others are the **Security Council, the 4th Committee of the General Assembly through its annual "Comprehensive Review of the Whole Question of Peacekeeping Operations in all their aspects", the 5th Committee which debates all financial**

Road Ahead:

- Bilateral relations between India and Germany are founded on common democratic principles and are marked by a high degree of trust and mutual respect. India was amongst the first countries to establish diplomatic ties with the Federal Republic of Germany after the Second World War.
- Relations grew significantly following the end of the Cold War and the reunification of Germany. In the last decade, both economic and political interaction between India and Germany has increased significantly. Today, Germany is amongst India's most important partners both bilaterally and in the global context.

matters related to peacekeeping and the 6th Committee which discusses legal matters in relation to peacekeeping.

India and Peacekeeping in Security Council

- India has supported the **basic principles of peacekeeping namely consent, impartiality and non-use of force.**
- India has been very vocal about the **need for substantial consultations between the TCCs, the Security Council and the Secretariat.**
 - India has made the case for an enhanced role for the TCCs and also the police contributing countries (PCCs) by way of **using their good offices and diplomatic engagement to bolster peace processes.**
- India was actively involved in debating the **exit strategy from a peacekeeping operation.**
 - In this context, India pointed out the negative fallouts of sudden exit from a theatre of conflict considering the **proactive role played by peacekeepers in demobilisation, disarmament and rehabilitation, security sector reform, rule of law, basic governance, institution building and support to the democratic process.**
- India has been a strong votary of giving explicit mandates to peacekeeping troops to **use force in**

defending the mandates when confronted with non-state armed groups and trans-border criminal networks.

- India has been an ardent supporter of the safety of peacekeeping troops.
- India suggested several ways in which the working of the Department of Peacekeeping Operations and the Department of Field Support could be improved.
- India has been a strong votary of increasing the role of women in peacekeeping operations.
- India has engaged substantially with the issue of protection of civilians (POC) in armed conflict.

India and Peacekeeping in General Assembly

- The 4th Committee holds an annual discussion on peacekeeping under the heading “Comprehensive Review of the Whole Question of Peacekeeping Operations in all their aspects”.
- In the 4th Committee, India was particularly vocal on matters pertaining to the resource–men, material, and financial–for UN peacekeeping operations.
- It supported the stationing of stand-by troops and rapid reaction forces to help in the timely deployment of peacekeeping missions.
- In the 5th Committee of the General Assembly or the Advisory Committee on Administrative and Budgetary Questions (ACABQ), India made several interventions on matters pertaining to the financing of peacekeeping operations.
- India gave several nitty-gritty suggestions on reducing the expenditure on completed

missions by closing them fully, filling up administrative posts and vacancies in missions to ensure their proper functioning, consolidation of peacekeeping accounts, retaining cash balances from closed missions, and rates of reimbursement for troops and equipment that were contributed mainly by developing countries.

- In the 6th Committee of the General Assembly or the legal committee, the issue of criminal accountability of UN officials and experts involved in peacekeeping missions has been discussed.
- In the context of rising cases of sexual exploitation and abuse (SEA) by UN troops, there was a demand for a separate convention governing such cases.
- While advocating a policy of zero tolerance towards such acts, India, however, argued against a separate convention for this purpose.
- India was in favour of using national laws on extraterritorial jurisdiction to deal with such cases and adoption of such laws where they were absent.

Conclusion

- Given its critical nature, international peacekeeping may be regarded as one among the many global public goods like non-proliferation or climate change. Hence, it is desirable to have a robust regime to govern the issue.
- However, in the absence of it, discussions in the various forums of the UN remain the only way for countries and other stakeholders to contribute to the governance of international peacekeeping. Indian interventions are an effort in the direction.

INDIA-CENTRAL ASIA SUMMIT: SHAPING GEOPOLITICS IN THE EXTENDED NEIGHBOURHOOD

India and the Central Asian Republics have embarked on a new era of robust strategic partnership that was reflected by the successful conclusion of first-ever summit

hosted by the Prime Minister of India, Narendra Modi, recently on 27 January 2022 in virtual format.

- This event was attended by the presidents of the Republic of Kazakhstan, Kyrgyzstan, Tajikistan,

Turkmenistan, and Uzbekistan. The first India-Central Asia Summit, while coinciding with the celebrations of the 30th anniversary of establishment of diplomatic relations between India and the Central Asian countries, is considered as a landmark event that resonates the strong resolve of the leaders of two sides in taking up the relations to newer heights in a comprehensive and enduring manner.

Findings of the Summit

- It has accounted for the far-reaching ramifications in **determining stability, security, and geostrategic equilibrium in New Delhi's western frontier**, thereby, showcasing the efficacy of India's "**Extended Neighbourhood Policy**" in addressing the emerging challenges in the region with strong determination, under the spirit of reformed multilateralism and transparency in global governance.
- India and the Central Asian countries have been rapidly consolidating **strategic engagement in addressing the emerging challenges, based on mutual trust, understanding, and shared vision of security and progress for the people of both sides.**
- The connectivity projects were visualised by the leaders as "**force-multiplier for trade and economic cooperation, and contacts between countries and people**" and therefore, they need to be upgraded with top priority.
 - For this purpose, a JWG has also been established to streamline the connectivity process. It was also agreed upon to optimally utilise the **International North-South Transport Corridor (INSTC)** as well as **Ashgabat Agreement on International Transport and Transit Corridor (ITTC)** to enhance connectivity between India and the Central Asian countries.
- Towards enhancing **energy connectivity**, the summit emphasised on the need to establish cooperation between **specialised national**

institutions in areas of renewable energy, information, digital, and advanced technologies.

- Regarding the COVID-19 pandemic, the leaders called for emboldening collective efforts to fight the health menace. The Summit categorically emphasised on the importance of "**extensive vaccination, vaccine supply, transfer of technology, development of local production capacities, promotion of supply chains for medical products, and ensuring price transparency.**"
- With a view to enhance **people-to-people contact and harness human talent** between each other, the Central Asian leaders appreciated New Delhi's role in capacity building and human resource development of their countries.

Significance of India-Central Asia Relations

- India has enjoyed **historical and civilizational linkages** with Central Asia through the **Silk Route from 3rd century BC to 15th century AD**, when the sea route from Europe to India was discovered.
 - The Silk route connected the two regions not only for **transportation of goods like silk, textiles, spices etc. but also served as an effective channel for exchange of thoughts, ideas, religion, and philosophy.**
- All these states are rich in minerals and well-endowed with hydroelectric resources.
 - **Kazakhstan has the world's second largest reserves of uranium and is the world's largest producer;**
 - **Uzbekistan has large reserves of gas, uranium and gold;**
 - **Turkmenistan has fourth largest reserves of natural gas;**
 - **Tajikistan has huge hydroelectric potential;**
 - **Kyrgyzstan is rich in gold and hydroelectric power.**
- India uses its considerable **soft power through dance, music, Bollywood films, yoga, literature etc. India's international Technical and Economic Cooperation**

(ITEC) programme attracts young professionals for capacity building.

- There is considerable scope of participation in trade fairs, and in building infrastructure projects, as in rail, road, highways, power transmission lines, nuclear power, etc.
- In addition to oil and gas, IT, pharma and textiles, higher education, space, SME, power generation, food processing and agriculture present rich potential for deeper engagement. SCO may serve as a guarantor for the projects.

Challenges between India-Central Asian Relations

- Religious extremism, fundamentalism, drug trafficking pose challenges to these societies and to regional stability.
- Issues relating to water, security, environment, migration have become acute. The region faces newer threats of narco-terrorism emanating from Afghanistan.
- That India does not share a common land border with any of these states has been a major bottleneck in promoting and expanding

ties. Pakistan does not allow direct routes to either Afghanistan or to Central Asia.

- China has come to pose an even greater geopolitical threat to India. This apart, compared to \$100b trade turnover with China, the region's trade with India is only \$2b.
- Though India is part of the Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline, progress is slow.

Road Ahead:

- Greater engagement is expected to help improve mutual security and regional economic prosperity. Economically, Central Asia provides a 'near abroad' market for India's industry, overland routes to rich resources of Russia and Middle East, and significant energy supplies at relatively short distances.
- The INSTC corridor route is shorter than Suez and the Mediterranean Sea. Central Asia's location, its geographical proximity to India, ancient linkages render the region highly relevant to India's strategic interests. India has a huge goodwill in Central Asia.

WHY A MADHUBANI PAINTING IS GRABBING EYEBALLS IN THE US

These days, the JCDecaux bus shelters in New York, Chicago and Boston are playing host to a unique public art exhibition, Global Positioning. Curated by the Public Art Fund—a not-for-profit organisation that specialises in temporary public exhibitions and outreach programmes—it features new works by 20 artists from across the world, who have responded to the turbulent period of the pandemic. And with a blend of hope, incisiveness and sensitivity, they have imagined a future full of possibilities.

- This gamut of artists includes Pushpa Kumari—incidentally the only Indian artist in the exhibition—who has contributed a Madhubani painting, titled Joy of Living. This ink on paper work exudes optimism, as masked figures try to find joy in the existing circumstances.

Madhubani Painting

- Traditionally done by the women of villages around Madhubani town, it is also called Mithila Paintings.
- The art extends to the adjoining parts of Terai region in Nepal.
- The paintings have a common theme and are usually drawn from religious motifs of the Hindus, including Krishna, Rama, Durga, Laxmi and Shiva.
- The figures in the paintings are symbolic, for example, fish depicts good luck and fertility.
- The paintings are also made depicting auspicious occasions like birth, marriage and festivals.
- Flowers, trees, animals, etc. are used to fill any gaps in the painting.

- Traditionally, these were painted on walls using rice paste and vegetable colours on a base of cow dung and mud.
- With time, the base changed to handmade paper, clothes and canvas, still the natural colours were used.
- Since there is no shading, the paintings are two-dimensional.

- Some of the common features of these paintings include **double line border, bold use of colours, ornate floral patterns and exaggerated facial features.**
- In 1970, this art got recognition, when President of India honoured Jagdamba Devi of Jitbarpur village with an award.
- Since the art has remained confined to a specific geographical area, it has been given **GI (Geographical Indication) status.**

INDIA-ISRAEL DEFENCE TRADE AND DEFENCE INDIGENISATION

Ministry of Defence (MoD) laying a **lot of stress on defence indigenisation, domestic procurement and defence exports**, the **Srijan defence indigenisation portal** is a limited but concrete example of the implications of India's defence indigenisation efforts on key strategic partnerships, for instance with Israel.

Defence imports to be reduced

- The quantum of **defence imports from Israel**, of products and equipment **currently being imported, will reduce**, if the indigenisation efforts of the MoD in conjunction with the Indian public and private sector industry, fructifies.
- Israel, **continue to occupy an important place** in fulfilling the modernisation and upgradation requirements of India's armed forces, will be expected to continue to work more closely with the domestic defence industry, to fulfil the critical requirements of India's armed forces.

Stress on defence indigenisation, domestic procurement and defence exports

During the period 2015-2021, over **60 per cent of capital procurement** contracts of the MoD by number (190 out of 304) and 43 per cent by value (Rs 1,39,038 crore out of Rs 3,21,376 crore) were secured by the domestic industry.

- **Aatmanirbhar Bharat Abhiyan (ABA):** Aims to unlock the potential of the domestic industry and manufacturers to meet the country's growing requirements. The ABA call has **special significance for the defence sector**, as the country has long been dependent on imports to

fulfil most of its platform as well as niche equipment requirements.

- **iDEX:** To foster innovation and technology development in the defence and aerospace sector, the **iDEX—Innovation for Defence Excellence**, was launched in April 2018.
- **Defence India Start-Up Challenges (DISC):** **Four DISC** have been held so far, in which over 1,000 Start-Ups have participated.
- **Fund:** Budgetary support of **Rs 500 crore** has been earmarked for iDEX till 2025-26, for Start-Ups, MSMEs and individual investors, through the Defence Innovation Organisation (DIO), an umbrella organisation formed with financial contributions from the aeronautics major, Hindustan Aeronautics Limited (HAL) and Bharat Electronics Limited (BEL).
- In the **2021-22** defence budget, **Rs 1,000 crore has been exclusively earmarked for procurement from Start-Ups. Start-ups:** Currently over **80 Start-Ups** are developing more than 30 cutting-edge products. The government aims to double the number of products developed by Start-Ups to at least **60 by 2024.**
- **iDEX4Fauji:** In order to more actively involve the stakeholders in developing cutting-edge products most suited to the requirements of the armed forces, **iDEX4Fauji** was also launched in September 2020.

Strategic Partnership (SP) model

- The Strategic Partnership (SP) model, **first promulgated as part of the Defence Procurement Procedure 2016**, is an effort to energise the domestic defence industrial ecosystem.
- The model **seeks to encourage domestic industry to enter into tie-ups with global original equipment manufacturers (OEMs)** to set up manufacturing and infrastructure supply chains with **transfer of technology (ToT)**.
- **Foreign direct investment:** The foreign direct investment (FDI) **through automatic route** is permitted up to **49 per cent** and **beyond that with government approval**. The FDI limit was raised from **49 to 74 per cent in August 2020**. The total FDI in the defence sector till January 2021 was Rs 4,191 crore.
- **Capital expenditure (CAPEX) budget:** The government has introduced a **separate domestic capital expenditure (CAPEX) budget** of Rs 51,930 crore in 2020–21, nearly half of the total CAPEX budget. In 2021–22, this figure increased to Rs 71,438 crore, out of the total capital expenditure budget of Rs 1,11,463.21 crore.4

Indigenisation of Components and Spares to save the forex

- The Policy for **Indigenisation of Components and Spares used in defence platforms**, which was notified in March 2019, had actually suggested that this domestic CAPEX be increased by 15 per cent every year.
- In August 2020, a **'positive' list of indigenisation, of 101 items**, was released. The list included mostly major platforms like **armoured fighting vehicles (AFVs), conventional submarines, light combat helicopters (LCHs), artillery guns and also items like radars**. The aim is to procure such items from the domestic industry, within specific timeframes, while embargoing their imports. **The cumulative value of imports of these items over the past decade was Rs 1,40,000 crore.**

Rapid strides in defence exports by India

- India was listed at the **23rd position as the global arms exporter by SIPRI in 2020**, the first time that India made it to the list.
- The aim is to achieve defence **exports target of US\$ 5 billion by 2025**. With a strong domestic defence industry and a strong exports profile, India aims to become an essential part of the global defence value chain.

Imports

- India has **spent over US\$ 36 billion (SIPRI TIV) on imports during 2010–20**.
- Over **90 per cent** of imports were from **Russia** (accounting for **63 per cent**), the **US** (**11 per cent**), **Israel** (**8 per cent**), **France** (7.5 per cent) and the **UK** (3 per cent).
- It is pertinent to note, however, that **India's arms imports between 2011–15 and 2016–20 fell by 33 per cent**.

Significance of Srijan Defence Indigenisation Portal

- It is instructive to look at the **Srijan Defence indigenisation portal**, which became active in **August 2020**
- The **portal lists items** which have been procured from **foreign original equipment manufacturers (OEMs)** by the **DPSUs, ordnance factories and Service headquarters**.
- The domestic industry is **encouraged to engage and partner with the private sector** in order to assist in the indigenisation efforts of the MoD. The domestic industry can either design, develop and produce this equipment on their own or through joint ventures with the OEMs.
- The Srijan portal flows from the March 2019 **Policy for the Indigenisation of Components and Spares** used in Defence Platforms for **DPSUs/OFBs**. **The aim is to reduce the import bill** of the DPSUs on this count.
- The MoD **specifically pledges to support the development of capabilities relating to engine technology, materials technology and electronic chip technology**.

- It also will give **priority to indigenised** components for testing and evaluation and encourage their exports.

Road Ahead:

- The Srijan defence indigenisation portal, is, a **limited but concrete example of the implications of India's defence indigenisation efforts** on key strategic partnerships like with Israel.

- Going forward, the quantum of defence imports from Israel, of products and equipment currently being imported, will reduce to the tune of at least Rs 7,000 million (Rs 700 crores or about US\$ 95 million), if the indigenisation efforts of the MoD in conjunction with the **Indian industry and the DPSUs and ordnance factories, fructifies.**

SHRINGLA MEETS BANGLADESH COUNTERPART MOMEN, DISCUSSES WAYS TO STRENGTHEN BILATERAL TIES

Foreign Secretary Harsh Vardhan Shringla has said that **effective management** of the India-Bangladesh border is key to **facilitating economic linkages** and **people-to-people contact**.

- Speaking at the **10th India-Bangladesh Friendship Dialogue**, Mr. Shringla said, there is a need to work closely to **strengthen border infrastructure** to ensure smooth transit of goods and people while ensuring that illegal activities are kept under check.

India-Bangladesh Relations

- India and Bangladesh have signed an **agreement on the Use Chattogram and Mongla Ports for Transshipment of Goods to and from North East of India**. It will bring economic benefits to a range of stakeholders from both countries.
- **North East India will benefit from steady supply of goods, the transport and logistics sector in Bangladesh will gain considerably, bringing prosperity on both sides of the border.** India and Bangladesh have made remarkable progress in enhancing connectivity through the use of their inland waterways.
- **Gati Shakti initiative is upgrading connectivity in India with a multi-modal perspective.** The movement of products from locations of production to places of value addition and consumption needs multiple modes of transportation.
- Both the countries are **exchanging best practices in the areas of river embankments**

and addressing the issue of salinity among others. In view of the impact of climate change, more comprehensive cooperation is required in **water conservation, fisheries, flood management, and pollution in rivers.** He called for **greater synergies in climate action, preserving shared natural heritage such as Sunderbans, etc.**

- **Bangladesh is India's biggest trade partner in South Asia and India is the second biggest trade partner of Bangladesh.** The two-way trade in the recent past has witnessed a **quantum jump with exports from Bangladesh, for the first time, expected to cross two billion dollars.**
- The year 2021 will be historic in India-Bangladesh relations as both countries would be **commemorating the fiftieth anniversary of the Liberation War and the establishment of diplomatic relations between India and Bangladesh.**

Road Ahead:

- Human resource development is a key component of India's development cooperation efforts in Bangladesh through its several ongoing training programs and scholarships. Both countries are making efforts to jointly organize several activities to commemorate these two epochal events in India, Bangladesh and in other countries.
- The multi-dimensional cooperation between the two countries ranges from traditional sectors of

tourism, health and education to frontier technologies of nuclear science, space, and information technology.

- India and Bangladesh share bonds of history, language, culture, and multitude of other

commonalities. The excellent bilateral ties reflect an all-encompassing partnership based on sovereignty, equality, trust, and understanding that goes far beyond a strategic partnership.

WORLD ECONOMIC FORUM AND THE NATIONAL INSTITUTE OF URBAN AFFAIRS SIGN A MOU TO COLLABORATE ON A JOINTLY DESIGNED 'SUSTAINABLE CITIES INDIA PROGRAM'

Recently, the World Economic Forum and the National Institute of Urban Affairs (NIUA) signed a Memorandum of Understanding (MoU) to collaborate on a jointly designed 'Sustainable Cities India program'.

- It will aim to create an enabling environment for cities to generate decarbonization solutions across the energy, transport, and the built environment sectors.
- This initiative is particularly noteworthy as it comes after India's commitment to turn net zero by 2070 as a climate mitigation response at COP26.

Sustainable Cities India Program

- The 'Sustainable Cities India program' intends to **enable cities to decarbonize in a systematic and sustainable way that will reduce emissions and deliver resilient and equitable urban ecosystems.**
- The Forum and NIUA will adapt the Forum's **City Sprint process and Toolbox of Solutions for decarbonization in the context of five to seven Indian cities across two years.**
- The City Sprint process is a **series of multi-sectoral, multi-stakeholder workshops involving business, government, and civil society leaders to enable decarbonization**, especially through clean electrification and circularity.
- The outcome of the workshop series will be a shortlist of **relevant policies and business models, which not only reduce emissions but also maximize System Value**, such as improved air quality or job creation.
- City Sprints will help to **jumpstart and/or accelerate net zero planning and action.** The

City Sprint process **uses the Toolbox of Solutions - a digital platform containing over 200 examples of clean electrification, efficiency and smart infrastructure** best practices and case studies across buildings, energy systems and mobility from over 110 cities around the world.

- The City Sprint process will also enable cities to run pilot solutions and, based on findings, **India will be able contribute 10 to 40 best practice case studies which will be integrated into the Toolbox of Solutions and showcased across the world.**

Net Zero Carbon Cities

- The **World Economic Forum's Net Zero Carbon Cities' mission is to create an enabling environment for clean electrification and circularity**, resulting in urban decarbonization and resilience.
- The program aims to do this by **fostering public-private collaboration to bridge the gap across the energy, built environment and transport sectors.**

NIUA

- Established in 1976, the National Institute of Urban Affairs (NIUA) is **India's leading national think tank on urban planning and development.**
- As a hub for the generation and dissemination of cutting-edge research in the urban sector, NIUA seeks to provide innovative solutions to address the challenges of a **fast-urbanizing India, and pave the way for more inclusive and sustainable cities of the future.**

Way Forward

- **India is committed to become Net Zero by 2070, aligning with its vision for a 'future ready' India set during the COP26 summit in Glasgow.** In realizing this vision to accelerate the clean energy transition, conversation and more importantly, action amongst all actors of the quadruple helix is critical.

- This partnership between NIUA and WEF is an important step towards that direction. This collaboration will help cities in India and cities globally to learn from one another and drive action towards sustainable development and climate resilience.

MALDIVES: TAKING ON 'INDIA OUT' CAMPAIGN IN WORD AND DEED

A **water-cannon salute** for an Air India flight to **celebrate the 46th anniversary of air travel** between the two nations, an MoU between state-owned Maldives National University (MNU) and Aligarh Muslim University (AMU), and an agreement between Government-owned Ocean Connect Maldives and private sector Reliance Jio Infocomm Limited (RJIL) to establish the '**Maldives IAZ Subsea Cable System**'.

- Then, the Maldivian government has taken steps to curb the 'India Out' campaign, showcasing the strategic importance of India.

Genesis of India Out Campaign

- **Dhruv Advanced Light Helicopters (ALH)** that were given by India to the Maldives in 2010 and in 2015, both of which were used for **ocean search-and-rescue operations, maritime weather surveillance and for airlifting patients between islands, and were based in Addu Atoll and at Hanimaadhoo.**
- Some in the anti-India constituency, were trying to portray that by gifting these helicopters, **India was creating military presence in the country because they were military choppers.**
- According to the terms of bilateral agreements between the two countries, **Indian officers had been sent to the Maldives to train the Maldives National Defence Force, under whose command these helicopters operate.**
- A recurring complaint is the **lack of transparency in agreements being signed between the Solih government and India.** The **UTF Harbour Project** agreement signed between India and the Maldives, where **India was to develop and maintain a**

coastguard harbour and dockyard at Uthuru Thilafalhu, a strategically located atoll near the capital Malé.

- In 2016, an **Action Plan between India and the Maldives** was signed for 'defence cooperation' to **enhance "shared strategic and security interests of the two countries in the Indian Ocean region".**

What is the government's response in India Out Campaign?

- **The government has rejected the 'India Out' campaign,** expressing concern at **attempts to spread "misguided and unsubstantiated information to propagate hatred towards India".**
- The government said it **reaffirms that the country's long-standing ties with all its international partners are based on principles of mutual respect and understanding,** and in accordance with respective national and international law.
- **Such interactions in the international sphere does not, and will not undermine the Maldives' independence, sovereignty, and territorial integrity.** In fact, they are **designed to enhance the Maldives' national interests, and deliver for the people of the Maldives.**

Importance of India to Maldives

- **Maldivian food security depends a lot on imports from India,** listed rice, flour, sugar, chicken, eggs, potatoes, onions, and lentils as amongst the basic foodstuffs supplied by India.
- India is also a **major source for tourism sector,** the nation's economic mainstay.

- Certain quantities of **sand and gravel for construction work supplied by India** helps Maldives to ensure its economic development.

India funded many infrastructure and development projects in the country and **consequences of such campaigns in Maldives**

- **It has disrupted internal stability.**
- **It may pose a threat to national and regional security.**

- **Threat to foreign nationals' resident in the Maldives, and Maldivian's resident abroad.**

Road Ahead:

- MDP is divided on the 'criminalisation' concept and those concerns centre on domestic issues pertaining to democracy and freedom of expression should silence critics of India on this and also the larger issues of their 'India Out' campaign.

INDIA MUST THINK OF RECONFIGURING ITS TIES WITH RUSSIA

Through its actions in Ukraine, Russia has challenged the global order in fundamental ways and India's foreign policy won't be immune from its reverberations

- As the Russian invasion unfolds in Ukraine with dramatic alacrity, most Indians seem to be united in their condemnation of, no, not Russia, but the West.
- In one of the **most brazen violations of a weak State's sovereignty and territorial integrity** in recent memory, a big section of the Indian intelligentsia is tying itself up in knots in trying to defend the indefensible.
- Knowing full well who the aggressor is in this case, **we continue to target the West**, the North Atlantic Treaty Organization (NATO) and, worse still, **even blame the victim**.
- **Western mess:** And then, of course, there is the **West with all its talk of democracy and autonomy that continues to entice nations and is responsible for this mess in Europe**, the worst crisis since World War II.
- **Unique:** Across the political spectrum, **there is a unique convergence in India in refusing to condemn Russia** for this bizarre show of strength.
- **Indian silence:** If this were the United States (US) attacking any other nation like this, sections of our political class would be out on the streets, demanding India cut off ties with the US and organisations big and small would be burning American flags. **But an eerie silence pervades India even as we witness one of the most egregious violations** of State sovereignty in

recent times. Instead, we are trying, oh so very hard, to justify Russian actions.

- The Indian government's reaction is understandable to a certain extent.
- In his outreach to Russian President Vladimir Putin, Prime Minister Narendra Modi appealed for an **immediate cessation of violence**, and called for concerted efforts from all sides to return to the path of **diplomatic negotiations and dialogue**.
- **Primary responsibility:** New Delhi's primary concern is the **safety and security of its citizens in Ukraine** and the impact of the crisis on the global economy that is just about beginning to recover from the Covid-19 pandemic.
- **Cautious path:** Diplomatically, India has to **weigh the balance** between its ties with the West and those with Russia. The latter is India's primary **defence partner** and at a time when Indian soldiers are eyeball to eyeball with their **Chinese counterparts** at several points along the Line of Actual Control (LAC), antagonising Russia is not really an option.

Various actors responsible for this situation:

- There is a lot of blame that can be apportioned to various actors – **the way NATO expanded** after the end of the Cold War **without taking into account Russian sensitivities**.
- The way **Ukraine was mismanaged over the years** and its foreign policy was bereft of any sense of direction.

- The manner in which the **Biden administration conveyed its priorities**; and the divisions within the European Union on its future course of action vis-à-vis the Russian show of strength in Ukraine.

Hypocritic practice of India

- Russia's violation of Ukrainian sovereignty should be an **issue of principles for India**, which has supported the norm of **sovereignty globally**. New Delhi will find it difficult to talk of a **"rules-based"** order in the **Indo-Pacific if it is unwilling to stand up for the same principles elsewhere**.
- However, it can be argued, and rightly so, **that morality has little place in the rough and tumble world of global power politics**.

Impact on India:

- This **crisis and the Western response** will have a significant bearing on the strategic environment in the Indo-Pacific, a theatre that India claims is different from the European one.

- China is watching carefully and planning accordingly. The **China-Russia entente is blossoming** into a full-fledged strategic partnership.
- Despite **India's historic ties with Russia**, Moscow has been **more vocal** than even China in showcasing its **opposition to the Indo-Pacific construct and the Quad platform**. Russia has even begun to **flirt with Pakistan**.
- The foundations of the Indo-Russia partnership are **weakening by the day**. The **long-term trajectory is rather clear**.
- Today as **Russia continues to play the role of the great disruptor**, India should be thinking about reconfiguring its ties with Russia. Perhaps if India were not so dependent on Russia for its defence needs, New Delhi's response to the present crisis would have been different.



LATEST MILESTONE FOR THE AFRICAN CONTINENTAL FREE TRADE AREA: THE PAN-AFRICAN PAYMENT AND SETTLEMENT SYSTEM

African Continental Free Trade Area is in the news?

Unlike in other regions of the world, the value of intra-Africa trade has remained low over the years. Moreover, **Africa accounts for just 2 percent of global trade**. In 2021, African countries launched the **African**

Continental Free Trade Area (AfCFTA), which aims to **create a single African market for the free movement of goods, services, labour, and capital, and increase intra-African trade**.

Free Trade Agreement?

- A free trade agreement allows for **duty-free trade within a specified area, and members set their own tariffs on imports from non-members.**
- The **Organisation for Economic Cooperation and Development (OECD)** adopts a broader notion that includes non-tariff barriers as well, defining a **free trade area** as “a **grouping of countries within which tariffs and non-tariff trade barriers between the members are generally abolished but with no common trade policy toward non-members.**”

What is Africa's Trade Integration?

- The African continent first engaged in trade integration after independence, with the establishment of the **Organization of African Unity (OAU) in 1963** comprising 32 countries for **promoting understanding and cooperation** among the member states.
- Along with political purpose, with the passage of time commercial and economic interests gained prominence, with the **aim of nurturing self-reliance for the African continent.**
- Today the African Union is the largest regional grouping in the world with 55 member states.
- Among its goals is to promote free trade within Africa, and in 2012, it decided to establish a free trade area. This resulted in the adoption and signing of the **African Continental Free Trade Area (AfCFTA) in 2018.**
- Regarded as a flagship project of the **Africa's Development Framework Agenda 2063**, the AfCFTA is a preferential arrangement that includes a Free Trade Agreement and a Protocol for Free Movement of Persons. **It entered into force in May 2019 and trade under AfCFTA began on 1 January 2021.**

What are AfCFTA's trade and investment potential?

- One of the objectives of the free trade area is to **enhance intra-Africa trade and boost its position in the global market.**
- Opportunities for **trade diversification** as well as **creation of value chains.**

- This will affect the **establishment of regional value chains** and Africa's **integration in global value chains (GVCs).** It can help the countries derive the **benefits of regionalism.**
- According to estimates by the **United Nations Conference on Trade and Development (UNCTAD), Africa's export potential is around USD21.9 billion.**
- With the creation of a free trade area, African enterprises will gain access to an expanded consumer base and diverse resources within Africa.
- Some countries such as **Nigeria, Algeria and Egypt,** are well-endowed with **petroleum, natural gas, and iron ore;**
 - **Morocco is rich in phosphate;**
 - **Ethiopia has hydropower, natural gas, gold and copper;**
 - **Lesotho has precious stones;**
 - **Cote d'Ivoire has palm oil and coffee.**
- The elimination of internal tariff will facilitate **movement of raw materials and natural resources across Africa.**
- The agreement could enable the establishment and **growth of small and medium enterprises (SMEs)** within Africa, especially by aiding the **availability of inputs and raw materials at low cost.**
- The potential of the free trade area to attract more **foreign investments into Africa,** in turn **boosting domestic industries.**

What are the major challenges associated with implementation of AfCFTA?

- **Limited access to finance and resources,** as well as **lack of interest in entrepreneurship and poor education,** are some of the factors responsible for high **unemployment rates** in some parts of the continent.
- Despite being richest in its natural wealth, African continent is **impoverished By Wealth.** **Neo-liberalism** also cropped up in African societies which was just an economic process that **distrusts the state as a factor in the development.**

- **Colonization** distorted and retarded the pace and tempo of cultural growth and the trend of civilisation in Africa.
- **Climate change** has raised a debate among African countries, the main concern being how to balance between economic development and environmental sustainability.

Relations between Africa and India:

Genesis:

- India has historical ties with Africa that pre-date the Independence period. After Independence, India began to establish commercial relations with countries in Africa.
- **One of India's first preferential agreements with African countries was signed in 1974 with Senegal.** It was a limited agreement covering goods, requiring parties to accord most-favoured-nations (MFN) treatment to each other.
- **No binding tariff commitments** were made at the time.
- India is also negotiating the **India-SACU Preferential Trade Agreement and the India-COMESA Preferential Trade Agreement.** In addition to this, as a signatory to the **Global System of Trade Preferences (GSTP)** among developing countries, India accords tariff preference to the member countries, including those from Africa.

Economic ties-

- In terms of bilateral trade, **the African Union is one of India's largest trading partners after the United States (US), China, and the United Arab Emirates (UAE).**
- In 2019, **India's total exports to the African Union amounted to USD 29.59 billion and imports were valued at USD 38.74 billion.**
- There has been a **shift in India's export basket to the continent, from textile yarns to petroleum products, pharmaceutical products, chemicals and manufactured products.**

Direct investments-

- In the five years between 2015 and 2020, **India received foreign direct investments (FDI)**

worth approximately USD 62.8 billion from Africa; during the same period, Indian investments in Africa amount to around USD 20.1 billion.

- A majority of the inflow of investments from Africa to India originate from one country—i.e., **Mauritius.**
- It is the **single-largest investor in India** with a share of 28 percent in India's total cumulative FDI inflows during April 2000-March 2021.
- Overall, financial services, telecommunications services, and mining are among the largest recipients of FDI from India to Africa.

Diplomatic ties-

- From 2015-19, **India hosted around 35 African leaders.**
- Opening of 18 embassies in Africa e.g., Rwanda, Djibouti, Burkina Faso, etc.
- **ONGC Videsh** is a stakeholder in **Sudanese Petroleum sector** and exploring the resources beneficial to both.
- Efforts have taken to establish **higher educational institutions and 7 vocational training centres.**

Challenges to integration and opportunities for India:

- Lack of physical and digital infrastructure.
- Limited market knowledge.
- Language, cultural and political barriers.
- Limited access to finance.

Way forward

- The African Continental Free Trade Area is the result of an emerging ambition within the continent to become more self-reliant. Intra-Africa trade is low, and within regions, the inequalities are stark.
- This presents immense opportunities for countries with trade and investment linkages with Africa. India, for one, shares historical ties with Africa and the African Union is a large trade and investment partner for the country.
- Going forward, there is a need for greater financial sectors linkages between the two

regions. In the long run, priorities under the Focus Africa programme of the Indian Government could be aligned with Africa's

Agenda 2063, clearly defining the short-, medium- and long-term priorities for the Indian Government to partner with Africa.

WHAT IT MIGHT TAKE FOR THE IRAN NUCLEAR DEAL TO BE REVIVED

- **Western diplomats have set a deadline** of later this month to **revive the 2015 Iran nuclear deal**, signed under **President Barack Obama**, and **dismantled in 2018 by President Donald Trump**.

Reason:

- Iran's **rapid nuclear escalation after the US abandoned the deal**, and **ballistic missile stockpiles** and the **proxy conflicts** that it backs across the region.

Iran's response:

- Iran has rejected any deadline imposed by the West and replied "**regional and missile issues are non-negotiable**".
- The U.S. State Department is waiving sanctions on Iran's civilian nuclear programme in a **technical step necessary to return to the 2015 nuclear agreement**.

Need for the resumption of the waiver?

- It is essential to ensuring Iran's swift compliance" if a **new deal** on controlling Tehran's nuclear programme **can be reached in talks in Vienna**.

Repercussions of waiving the sanctions?

- It allows other countries and companies to **participate in Iran's civilian nuclear programme** without triggering U.S. sanctions on them, in the **name of promoting safety and non-proliferation**.

Iran's civilian programme?

- The civilian programme includes Iran's **increasing stockpiles of enriched uranium**.
- It helps in **detailed technical discussions** with third parties **regarding disposition of stockpiles** and other activities of **non-proliferation**.

Who are participating in Vienna talks and on what topics are going to be discussed?

- **Political decisions:** The Vienna talks, which include **Iran, the United States, Britain, China, France, Germany and Russia**, are at a **key stage** where the parties have to make "**critical political decisions**".
- **Technical discussions:** That are to be discussed in Vienna will be **facilitating the waiver** on sanctions that are to be discussed in the final weeks of **Joint Comprehensive Plan of Action (JCPOA)**.
- The U.S. official insisted that the move was not "part of a quid pro quo," as the partners in the JCPOA talks await Iran's response.

How good is the move?

- **Not a sweeping measure:** This U.S. sanctions waiver for the civilian nuclear programme is **not broader sanctions or a relief**.

What is 2015 Iran nuclear deal?

- **Iran nuclear deal** formally known as **Joint Comprehensive Plan of Action (JCPOA)**, is a **1 accord signed between Iran and US, the UK, China, Russia, France, and Germany (collectively known as P5+1)**.
- The then President Hassan Rouhani (relatively moderate) agreed to **dismantle much of Iran's nuclear programme**, and **open its facilities** to greater **international monitoring**.

What would Iran get in return?

- In return, the world powers agreed to **lift many of the sanctions** imposed on the country, **Economic: Opening its economy** to billions of dollars of lost revenue.
- **Scientific:** Iran was at a point from where it could build a weapon in approximately three months the sanctions by the world powers restricted **Iran's nuclear capabilities** to the point that it would take Tehran at least a year to build a weapon, **giving them adequate time to prepare and respond**.

Terms and aims of the agreement:

- It is **complex**, in essence, focused on **eliminating Iran's stockpiles of enriched uranium and plutonium** (needed to produce a nuclear weapon).
- To **limit the number and type of centrifuges** Iran could operate.

- A **protocol** that would allow inspectors from the International Atomic Energy Agency (IAEA) to **access its nuclear sites** to ensure Iran would not be able to develop nuclear weapons in secret.
- Many of the JCPOA's restrictions **have expiration dates**, something that the opponents of the deal flagged.

Not all sanctions lifted?

Sanctions that got lifted	Sanctions that remained
While the West agreed to lift sanctions related to Iran's nuclear proliferation .	The sanctions addressing alleged abuses of human rights and Tehran's ballistic missile programme remained in place .
US committed to lifting sanctions on oil exports .	The US continued to restrict financial transactions , which have deterred international trade with Iran.

What is the benefit for Iran, despite not all sanctions not being lifted?

- Iran's economy, after **suffering years of recessions, currency depreciation, and inflation**, stabilised significantly **after the deal took effect**,
- Its **exports skyrocketed**.

How was the regional rival's response on the waiver?

- **Israel**, strongly rejected the deal.
- **Saudi Arabia**, complained that **they were not involved in the negotiations** even though Iran's nuclear programme posed security risks for every country in the region.

- Critics point out that since 2015, Iran has **increased its support for regional proxies**, and the **Islamic Revolutionary Guard Corps (IRGC)**, a US designated a terrorist organisation, has **expanded its activities**.

What was the reply from Supporters of the deal?

- The backers of the deal believe that it **succeeded in its main objective**, which was to **contain Iran's nuclear capabilities**.

What happened after Trump abandoned the deal and reinstated banking and oil sanctions?

- Iran ramped up its nuclear programme in earnest, returning to approximately **97 per cent** of its **pre-2015 nuclear capabilities**.

What happened after US pulled of the deal in April 2020?

USAs move against the deal	Other powers move to counter US
In April 2020, under Trump's presidency, US announced its intention to snap back sanctions .	However, the other partners objected to the move, stating that since the US was no longer part of the deal, it could not unilaterally reimpose sanctions .
	Initially several countries continued to import Iranian oil under waivers granted by the Trump administration.
A year later , the US ended the waivers and, significantly curbed Iran's oil exports .	The other powers, to keep the deal alive, launched a barter system known as INSTEX to facilitate transactions with Iran outside the US banking system .

INSTEX only covered food and medicine , which were already exempt from US sanctions.	Iran announced new restrictions on the IAEA's ability to inspect facilities, and later ended its monitoring agreement with the agency.
Trump claimed to bring Iran back to the negotiating table and accept harsher terms.	Iran doubled down on its nuclear and military activities in the region, and evade sanctions by smuggling oil to buyers including China.

- However still, the new US sanctions hit the Iranian economy hard, leading to a wave of protests across the country.

Geopolitical considerations that should drive the deal going forward:

- The US would have to factor in **not only Iran's nuclear programme** but also its **increasingly hostile behaviour in the region**.
- Consideration of the **reality of the new multipolar world**, have to be taken in which its unilateral leadership is **no longer guaranteed**.

- Iran, have to consider the **rapidly changing dynamics in the Middle East**, given that **Israel has recalibrated its relations with several Middle Eastern Arab** countries in recent years.

Way forward:

- In internal political dynamics both Iran and the US have a role to play. The move towards reviving the deal was progressing and has to be carried forward.

RESEARCHERS SPOT DHOLES IN KYRGYZSTAN AFTER 3 DECADES

A new study has reported the presence of **dholes or Asiatic wild dogs (Cuon alpinus)** in the high mountains of Central Asia nearly **30 years after their presence** was last recorded.

- The paper added that "there had been no confirmed reports (of dholes) in more than 30 years from the Russian Federation, Mongolia, Kazakhstan (formerly in the Altai and Tian Shan mountains), Kyrgyzstan (formerly in the Tian Shan and Pamir mountains), Afghanistan (formerly in Pamir Mountains), Tajikistan (formerly in Pamir Mountains), or Uzbekistan (formerly in Tian Shan Mountains)."

Dholes or Asiatic wild dogs?

- The dhole (pronounced "dole") is also known as the **Asiatic wild dog, red dog, and whistling dog**. It is about the size of a German shepherd but looks more like a **long-legged fox**.
- The animals have been **discovered in the Bek-Tosot Conservancy in the Osh region of southern Kyrgyzstan**, a few kilometres from the Tajik border. It lies in the **Pamir Mountain range**.

- This **highly elusive and skilled jumper** is classified with wolves, coyotes, jackals, and foxes in the taxonomic family Canidae.

Dholes disappeared:

- Dholes **require more land for sustainable populations** than other Asian mammals due to **their complex social structure and dietary requirements**.
- **Habitat fragmentation and human activity** may have contributed significantly to their decades-long disappearances from the aforementioned countries.
- They are mostly killed by tribes such as **Kurumbas and Mon Khmer**.
- **Poisoning, snaring, shooting and clubbing at den sites** are the methods used for their hunting.

Dhole's conservation:

- They have been included in the **Schedule 2 of Wildlife Protection Act, 1972**.
- First dhole conservation breeding centre had been sanctioned by Indian government in 2014 at **Indira Gandhi Zoological Park in Vishakhapatnam**.

- It has been protected in Russia since 1974, in spite of being vulnerable.

Wildlife Protection Act, 1972:

- An Act to provide for the protection of wild animals, birds and plants and for matters connected therewith or ancillary or incidental thereto with a view to ensuring the ecological and environmental security of the country.
- It is under Ministry of Environment, Forest and Climate Change.

- It prohibits hunting, poaching, etc. and keep animals under Schedule I, II, III and IV on the basis of requirements of protection.
- It prohibits cutting and uprooting specified plants and trees under schedule V.
- The Central Government can constitute any area as a Sanctuary, provided the area is of adequate ecological, faunal, floral, geomorphological, natural or zoological significance under this act.

CHINA JOINS RUSSIA IN OPPOSING NATO EXPANSION

Recently, **China has joined Russia in opposing further NATO expansion** as the two countries move closer together in the face of Western pressure.

- Mr Putin claims Western powers are using the NATO defence alliance to undermine Russia.
- The two countries said they were "**seriously concerned**" about the **Aukus security pact between the US, UK and Australia**.

North Atlantic Treaty Organisation:

- NATO is a **military alliance formed in 1949 by 12 countries**, including the **US, Canada, the UK and France**. At present, there are **27 European countries, 2 North American countries, and 1 Eurasian country**. Its headquarters are located in **Brussels, Belgium**.

Members agree to come to one another's aid in the event of an armed attack against any one-member state.

- Its aim was originally to counter the threat of **post-war Russian expansion** in Europe. In 1955 Soviet Russia responded to NATO by creating its own military alliance of Eastern European communist countries, called the Warsaw Pact.
- NATO **promotes democratic values** and enables members to consult and cooperate on defence and security-related issues to solve problems, build trust and, in the long run, prevent conflict.
- A "NATO decision" is the expression of the collective will of all member countries since **all decisions are taken by consensus**.

China and Russia are coming closer opposing NATO's expansion:

- Aukus will see Australia build nuclear-powered submarines as part of efforts to boost security in the Asia-Pacific region. It is largely seen as an effort to counter China, which has been accused of raising tensions in disputed territories such as the South China Sea.
- Russia has long been a key supplier of oil, gas and coal for China's massive economy, now the world's second largest, along with food and other raw materials.
- Putin and Xi accused NATO and the U.S.'s Indo-Pacific strategy of building closer military ties with other countries in Asia as destabilizing and threatening regional security.
- Economic and diplomatic cooperation has expanded into the military field in recent years, as Russia and China have held a series of joint war games, including naval drills and patrols by long-range bombers over the Sea of Japan and the East China Sea.
- The two economies naturally complement each other. Russia has a huge endowment of natural resources, but needs technology and capital. China is, in many ways, the opposite, which means there is a potential to explore these synergies.

Road Ahead:

This is about respecting independent sovereign choices of independent nations, not returning to an age of spheres of

influence where big powers decide what small neighbours can do or not do.

CHINA, PAKISTAN INK NEW CPEC AGREEMENT

- China and Pakistan have signed a new **agreement on industrial cooperation** as part of the China Pakistan Economic Corridor (CPEC) plan during Prime Minister Imran Khan's on-going visit to Beijing.
- The industrial cooperation agreement is a key part of what is being called "phase two" of CPEC.
- The first phase primarily involved Chinese investments in energy projects as well as road infrastructure.
- The agreement between Pakistan's Board of Investment and the NDRC is aimed at boosting Chinese investment in Pakistan as well as transferring Chinese industrial capacity.

TONGA CALAMITY: IMPACT OF NATURAL DISASTERS ON SUBMARINE CABLES

On 15 January 2022, the Hunga Tonga–Hunga Ha'apai volcano, erupted underwater and led to a cascading tsunami. The intensity of the shock waves and tsunami was so high that they were felt and detected not only in the Pacific but also in the Mediterranean, Caribbean and Atlantic regions.

Significance of submarine cables:

- Submarine cables or **underwater sea cables are optical fibre cables** that are laid on the seabed using ships and connect landing ports.
- In these fibre-optic cables, data transmission happens through light waves being fired at rapid rates using a thick glass fibre between multiple transmitters, repeaters and receivers.
- The financial transactions amount to around US\$ 10 trillion daily through these networks of cables.
- These cables are owned by consortium telecoms firms that manufacture, deploy and maintain submarine cables and can be state-owned, private or with joint rights.

Challenges associated with submarine cables?

- Submarine cables are neglected under the UN Convention on the Law of the Sea and needs sustained international cooperation.
- The major risks to undersea submarines are natural disasters and man-made activities that can be accidental or intentional.
- Instances of aquatic life damaging these cables are also quite rare and natural causes for such

faults only account for 10 per cent of the total cases.

- Unintentional human mistakes due to ships and fishing vessels' anchors cause two-thirds of all cable mishaps.
- Lack of route-diversity is, in and of itself, a major vulnerability.
- A darker threat that has resulted from the rise of the non-State malevolent actor in general and the State-sponsored non-State malevolent actor in particular.

Measures to address concerns associated with submarine cables?

- Supplementing undersea cables with other systems like Satellite Communication and Underwater Wireless Communication (UWC) is the key to mitigating submarine cable-related losses.
- 5G wireless networking technique to support radio frequency, acoustic and optical signal carrier will play a significant role in 'observation of marine life, water pollution, oil and gas rig exploration, surveillance of natural disasters, naval tactical operations for coastal securities and to observe the changes in the underwater environment' with the proliferation of the Internet of Underwater Things (IoUT).
- Submarine cables are either lightly or heavily armoured, with the breaking strength of these

cables varying from a few tonnes to more than 40 tonnes.

- Cables close to shore, where most bottom-trawling occurs, are not only armoured but also buried in the seabed.
- Innovative approaches can be utilised to repair undersea cables instead of using ships that delay the process. Using Autonomous Underwater Vehicles is a faster, cheaper and safer way to fix the cables.

Road Ahead:

Submarine communication cables are the backbone of the modern-day Internet and are heavily relied-upon by critical sectors such as financial markets, industries, and military and diplomatic organisations, making them critical to a State's economic and political functioning. Whilst submarine cables are vulnerable to natural disasters, replacing this critical global infrastructure with other alternatives isn't prudent.

THE FRACTURED DIPLOMACY OF COUNTERING TERRORISM

Taliban walked back into Kabul, and today, one way or another, the world is divided on how to deal with the militant group regaining control over Afghanistan.

- In January, India assumed the chair of the **Security Council Counter-Terrorism Committee of the United Nations (UN)**. The seat gives India a great podium to highlight the cross-border terrorism it has faced over the decades, much of which has been highlighted repeatedly as a state policy act of Pakistan.

Reasons for fractured diplomacy of countering terrorism?

- Lack of proper definition related to terrorism.
- At multiple forums, **diplomacy of terrorism has often been used as a tool to stifle or support geopolitical rivalries**, instead of rallying a common global narrative. e.g. recent attack by Houthi militants against UAE.
- Hegemony in the international system by one or two actors will cause a high level of transnational anti-systematic terrorism as a war by proxy develops. Therefore, terrorism can represent a backlash against globalisation and modernisation.

Diplomatic strategies to counter terrorism:

Normative measures are the most important part of the UN counter-terrorism mechanism. It has three aspects:

- **De-legitimization of terrorism:** De-legitimation is a process of discrediting a targeted individual, group, organisations and other objects.

- **Comprehensive vs sectoral approach:** Third world countries such as India and Algeria regarded terrorist bombing, hostage taking, the kidnapping of diplomats, terrorist financing and the use of weapons of mass destruction, not as terrorism per se but distinct manifestations of terrorism because they follow comprehensive approach.
- **Root cause approach:** The supporters of this approach insist on addressing the underlying causes that lead to the birth, expansion and persistence of terrorism.
- Coercive measures consists of sanctions and the use of force.
- Country should take legal measures via drafting resolution at global level in various global forums and to agree upon a universal definition of terrorism and to outline special laws under which all terrorists could be prosecuted
- Compliance and domestic implementation through amendments in domestic laws such as india amended Unlawful Activities (Prevention) Act and should become signatory to various counter-terrorism conventions.
- Promotion of international cooperation.

Role of India in countering terrorism:

- India had played an important role in the **drafting of the General Assembly Resolution 40/6 in 1987**.
- In 1996, India tabled the **Draft International Convention on Suppression of Terrorism** in

the General Assembly, which aimed to deal with state support to terrorism.

- The major domestic response to Mumbai has been an emphasis on streamlined coordination between agencies across state and federal lines, and the creation of a new National Investigation Agency (NIA)
- The aim of the NIA is to empower a federal agency to **investigate major crimes** such as **terrorism and organized crime** without having to be asked to do so by the states.
- There will be **special courts** that can rapidly hear **terror-related cases**.
- The Measures to Prevent **Terrorists from Acquiring Weapons of Mass Destruction** (2002) and the **Comprehensive Convention on International Terrorism** (1996) are the two most noticeable drafts sponsored by India at the General Assembly.
- In response to the UN call to become a signatory to counter-terrorism conventions, India has

become the party to 14 major legal instruments on countering and suppressing international terrorism.

- Coercive steps taken by India can be seen during pulwama attacks and uri attack as well.

Road Ahead:

- Terrorism is one of the most severe threats to global security. India advocates that terrorism cannot and should not be seen in us versus their framework and fought through a strategy fragmented in lines with international borders. Rather, it should be universally defined as 'criminal and unjustifiable act'.
- The international community must adopt a universal '**zero tolerance**' policy to tackle the menace effectively. "The **promotion and protection of human rights for all** and the **rule of law is essential** to all components of the Strategy, recognizing that effective counter-terrorism measures and the promotion of human rights are not conflicting goals, but complementary and mutually reinforcing".

AFGHANISTAN-PAKISTAN RELATIONS AND THE DURAND LINE: WHY IS IT IMPORTANT?

Recently, the Pakistani forces encroached 15 kilometres inside Afghani territory in the **Chahar Burjak** district to erect fences.

Genesis:

- The **Pashtun Empire disintegrated after the fall of the Durrani dynasty** in the 18th century and the British eventually extended their control to the region.
- A policy reassessment was undertaken when the two **Anglo-Afghan wars (1838-42 and 1878-80) failed to expand British influence** and tame the belligerent tribal groups.
- A **tripartite frontier** was postulated with three concentric frontiers:
 - The first at the foothills of the Sulaiman hills, till where the British had formal control;

- The second where the vassal states under the 'influence' of British were located; and
- The final buffer which was Afghanistan itself.

Durand Line?

- The Durand Line is a **legacy of the 19th century Great Game** between the Russian and British empires.
- The **British Empire used Afghanistan as a buffer** against a feared Russian expansionism to its east.
- The agreement demarcating what became known as the **Durand Line** was signed on **November 12, 1893**.
- The agreement was signed between the **British civil servant Sir Henry Mortimer Durand** and **Amir Abdur Rahman, the then Afghan ruler**.

- The line stretches from the border with China to Afghanistan's border with Iran.

Durand Line is a bone of contention between Afghanistan & Pakistan?

- The bilateral relationship between Afghanistan and Pakistan has always been under stress and a major point of contention is the Durand Line.
- Afghanistan considers **Durand Line a 'historic mistake'**, a vestige of British colonialism that the Afghans don't accept.
- Pakistan considers it the **legally binding international border** and regards the fencing as a fait accompli as 90 percent of it is completed.
- The 'policing' of the border to **exercise national sovereignty and territoriality** has had an adverse impact on the closely knit sense of community that the people feel.

Why Border Management is important in South Asia?

- The borders became **imperative in the transition from a colony to a nation state** for the newly independent countries in South Asia.
- The border fencing is a means of **regulating the movement and obstructing the smuggling of drugs and goods** that has continued unabated.
- The borders in South Asia can be protected by making them as social bridges and using only military means will only increase its political volatility and the subsequent violence.

Vienna Convention on the Law of Treaties

- It is an international agreement regulating treaties between states.
- It establishes comprehensive rules, procedures, and guidelines for how treaties are defined, drafted, amended, interpreted, and generally operated.
- The convention was adopted and opened to signature on 23 May 1969 and it entered into force on 27 January 1980.
- It was drafted by the International Law Commission (ILC) of the United Nations.

UKRAINE CRISIS AND US-RUSSIA FACE-OFF AT UN SECURITY COUNCIL

The UN Security Council has expressed its concern over the crisis with Washington vowing to hold Russia to account if it attacks Ukraine.

Genesis:

Ukraine has become the focus of geopolitical attention in recent weeks as a Russian troop build-up along its eastern border and a list of demands from the Kremlin have prompted threats of sanctions by the **West and military deployment by NATO allies.**

Ukraine important to Russia:

- Ukraine was part of the **Soviet Union** before it collapsed at the end of the Cold War in 1991, and it borders Russia to its east.
- The disintegration of the Soviet Union left Russia with a **vastly depleted population, territory and economy.**
- It also **diminished** **Russia's superpower** status.

- Now Russian President Vladimir Putin is seeking to **reclaim some of that glory** and undo some of what Russia lost in the Cold War. He has described Russians and Ukrainians as "**one people, a single whole.**"
- **Actions by Russia at Ukrainian borders that raises suspicion:**
- Moscow has amassed 100,000 troops near the Ukrainian border and has been moving tanks, infantry fighting vehicles, rocket launchers and other military equipment westward from bases in Russia's far east.
- Russia is moving troops and **S-400 surface-to-air missile systems** into **Belarus**, which borders **Ukraine and NATO members Poland, Latvia and Lithuania.**
- Russia also has moved **several ships near Ukraine's shores** in the **Black Sea** and the **Sea of Azov.**

- It has announced new **military exercises** in the **North Caucasus**.
- It had sent **medical units to the front**, moving to a level of readiness that it hadn't reached in past build-ups.

What is Russia's intention?

- Mr. Putin's goal is to **extract concessions** from Ukrainian President Volodymyr Zelensky and **force him to give Russia a say in Ukraine's future**. That would send a message to other former **Soviet states that the West can't guarantee their security**.

Where is Ukraine?

- Ukraine is located in **Eastern Europe** and its eastern flank borders Russia. To the west, it is **bordered by Poland, Slovakia, Hungary, Romania and Moldova, and to the north by Belarus**.
- The **Black Sea** runs along Ukraine's southern coast.

Is Ukraine a U.S. ally and is it part of NATO?

- Ukraine at present is **not a part of the North Atlantic Treaty Organization** but it is a "**partner country**" **to the military alliance**, and agreements in place mean it could become a NATO member in the future.

What is NATO doing in response to Russia's military build-up?

- NATO allies are **bolstering the alliance's eastern flank**, which borders Ukraine, deploying jet fighters and ships to the region in response.
- The **European Union** has set out plans for **loans and grants to Ukraine** worth more than **\$1.3 billion**.
- The **Pentagon** ordered thousands of troops to prepare for **possible deployment**.

What does Putin want?

- Mr. Putin want to reassert Russia's influence over its neighbours, particularly Ukraine.
- In **2014, he annexed Ukraine's Crimean Peninsula, fomenting an eight-year war** in the country's east.

- He has left Western leaders guessing **whether he would stage a major invasion** of Ukraine and breakdown in ties with the West, or whether he would be satisfied with wringing a few concessions (which include NATO's guarantee that it won't give membership to Ukraine).
- He demanded that **NATO curb military exercises** in Ukraine and other former Soviet nations, and that the alliance **pull its forces back from its eastern member states**. As **NATO deployed about 5,000 troops** to Poland and the Baltic countries after Russia invaded Ukraine in 2014.

What has the U.S. said to those demands?

- The U.S. and its allies **rejected Moscow's demands** arguing that states are **free to associate** with any other states they choose.
- The U.S. delivered **unpublished proposals** to the Russian Foreign Ministry on ways to avoid confrontations in the **Black Sea and missile-related inspections** on each side.
- Moscow said Mr. Putin would take his time considering the proposals but that there was little room for optimism.

What would happen if Russia invaded Ukraine?

- It would amount to the **largest invasion since World War II**.
- **US** has warned severe consequences, including significant **economic sanctions**, **beef US forces presence, NATO's presence**, in an eastern front, Poland, Romania, etc."

What is Nord Stream 2 and what part does it play in the crisis?

- Nord Stream 2 is a **natural-gas pipeline** that runs from **Russia to Germany**, a **NATO member**, and is awaiting signoff from German regulators.
- U.S. lawmakers and some officials worry that the 764-mile pipeline **will strengthen Russia's grip on the European energy market and weaken Ukraine**, which hosts a gas-transit network, as it tries to resist Russian aggression. **Germany is the world's biggest**

buyer of Russian gas, drawing more than half of its supply from Russia.

- Nord Stream 2 would **double capacity for Russian gas exports** to the country currently being channelled through the parallel Nord Stream 1 pipeline.
- **Mr. Scholz** hasn't made any such commitment despite repeated urging from Washington and other allies, which hope to use the **pipeline as**

leverage against the Kremlin. The chancellor has said that **Nord Stream 2 is a purely private-sector project** that must be separated from political discussions.

- European officials have been **scrambling to secure backup energy** supplies in the event that a conflict disrupts flows from Russia, enlisting the help of the U.S. and talking with gas producers such as Qatar and Azerbaijan.

BLUE OPPORTUNITIES FOR THE PACIFIC SMALL ISLAND DEVELOPING STATES (PSIDS)

Blue opportunities are developing for PSIDS while facing numerous threats of climate change.

What are PSIDS?

- The PSIDS are among the **smallest and most remote countries** on earth. Together they comprise a **land area of only half a million square kilometres** scattered in the world's largest ocean, with a significant portion of that land made up of low-lying atolls that do not reach more than a few meters above current sea level.
- **Papua New Guinea is the largest of the PSIDS in terms of total landmass (462,840 km²)**, and population (6.3 million estimated in 2007). The remaining PSIDS are under 20,000 km², about half are under 1,000 km² and have populations of less than one million.

Geopolitical significance of PSIDS?

- The Pacific Small Island Developing States (PSIDS) are blessed with **close proximity to the vast ocean and its resources**. In the PSIDS, almost 90 percent of the people live within 10 kilometres of the ocean.
- The Pacific Ocean is regarded as something that connects them as the **ocean is the means for transportation, trade, and many other forms of economic activity**.
- It is **regarded as the 'mother'**, since it **provides food, livelihoods, recreation, and solace** for almost all inhabitants of the PSIDS.
- There is **great diversity across the Pacific Islands region**, from Fiji, which is the largest country of the group (excluding Papua New Guinea) with a population of over 900,000, to

Tuvalu and Nauru, with estimated populations of approximately 11,000 each

- Pacific Island countries have **substantial natural resources**, they are **rich in cultural diversity and are rapidly increasing their trade and digital links with global markets**.

Challenges associated with PSIDS?

- Slow onset events—like **rising sea levels, ocean acidification, and salt-water intrusion with coastal flooding swallowing arable land and white sandy beaches** are impacting the lives of the people.
- The PSIDS are greatly **resource-constrained**.
- In the aftermath of the COVID-19 pandemic, many of these countries are at the brink of an **economic crisis**.
- **Changing weather patterns and natural disasters**.
- **Loss of coral reefs**.

Blue opportunities for PSIDS?

- PSIDS collectively worked on the **Strategy 2030**, which is a 10-year plan envisioning sustainability, low-carbon growth and development, and climate resilience, working towards achieving the **2030 Agenda for Sustainable Development**.
- Vulnerable communities have been working on **coastal conservation methods by constructing sea walls, dykes, and groynes**.
- As a means of developing the blue economy, the PSIDS launched the **Pacific Blue Shipping**

Partnership (PBSP) with the key focus of decarbonising the maritime shipping sector.

- Investments in a **submarine fibre optic cable** are set to increase connectivity in Papua New Guinea and Solomon Islands.
- Support is rooted in a commitment to the **use of innovative blue financial instruments, including through the Global Fund for Coral Reefs.**

Steps should be taken by PSIDS for climate-resilience?

- Development of the **Nationally Determined Contributions (NDC)** soon after the **Paris Agreement**. Following that were the **NDC-implementation roadmaps and the Low Emissions Development Strategy (LEDS).**
- PSIDS might have to focus more on mitigation and adaptation strategies that can bring about the anticipated development and economic growth in the region.
- The **coral reef restoration** is also essential for **damping waves and trapping sediments.**
- **Sustainable and climate-smart agriculture** for the region.
- A large-scale **climate-resilient infrastructure** transformation is crucial.

- **Nature-based solutions** for coastline protection have been proposed as suitable and cheaper alternatives with added benefits.
 - This includes planting **mangroves** as the first line of defence to reduce the wave intensity and storm surge.
 - Having **seagrass** to prevent soil erosion and stabilise sediments.

Way forward

- The ocean is not a problem in the PSIDS' equation, but a solution for the PSIDS providing a range of job opportunities, livelihood options, food security, eco-tourism, trade, and transportation.
- Putting the plan into action requires science-based informed decisions with well-coordinated, in-tandem, and synergetic support and enablers including finance, technology, policy and social acceptances that are aligned with the SDGs, NDCs, and development goals for green growth and blue economy development, not forgetting the blue-green recovery from the COVID-19 pandemic.
- Concerted practical actions based on bankable strategies are required from the ridges to the reefs rather than standalone silo projects.

13 MILLION FACE SEVERE HUNGER IN HORN OF AFRICA: UN

According to the United Nations World Food Program, the drought conditions have left an estimated **13 million people facing severe hunger** in the Horn of Africa.

- People in a region including Somalia, Ethiopia and Kenya face the driest conditions recorded since 1981.
- Drought conditions are affecting pastoral and farming communities. Malnutrition rates are high in the region.
- WFP said it needs \$327 million to look after the urgent needs of 4.5 million people over the next six months.

UN World Food Program:

- It is the world's largest humanitarian organisation addressing hunger and promoting food security.
- It was created in 1961 at the behest of US President Dwight Eisenhower as an experiment to provide food aid through the UN system.
- In 1965, WFP is enshrined as a fully-fledged UN programme: it is to last for "as long as multilateral food aid is found feasible and desirable".
- In October 2020, the Norwegian Nobel Committee decided to award the Nobel Peace Prize to WFP "for its efforts to combat hunger.
- It works closely with its two Rome-based sister organizations, the Food and Agriculture

Organization of the United Nations and the International Fund for Agricultural Development.

Mission of UN World Food Program

- It is the leading humanitarian organization saving lives and changing lives, delivering food assistance in emergencies and working with communities to improve nutrition and build resilience.
- As the international community has committed to end hunger, achieve food security and improved nutrition by 2030, one in nine people worldwide still do not have enough to eat.

- WFP's efforts focus on emergency assistance, relief and rehabilitation, development aid and special operations.
- WFP development projects focus on nutrition, especially for mothers and children, addressing malnutrition from the earliest stages through programmes targeting the first 1,000 days from conception to a child's second birthday, and later through school meals.
- In 2020, WFP provided 4.2 million metric tons of food and US\$2.1 billion of cash and vouchers.

UKRAINE CRISIS AND US-RUSSIA FACE-OFF AT UN SECURITY COUNCIL

On 31 January 2022, the United Nations Security Council (UNSC) witnessed a fiery session that echoed the **Cold War era**.

- The two permanent members of the Security Council, the United States (US) and Russia **engaged in a bitter diplomatic brawl** over the **Ukraine crisis**.
- The US accused Russia of threatening peace and subverting global security by amassing more than 1,00,000 troops on Ukraine's borders.
- Russia strongly opposed a UNSC discussion on the issue stating that "**positioning troops within its territory is a domestic matter**, not a threat to **international peace and security**".

Causes of Ukraine crisis?

- For the US and the European Union, **Ukraine is a crucial buffer** between Russia and the West.
- The unique geography of the Black Sea region confers strategic and geopolitical advantages to Russia.
- Firstly, it is an important crossroads and strategic intersection for the entire region.
- Access to the Black Sea is vital for all littoral and neighbouring states, and greatly enhances the projection of power into several adjacent regions.
- Secondly, the region is an **important transit corridor** for goods and energy.

- The **Black Sea is bordered by Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine**. All these countries are **NATO countries**.
- **Euromaidan (European Square)** was a **wave of demonstrations and civil unrest in Ukraine**, which began in November 2013 with public protests in Maidan Nezalezhnosti ("Independence Square") in Kyiv, Ukraine.
- The protests were sparked by the Ukrainian government's decision to suspend the signing of an association agreement with the European Union, instead choosing closer ties to Russia and the Eurasian Economic Union.
- The **Donbass region** (the Donetsk and Luhansk regions) of **eastern Ukraine** has been **facing a pro-Russian** separatist movement since 2014.
- **Russia seized Crimea from Ukraine** in what was the first time a European country annexed territory from another country since World War-2.
- The annexation of Crimea from Ukraine followed a Russian military intervention in Crimea that took place in the aftermath of the 2014 Ukrainian revolution and was part of wider **unrest across southern and eastern Ukraine**.
- **Ukraine has urged** the North Atlantic Treaty Organization (NATO) to speed up his **country's membership** in the alliance.

India's Position

- For India, the Ukraine crisis is a challenging foreign policy issue. **Moscow and Washington** are New Delhi's key strategic partners, and **abandoning one is not sensible**.
- Though ties between Washington and New Delhi have grown significantly in recent years, New Delhi still maintains a special and privileged friendship with Moscow. Therefore, at the UNSC, India's response to the Ukraine crisis was cautious and that explicitly demonstrated New Delhi's strategic autonomy.
- At the UNSC, India's response to the Ukraine crisis was two-fold. First, **India abstained from a procedural vote** on whether to discuss the situation in the Council.
- It was a continuation of **India's neutral stance** on the issue. For instance, in 2014, **India abstained** from a General Assembly resolution endorsed by Ukraine, the US and the EU, which sought **to condemn Russia's annexation of Crimea**.
- During the UNSC discussion, India urged all parties to engage through diplomatic channels and fully **implement the Minsk Package**. The Indian statement also expressed concerns over more than **20,000 Indian nationals living in Ukraine** and noted that New Delhi's utmost priority is their well-being.

Road Ahead:

- The unfolding game of chicken between Russia and the United States (US) and EU over Ukraine is classic geopolitics, **reminiscent of Cold War** negotiation patterns and lingering political and security stakes from that period.
- The "contact groups" strategy would be far more fruitful, both in the immediate crisis context and in the mid-term. The EU and Russia should bring together representatives of the major political groupings in Ukraine and mediate talks to map out a road to greater devolution, something the recent congress of eastern regions called for. To get to any kind of agreement will require a lot of leverage from the mediators, but the process

itself seems to offer the best way to a political rather than coercive resolution of the crisis.

Minsk Agreements:

Minsk I:

- Ukraine and the Russian-backed separatists **agreed a 12-point ceasefire deal** in the capital of **Belarus** in September 2014.
- Its provisions included **prisoner exchanges, deliveries of humanitarian aid** and the **withdrawal of heavy weapons**.
- The **agreement quickly broke** down, with violations by both sides.

Minsk II:

- In 2015, an **open conflict was averted** after the 'Minsk II' peace agreement was signed, under the **mediation of France and Germany**.
- It was **designed to end the fighting in the rebel regions** and hand over the border to Ukraine's national troops.
- It was signed by Representatives of Russia, Ukraine, the Organisation for Security and Cooperation in Europe (OSCE) and the leaders of two pro-Russian separatist regions.
- **OSCE is the world's largest security-oriented intergovernmental organisation**. Its mandate includes issues such as arms control, promotion of human rights, freedom of the press, and fair elections.

Black sea:

- It is bordered by Ukraine to the north, Russia to the northeast, Georgia to the east, Turkey to the south, and Bulgaria and Romania to the west.
- The **Black Sea** occupies a large basin strategically situated at the south-eastern extremity of Europe but **connected to the Atlantic Ocean by the Bosphorus, the Sea of Marmara, the Dardanelles, the Aegean Sea, and the Mediterranean Sea**.
- The ancient Precambrian rocks of the southern tip of the structural block known as the Russian (or East European) Platform, dating from at least 540 million years ago, appear in the northwest.
- The rivers drain into black sea are Danube, Dnieper, Dniester, and Don.

STREET CHILDREN: THE NEGLECTED PATHOLOGY

According to the UNICEF India report 2020, interrupted learning impacted 286 million children, with increase in the school dropout rates due to the closure of schools during the pandemic.

Who are street children?

- Street children as defined by United Nations (UN) are children working/living on the street, whose families are on the street or children who've run away from their families and are living on the streets.
- Away from the basic needs and opportunities, they are deprived of family care, protection, and face abuse, neglect, and death.

Statistics related to street children:

- The **UNICEF in the year 2000, estimated 18 million street children in India, which is the highest in the world.**
- The lockdown and its extension significantly impacted **nearly 40 million children** belonging to the poor and underprivileged families such as **children of migrants, children working on farms and fields in rural areas, and street children.**
- According to a report, **356 million children, i.e., 17.5 percent children, live in extreme poverty, which means existing on less than US \$1.90 a day.**
- According to the **National Human Rights Commission**, **around 40,000 children are abducted every single year and over 25 percent of them remain untraced.**

Factors associated with creation of street children:

- **Economic crisis and extreme poverty, abandonment, and dysfunctional families** are common push factors of creating more street children.
- **Unemployment, poverty, violence at home, family disintegration, lack of shelter, rural-urban migration, displacement due to floods, drought or any other calamity as well**

as social exclusion within societies with high inequalities.

- Unstable and violent circumstances within the family can weaken the family connections with the children, interrupt their access to adequate schooling, weaken their educational and scholastic performance, affect their friendships and other relationships, and weaken their connections with the school and the community they live in.
- Families usually struggle to cope up with **overcrowded housing situations**, leading to **increased health risks** and poor access to basic services.
- Other causes that lead to the streets include diseases like **HIV/AIDS and leprosy, harmful practices such as early and forced marriages, and social phenomenon like wars and internal displacement.**

How to bring them to mainstream society?

- **Regulation and prohibition on child beggary, roadside hawkers, and begging rackets and scams need to be discussed amongst the policymakers** to come up with solutions and execute them at the district level.
- It is important to **set up of child guidance clinics including psychiatrists, psychologists, therapists** to guide and counsel the children who are alienated from their families and society.
- It is also imperative to have an **elaborate survey and to develop a data management system** by a unified body to measure the absolute prevalence of street children in the country in each state, identifying the hotspots and the causes associated with it.
- This data system should be incorporated with **GIS mapping** to identify areas of concern and keep an eye on social misconducts and help in decision-making and implementation of plans and programmes.

- Absence of any reliable data source and data availability with no thorough surveys. Data availability and survey by public institutions which will help to eliminate this menace.
- **The development of shelter homes, identification the homeless people, and incorporation into the national development** by encouraging utilisation of health and nutrition programmes.

Way forward

- A sanctioned budget and schemes for empowering rescued street children especially girls need to be instated. Job training and skill development will provide them this financial

freedom. Sensitisation and awareness regarding the impacts of drug abuse amongst young and adolescent age group is important.

- District planning committee as well as Panchayati Raj Institutions (PRI) and local self-governments can play important roles in the implementation process to prevent such negative deviance in the society that has a strong hold on the socio-cultural connect of the community.
- Violence against Children need special mention from the authorities in the country which have failed to provide equal opportunity to all children as well as recognition to the problem of street children in India.

HARNESSING DIGITAL FINANCIAL INCLUSION UNDER THE G20 DIGITAL ECONOMY AGENDA 2023

As the G20 president in 2022, the Indonesian G20 Presidency has upgraded the **Digital Economy Task Force to a Digital Economy Working Group and identified 'digital financial inclusion' and 'payment system in the digital era' as the key priorities under the G20's finance track for 2022.**

Digital financial inclusion:

- Digital financial inclusion involves the **deployment of the cost-saving digital means** to reach currently financially excluded and underserved populations with a range of formal financial services suited to their needs that are responsibly delivered at a **cost affordable to customers and sustainable for providers.**
- **Government-to-person payments**, such as **conditional cash transfers**, that can enable digital stored-value accounts may provide a path for the financially excluded into the financial system.
- Typically, lower costs of digital transactional platforms allow customers to **transact locally in irregular, tiny amounts, helping them to manage their characteristically uneven income and expenses.**

- Additional financial services tailored to customers' needs are made possible by the **payment, transfer, and value storage services embedded in the digital transaction platform** itself, and the data generated within it.
- **Reduced risks of loss, theft, and other financial crimes posed by cash-based transactions.**
- **Reduced costs associated with transacting in cash and using informal providers.**

Challenges associated with digital financial inclusion?

- Digital technology risks can occur across digital financial services and markets value chain including—**operational, credit, liquidity, consumer, anti-money laundering, and financing of terrorism (AML/CFT).**
- Most merchants and their customers perceived **cash as more convenient** than digital channels due to **unreliable electricity, slow internet, and difficulties while using point-of-sale terminals.**
- Novelty risks for customers due to their **lack of familiarity with the products, services, and**

providers and their resulting vulnerability to exploitation and abuse.

- **Agent-related risks** due to the new providers offering services are not subject to the consumer protection provisions that apply to banks and other traditional financial institutions.
- **Digital technology-related risks can cause disrupted service and loss of data**, including payment instructions (for example, due to dropped messages), as well as the risk of a privacy or security breach resulting from digital transmittal and storage of data.

How to ensure digital financial inclusion?

- A common GPF's HLP 1-approach focuses on leveraging **Government-to-Person (G2P) payments and introducing a legal, digital identity to encourage financial inclusion**.
- By providing **greater investment in infrastructure and transaction accounts**, the G2P payments have the potential to drive financial inclusion.
- The large-scale recurrent payments in the form of **social benefits, wages, and pensions can deepen the national retail payment systems**.
- **India's Direct Benefit Transfer (DBT) and AADHAAR (digital identity)** is representative of how public digital platforms can be utilised to enable government response to the disruption of livelihoods and economies through digital financial inclusion during COVID-19.
- Under the Digital Economy Working Group, **India can promote the collaboration between G20 member countries'**

policymakers, central banks, and regulatory authorities to ensure G2P payments, especially to the vulnerable populations such as the elderly, women, youth, and economically disadvantaged.

- Digitalisation can facilitate a **faster and easier remittance process**—increasing the recurrent payments and volume of funds. Remittances can also reinforce the linkage between investment, saving, and insurance.

Road Ahead:

- Access to affordable financial services can help spur economic growth, reduce inequality, and improve individuals' resilience to financial risks.
- It is directly linked to smoother consumption, increased investment in education and health, and greater inclusion in financial markets around the world.
- Digitalisation can be a key enabler of financial inclusion and play a crucial role towards an inclusive recovery from the pandemic.
- An open and inclusive payments system can increase the digital payment volumes and enhance the economic participation of those who lack any access to formal financial services.
- It is important for the G20 countries to coordinate their efforts towards providing an inclusive, enabling and fair digital economy by urging the members to support the promotion of a digital approach to financial inclusion.
- An open and inclusive payments system can increase the digital payment volumes and enhance the economic participation of those who lack any access to formal financial services.

EXPLAINED: THE BILL PASSED BY US CONGRESS TO END FORCED ARBITRATION IN SEXUAL ASSAULT, HARASSMENT CASES

Recently, the US Congress has passed a legislation that ends forced arbitration in sexual assault and harassment disputes at workplaces.

- The bill will allow survivors to sue their abusers in a public court even if they have signed employment agreements that require them to settle disputes internally through an arbitrator.

What is forced arbitration?

- Often employee contracts contain arbitration provisions that limit what they are allowed to say in public about workplace disputes such as those pertaining to sexual harassment or racial discrimination.
- It allows companies to settle disputes through an arbitrator – an independent body, usually comprising lawyers or retired judges – behind

closed doors, instead of allowing its employees to pursue legal action publicly.

- The Bill nulls both pre-dispute arbitration agreement and pre-dispute joint-action waiver (which may or may not be part of the arbitration agreement).
- It defines pre-dispute arbitration agreement as “any agreement to arbitrate a dispute that had not yet arisen at the time of the making of the agreement”.
- It also defines pre-dispute joint-action waiver as an agreement that prohibits or waives the right of the employee to “take part in a joint, class, or collective action in a judicial, arbitral, administrative, or other forum, concerning a dispute”.

India's law against sexual harassment at the workplace

- While the Sexual Harassment of Women at Workplace Act 2013 does not have provisions for arbitration, similar criticisms have been made

against the “internal committees” instituted by the Act to address grievances.

- The Justice Verma Committee in its 2013 report had found constituting in-house committees “counter-productive” as it may discourage victims from filing sexual harassment complaints. It had instead recommended forming an employment tribunal.
- The committee in its report had recommended deleting Section 10 of the Act, which allows for ‘conciliation’ if requested by the survivor to settle the dispute with the respondent before the internal committee launches an inquiry.
- In 2019, the National Commission for Women made a similar suggestion, stating that the provision may force women to withdraw a case to safeguard the honour of the workplace.
- An India Spend investigation in 2021 noted that despite the law the workers in the informal sector, which employs 95% of women, find it hard to access legal mechanisms to report sexual harassment.

WHY AUSTRALIA HAS LISTED KOALAS AS ENDANGERED SPECIES

Once found in abundance, Australia's much-loved **koalas** have now been officially classified as ‘endangered’ after widespread bushfires, drought and land clearing destroyed much of their eucalyptus-rich habitat.

- The conservation status of the marsupials was updated from ‘vulnerable’ to ‘endangered’ in Queensland, New South Wales and the Australian Capital Territory, based on the recommendation of the threatened species scientific committee.

Koalas

- According to fossil records, Koala species have inhabited parts of Australia for at least 25 million years but today, only one species remains – the *Phascolarctos cinereus*.
- They are found in the wild in the southeast and eastern sides of Australia – in coastal Queensland, New South Wales, South Australia and Victoria.

- Since Europeans first settled in the region, the Koala population has faced widespread habitat loss, particularly due to agriculture and the construction of urban settlements.
- They survive on a strict diet of up to a kilogram of eucalyptus leaves every day.
- Due to the low nutritional value of these leaves, koalas tend to sleep for extended periods, often up to 18 hours a day, to conserve energy.

Reasons for declaring Koalas Endangered

- Australia's Koala population has been on the road to extinction for over two decades now.
- The number of Koalas in NSW declined by between 33 per cent and 61 per cent since 2001, while in Queensland the Koala population decreased by at least half during the same period.
- Koalas were classified as “vulnerable” only in 2012.

- A major threat to Koalas is the spread of chlamydia, a sexually transmitted disease known

to cause blindness and cysts in the koalas reproductive tract.

NAVY'S LARGEST EXERCISE MILAN TO BRING TOGETHER OVER 35 COUNTRIES

The Navy is set to hold the **12th President's Fleet Review (PFR)** at **Visakhapatnam** and few days from that it will host the largest multilateral exercise in this region, **Milan 2022**

- MILAN exercise will see **participation of all major Navies** including Quad countries, Russia and from West Asia amid tensions in Ukraine and developments in West Asia.
- This year's Milan will see the participation of all Quad countries, with the U.S. being invited for the first time.
- The invitees include all Indian Ocean littoral states and countries from south-east Asia among others.
- For the 2020 edition of the exercise, 41 countries of which 30 had confirmed participation but the exercise was cancelled due to the COVID-19 pandemic.

Exercise MILAN

- A **Fleet Review** is usually conducted **once during the tenure of the President**. Since Independence **11 PFRs have been conducted by the Navy**, of which two have been International Fleet Reviews in 2011 and 2016. In terms of significance, the Navy's Presidential review is second only to the Republic Day Parade, one official stated.
- More than 60 ships from the Navy, Coast Guard, Shipping Corporation of India and the National Institute of Ocean technology and submarines and more than 50 aircraft are expected to be part of the PFR this year.
- Over 44 ships will be at anchorage and one of the ships will be converted into the President's yacht. The **first PFR** was held in **1953** for the first President **Dr. Rajendra Prasad**.

PROTESTS AGAINST THE VACCINE MANDATE HAVE PARALYSED CANADA'S CAPITAL - FREEDOM CONVOY

For more than two weeks now, **thousands of Canadian truckers and their supporters** have orchestrated blockades in protest against vaccine mandates and COVID-related restrictions.

Impact:

- Traffic on **Ambassador Bridge**, which connects **Windsor, Ontario, with Detroit, Michigan**, and is the **busiest land border crossing in North America**, accounting for **30% of the annual trade between the U.S. and Canada**.
- It came to a halt, **disrupting supply chains and production schedules** in both countries.

Freedom Convoy 2022

- **The second site was at Coutts, Alberta**, at its border with the **U.S. State of Montana**.

- It saw the **largest convergence of heavy-duty trucks**.
- The **convoy, calling itself 'Freedom Convoy 2022'** and numbering around 500, consisted of truckers who had driven from different parts of Canada **to pressure the federal government**.

Reason for the protests?

- Vaccine mandates for cross-border truckers came into force.
- Until January, truckers were considered as **essential workers** and could **freely cross the border with goods, while non-essential travel** remained banned.
- But from January 15, any **foreign trucker** entering Canada **needed to be vaccinated**, while a **similar rule**, applicable to **Canadian truckers entering the U.S.**, kicked in on January 22.

- Those **not vaccinated** have to show a **COVID-negative test taken within 72 hours** and go into **quarantine for 14 days**.

What's their demand?

- Terminate “**the vaccine passports and all other obligatory vaccine contact tracing programmes, or inter-Canada passport systems**” and “**terminate COVID vaccine mandates and respect the rights of those who wish to remain unvaccinated**”.

Response from the government?

- The federal government has **shown little interest** in engaging with the protesters or their demands. Asking the participants to go home.

Protester's point of view apart from the vaccine mandates

- A **deep-rooted loathing of intrusive government surveillance** in the name of public health threat on privacy.

- Fear that **such intrusiveness could become permanent**, resentment at the loss of a ‘way of life’.

Challenges:

- Industry **getting restless over the disruption** in supply chains.
- Truckers in **no mood to back down**.
- Trudeau government **negotiating with the truckers** after having dismissed them as a ‘fringe’ would seem a **sign of weakness**, evicting them by force carries heavy political costs.

Road Ahead:

- Meanwhile, the **Convoy has already inspired copycat protests** in different parts of the world, including Europe, Australia and New Zealand. Hope it doesn't spread to India as Government is already in logjam over various issues.

LESSONS FROM THE DRC'S 10TH EBOLA EPIDEMIC: THE PEOPLE MAY KNOW BEST

The **10th Ebola epidemic** in the **Democratic Republic of the Congo (DRC)** was declared in North Kivu on 1 August 2018. More than **half a billion dollars** of international aid flowed into the country. A newly approved, highly protective vaccine was used, and new medicines were tested and found to reduce mortality.

- But still, on 25 June 2020, when the epidemic was finally declared over, it had become the largest Ebola outbreak ever to affect the DRC. It was also the second largest and longest globally to date, claiming 2,287 lives across a 23-month period.

Ebola Virus

- Ebola virus disease (EVD), formerly known as **Ebola haemorrhagic fever**, is a rare but severe, often fatal illness in humans.
- The virus is **transmitted to people from wild animals and spreads in the human population through human-to-human transmission**.
- The average EVD case **fatality rate is around 50%**. Case fatality rates have varied from 25% to 90% in past outbreaks.

- Community engagement is key to successfully controlling outbreaks.
- **Vaccines to protect against Ebola have been developed** and have been used to help control the **spread of Ebola outbreaks in Guinea and in the Democratic Republic of the Congo (DRC)**.
- Early supportive care with **rehydration, symptomatic treatment improves survival**.
- Two monoclonal antibodies (Inmazeb and Ebanga) were approved for the treatment of Zaire ebolavirus (Ebolavirus) infection in adults and children by the US Food and Drug Administration in late 2020.
- Pregnant and breastfeeding women with Ebola should be offered early supportive care.
- Likewise, vaccine prevention and experimental treatment should be offered under the same conditions as for non-pregnant population.
- The **2014–2016 outbreak in West Africa was the largest Ebola outbreak since the virus was first discovered in 1976**.

- The outbreak started in Guinea and then moved across land borders to Sierra Leone and Liberia.
- **The virus family Filoviridae includes three genera:**
 - **Cuevavirus,**
 - **Marburgvirus, and**
 - **Ebolavirus.**
- Within the genus Ebolavirus, six species have been identified: Zaire, Bundibugyo, Sudan, Tai Forest, Reston and Bombali.

Confirmation that symptoms are caused by Ebola virus infection are made using the following diagnostic methods:

- antibody-capture enzyme-linked immunosorbent assay (ELISA)
- antigen-capture detection tests
- serum neutralization test
- reverse transcriptase polymerase chain reaction (RT-PCR) assay
- electron microscopy
- Virus isolation by cell culture.

Prevention and control

- Reducing the **risk of wildlife-to-human transmission.**
- Reducing the risk of **human-to-human transmission** from direct or close contact with people with Ebola symptoms, particularly with their bodily fluids.
- Outbreak containment measures, including **safe and dignified burial of the dead, identifying**

people who may have been in contact with someone infected with Ebola and monitoring their health for 21 days.

- Reducing the **risk of possible sexual transmission**, based on further analysis of ongoing research and consideration by the WHO Advisory Group on the Ebola Virus Disease Response.

Additional information

Democratic Republic of Congo

- It has a 25-mile (40-km) **coastline on the Atlantic Ocean** but is otherwise landlocked. It is the second largest country on the continent.
- The capital, **Kinshasa, is located on the Congo River.**
- It borders nine countries: **Angola, Burundi, the Central African Republic, the Republic of Congo, Rwanda, South Sudan, Tanzania, Uganda, and Zambia.**
- The oldest national park in Africa is the **Congo's Virunga National Park.** It is home to rare mountain gorillas, lions, and elephants.
- The DRC is among the most resource-rich countries on the planet, with an abundance of **gold, tantalum, tungsten, and tin** – all minerals used in electronics such as cell phones and laptops – yet it continues to have an extremely poor population.

ULTRA-PROCESSED FOODS: GLOBAL ANALYSIS SHOWS THEY AREN'T WELL SIGN-POSTED

Straightforward guidance about ultra-processed foods is rare in national dietary guidelines. Only seven countries refer to “ultra-processed foods” explicitly. They are Belgium, Brazil, Ecuador, Israel, Maldives, Peru and Uruguay.

Ultra-processed Food:

- The term “ultra-processed food” is clearly defined in the **NOVA framework** as “**formulations of ingredients, mostly of exclusive industrial use, that result from a series of industrial processes**”. The framework puts foods into four

categories according to their degree of processing.

- Ultra-processed food products include many **soft drinks, biscuits, processed meats, instant noodles, frozen meals, flavoured yoghurts and bread products.** Consumption of ultra-processed food has been linked to health and environmental harms.

Processed foods affect our health?

- Ultra-processed foods are made mostly from **substances extracted from foods, such**

as fats, starches, added sugars, and hydrogenated fats.

- They may also **contain additives like artificial colors and flavors or stabilizers**. Examples of these foods are frozen meals, soft drinks, hot dogs and cold cuts, fast food, packaged cookies, cakes, and salty snacks.
- Ultra-processed foods are the **main source (nearly 58%) of calories eaten in the US, and contribute almost 90% of the energy we get from added sugars**.
- The effects of an ultra-processed diet to the **effects of an unprocessed diet on calorie intake and weight gain**.

Actions for the policies related to Ultra-processed Food

- First, **dietary guidelines can provide examples of less obvious ultra-processed foods**. While soft drinks and fast foods are common examples, others include processed breads, flavoured yoghurts, sauces, breakfast cereals and ready meals.

- Second, **dietary guidelines can provide more explanation about how to identify ultra-processed foods based on the nature and purpose of processing**.
- Powerful food companies, which are often headquartered in high-income countries, are driving the global expansion of ultra-processed foods into industrialising countries such as South Africa and China. Greater scrutiny of the practices used to promote them is an important step towards reducing their consumption.
- Finally, **policy makers can use dietary guidelines to inform the development of other food policies to support citizens to reduce consumption of ultra-processed foods**.
- It is also important to enable consumption of minimally processed foods, such as through subsidies or other initiatives, to make them more affordable and accessible. This could include support for living wages paid to workers in the food system, such as Australia's recent initiative to pay farm workers the minimum wage.

BIG TECH Vs RED TECH: THE DIMINISHING OF DEMOCRACY IN THE DIGITAL AGE

Technology from the West Coast of the United States and technology that seeks to serve the Chinese Communist Party (CCP) have both chosen to pursue their defined objectives with little thought for constitutional systems and laws in third countries.

- As such, much of the democratic world is at risk of being caught in the vice-like grip of big tech and red tech. It is, therefore, time for democratic societies to discover and examine means to secure an open and free global technological ecosystem that serves all shades of democracy.

What is Big Tech?

- Big Tech refers to the **five major technology companies of influence**. This group of tech giants includes **Amazon, Apple, Facebook, Google, and Microsoft**.
- The big tech companies each dominate their respective category.

- Amazon commands the e-commerce sector, Facebook maintains dominance in the social media space, Google leads the search engine market, and Apple has control of communication hardware.
- Big tech companies **maintain market capitalization, operate in several verticals, and influence users across platforms**. Each of the big tech companies is an epicentre for other online services and activities.

What is Red Tech?

- Red Technology is a **leading ecommerce solutions provider, combining e-commerce agency services and authoring a sophisticated ecommerce platform**.
- We design and build **responsive, multichannel B2B, D2C & Retail ecommerce solutions for mid-to-large sized retailers, manufacturers,**

wholesalers and distributors leveraging our ecommerce platform, tradeit.

- The tradeit ecommerce platform provides our customers with tremendous competitive advantage due to its combination of powerful promotions engine, flexible content management system, comprehensive order management system and omni-channel integration capabilities.

Why the Battle for Tech Matters?

- The **threat that big tech poses to democracy is multifaceted**. Major social media platforms – Twitter, Facebook, Google and others – **curate, promote and curtail information received by and, indeed, even the opinions of citizens** in democratic societies.
- Operating outside rules and regulations prescribed by **sovereign constitutions, social media platforms** now exercise a worrying level of influence without accountability.
- **Platforms are free to decide** whether they function as private hosting platforms or providers of a vital public utility; they cannot be both.
- **Left unregulated, our digital commons** may become a noxious space that suffocates democracy, rather than being the promised breath of fresh air.
- **Red tech is clearly an extension of the CCP's global ambitions**. For example, global standards bodies and multilateral organizations have been flooded with standards proposals by Chinese tech firms that would enshrine CCP values into the fundamental architecture of the internet.

The Regulatory Void

- Part of the reluctance to commit to a more **political vision of regulation stems from overdependence on a China** that dominates major global economies and the tech innovation ecosystem.
- **Government interference and politicization in regulatory matters** could result in the

fracturing of the global tech innovation ecosystem altogether

- Both big tech's subversion of regular constitutional processes and democratic debate as well as red tech's brazen advancement of the CCP's agenda **demand regulation to recognize and return to its political roots**.
- Technology possesses the power to fundamentally **remake, disrupt and destabilize societies**. AI-enabled machines threaten to put millions out of work and social media platforms.

What Does a More Political Vision Look Like?

- **States, civil societies and general publics** will have to take back **control of the conversation** over technology from tech companies.
- **Domestic polities need to debate and hammer out a national consensus** on some key issues, including on whether to enshrine privacy as a fundamental right.
- Assuming privacy is guaranteed, **robust data protection and privacy laws** have been framed.
- Australia and India have adopted more **stringent social media rules** aimed at forcing big tech to comply with national-level regulations and directives on content.
- Key digital powers come together to form a multilateral body, the **Digital Stability Board (DSB)**, which would **enact digital policy** in much the same way that the Financial Stability Board helps design and monitor the implementation of key financial policies while assessing risks and vulnerabilities in the global financial system.
 - A DSB would lead discussion on **regulating data value chains, countering misinformation and the development of cutting-edge technologies such as AI**.

Road Ahead:

- Ultimately, the introduction of the D10 to digital policy debates would signify a shared political vision, born out of democratic values, toward

building the digital economy and regulating malcontents in the system.

- Good, old-fashioned democratic politics remains a primary driver even in the digital age. Wolves

and wolf warriors hunt in packs; open societies need to respond with similar unity of purpose.

ZAMBIAN COURT STOPS LAND CLEARING IN KASANKA NATIONAL PARK, WHERE 10 MILLION BATS ROOST ANNUALLY

The High Court of Zambia in Lusaka put a **temporary stop to the cutting of trees**, agriculture and water extraction within the **Kasanka National Park** and its buffer zone, the Kafinda Game Management Area (GMA) January 25, 2022, according to a non-profit that manages the park.

Kasanka National Park

- Kasanka National Park is a park located in the **Serenje District of Zambia's Central Province**.
- The Kasanka National Park is **one of Zambia's smallest** (39,000 ha) but ecologically significant national parks.
- Kasanka was the **first of Zambia's national parks to be managed by a private-public partnership**. The privately funded **Kasanka Trust Ltd** has been in operation since 1986 and undertakes all management responsibilities, **in partnership with the Department of National Parks and Wildlife (DNPW - previously ZAWA)**.
- There are **five perennial rivers** in the park i.e., **Luwombwa, Mulembo, Kasanka, Mulaushi and the swampy Musola River**, with the **largest being the Luwombwa River**.
- The **Luwombwa is the only river that drains the NP**, which flows out in the north-western corner. It is a **tributary of the Luapula**, which further upstream also **drains the Bangweulu Swamp** and forms the **main source of the Congo River**.
- Although Kasanka NP is **part of the Greater Bangweulu Ecosystem**, there is **no direct hydrological connection between the park and the Bangweulu Wetlands**.
- It is a reprieve for the area that is a **stopover on the largest mammal migration in the**

world. Some 8-10 million **African straw-coloured fruit bats (Eidolon helvum)** **migrate** every year from October to December to the park, from the rainforests of the Congo and roost in an area of 25 hectares of evergreen swamp forest.

- The **fruit bats act as pollinators and seed dispersers**. The bat migration plays a **leading role in the reforestation and regeneration of areas** during the animals' journey.

About Zambia

- Zambia is a **landlocked country** at the crossroads of Central, Southern and East Africa.
- Its neighbours are the **Democratic Republic of the Congo** to the north, **Tanzania** to the north-east, **Malawi** to the east, **Mozambique** to the southeast, **Zimbabwe and Botswana** to the south, **Namibia** to the southwest, and **Angola** to the west.
- The capital city of Zambia is **Lusaka**, located in the south-central part of Zambia.
- The population is concentrated mainly around Lusaka in the south and the Copperbelt Province to the north, the core economic hubs of the country.
- The climate of Zambia is **tropical**, modified by elevation. In the Köppen climate classification, most of the country is classified as **humid subtropical or tropical wet and dry, with small stretches of semi-arid steppe climate in the south-west and along the Zambezi valley**.
- The population comprises approximately 73 ethnic groups, most of which are **Bantu-speaking**. Almost **90% of Zambians belong to the nine main ethnolinguistic groups: the**

Nyanja-Chewa, Bemba, Tonga, Tumbuka, Lunda, Luvale, Kaonde, Nkoya and Lozi.

AFRICAN CHILDREN ARE NEGLECTED WHEN IT COMES TO HIV TREATMENT: LANCET STUDY

It has been four decades since the HIV-AIDS pandemic broke out in 1981. Recently, a new, more virulent strain has been discovered in the Netherlands. But the place most affected by the pandemic is Africa, where children, the weakest, continue to be neglected to this day, according to a new study published in The Lancet.

Highlights

- The researchers found **39 per cent of children aged 1-14 years**, or 166,000 children across seven African countries, to be living with undiagnosed HIV.
- They also found that **only 55 per cent of the African children living with HIV** (including those who were previously undiagnosed) were on antiretroviral therapy (ART) and **32.6 per cent had a suppressed viral load**.
- In all countries **except Tanzania and Zambia, HIV prevalence was higher among children aged 10-14 years than among children younger than 10 years**.
- According to the study, **two-thirds of undiagnosed children living with HIV** across the seven countries had reportedly never been previously tested for HIV and **many mothers of children living with HIV were newly identified as HIV-positive**.
- According to UNAIDS, **46 per cent of the world's 1.7 million children living with HIV were not on treatment in 2020**. The majority of children living with HIV are infected via mother-to-child transmission, during pregnancy, childbirth or breastfeeding.

HIV-AIDS

- HIV (human immunodeficiency virus) is a virus that **attacks cells that help the body fight infection, making a person more vulnerable to other infections and diseases**. It is spread by contact with certain bodily fluids of a person

with HIV, most commonly during unprotected sex, or through sharing injection drug equipment.

- **If left untreated, HIV can lead to the disease AIDS (acquired immunodeficiency syndrome)**.
- AIDS is the late stage of HIV infection that occurs when the **body's immune system is badly damaged because of the virus**.
- The human body can't get rid of HIV and **no effective HIV cure exists**. So, once you have HIV, you have it for life.
- However, by taking HIV medicine (called antiretroviral therapy or ART), people with HIV can live long and healthy lives and **prevent transmitting HIV to their sexual partners**.
- In addition, there are effective methods to prevent getting HIV through sex or drug use, including **pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP)**.
- **First identified in 1981**, HIV is the cause of one of humanity's deadliest and most persistent epidemics.

Symptoms associated with HIV

- Then the disease is usually **asymptomatic until it progresses to AIDS**.
- Within a few weeks of HIV infection, **flu-like symptoms such as fever, sore throat and fatigue can occur**.
- Other **symptoms include weight loss, fever or night sweats, fatigue and recurrent infections**.

Antiretroviral Therapy

- **HIV is called a retrovirus**, and the combination of drugs used to treat it is called Antiretroviral Therapy (ART).

- According to the World Health Organization, **standard ART consists of a combination of at least three antiretroviral drugs to suppress the HIV virus and stop the progression of the disease.**
- Many antiretroviral therapy medications are approved to treat HIV. They work to **prevent HIV from reproducing and destroying CD4 cells**, which help the immune system generate a response to infection.
- This helps reduce the risk of developing complications related to HIV, as well as transmitting the virus to others.
- These antiretroviral medications are grouped into six classes:

- **nucleoside reverse transcriptase inhibitors (NRTIs)**
- **non-nucleoside reverse transcriptase inhibitors (NNRTIs)**
- **protease inhibitors**
- **fusion inhibitors**
- **CCR5 antagonists, also known as entry inhibitors**
- **integrase strand transfer inhibitors**

Road Ahead:

HIV remains a **major global public health** challenge. The need of hour is awareness generation among all to prevent it from becoming an epidemic again through usage of contraceptives, don't use contaminated needles, get proper information before blood donation, etc. Above all, provide moral support to the people infected with HIV and don't make it a social stigma.

INDIA'S ENERGY NEEDS TO DOUBLE IN 20 YEARS: PM

India's **energy needs are expected to double in the next 20 years** and denying people this energy would be the equivalent of denying life to millions, Prime Minister Narendra Modi said in his inaugural address at the **World Sustainable Development Summit (WSDS)**.

World Sustainable Development Summit (WSDS)

- The World Sustainable Development Summit (WSDS) is the annual flagship Track II **initiative of The Energy and Resources Institute (TERI)**.
- Over the years, the Summit platform has **brought together thought leaders**, heads of state and government, scholars, corporates, youth groups, and civil society representatives from across the world.
- The Summit series has established itself as a **responsible and an effective platform for mobilizing opinion-makers to identify and advance pioneering actions** to address some of the most relevant issues concerning sustainable development.
- Perhaps the only Summit on global issues, taking place in the developing world, WSDS now strives to provide **long-term solutions for the benefit of global communities** by assembling the

world's most enlightened leaders and thinkers on a single platform.

- The Summit has witnessed numerous partnerships that have promised to **strengthen our collective endeavours towards imagining a sustainable and environmentally secure future**. The platform has reached out to the global community via exclusive features such as, **Plenary Sessions, Thematic Tracks, International and Regional Dialogues, Corporate Conclaves, and various exhibitions on clean and green technologies.**

India's Initiatives to meet its goals

- India's **non-fossil energy capacity will reach 500GW by 2030, meeting 50% of the country's energy requirements** by then.
- India will **reduce its total projected carbon emissions by one billion tonnes by 2030, reduce the carbon intensity of its economy by 45% by 2030, over 2005 levels, and achieve net-zero emissions by 2070.**
- Through **Ujjwala Yojana**, more than 90 million households have been provided access to clean cooking fuel.

- Under the **PM-KUSUM scheme**, we have taken renewable energy to the farmers.
- India's **LED bulb distribution scheme**, that has been running for over seven years, and has helped save more than 220 billion units of electricity, and reduced 180 billion tonnes of carbon dioxide emissions per year.
- Bringing e-vehicles in the mainstream through **FAME Scheme**.

Road Ahead:

- India is a mega-diverse country. With **2.4% of the world's land area, it accounts for nearly 8% of the world's species**. The International Union for Conservation of Nature has recently recognised India's efforts. The **Aravali Biodiversity Park in Gurugram** was recognised an "other effective area-based conservation measures (OECM) site" for effective conservation of biodiversity by IUCN.

- As part of its efforts to combat the climate crisis, India has initiated the **Coalition for Disaster Resilient Infrastructure (CDRI)** which aims to build strong infrastructure in areas prone to frequent natural disasters. On the side-lines of **CoP26**, India also launched an initiative called "**Infrastructure for Resilient Island States**" for vulnerable island nations.
- To these two initiatives, there is an addition of **LIFE – Lifestyle for Environment**. LIFE is about making **lifestyle choices to improve our planet**. LIFE will be a **coalition of like-minded people across the world who will promote sustainable lifestyles**. Calling them **3Ps – Pro Planet People**. "**This global movement of Pro Planet People (3-Ps) is the Coalition for LIFE.**" These three global coalitions will form the trinity of our environment efforts for improving the global commons.

RELEVANCE OF NORMANDY FORMAT TALKS IN THE UKRAINIAN CRISIS

- **European leaders and the US President Joe Biden** are talking bilaterally to Russian President **Vladimir Putin**.
- **Germany and France** have brought Ukraine and Russia on to the same table in an attempt to defuse tensions through talks among the four of them.
- The latter is known as the **Normandy Format** and receives special attention because it is the **only format where the Ukrainian President is talking directly to his Russian counterpart**.

Normandy Format

- It is a group of four countries **France, Germany, Ukraine and Russia** formed in the aftermath of the Crimea crisis in **2014**.
- It is **aimed** at diffusing tensions between **Russia and Ukraine**.
- The **First meeting** was initiated by the then French President **François Hollande** and German Chancellor **Angela Merkel** who brought Russian President **Vladimir Putin** and then Ukrainian president **Petro**

Poroshenko together for a dialogue led to **Minsk Protocol**.

Minsk Protocol

- It is a set of **two agreements** between **Ukraine and Russia** mediated by France and Germany in **2014 and 2015**.
- **Minsk-I (2014)**: Normandy Format members established the **Trilateral Contact Group (TCG)**, comprising **Russia, Ukraine** and the **Organization for Security and Co-operation in Europe (OSCE)**.
- **Aim**: Consultations to develop a peace plan.

Challenges

- Minsk-I came at a crucial time when about **6,500 Russian troops invaded an ongoing war (between Ukrainian Government forces and Russian-backed Separatist group) in Donetsk Oblast** in September 2014 and **Ukraine suffered heavy losses**.
- It called for a **ceasefire** and several de-escalating steps.

- However, Minsk-I soon broke down and by January 2015, full-scale fighting had started again.

Minsk-II Agreement

- In February 2015, a new ceasefire, known as Minsk-II, was negotiated.
- Signed by representatives from the **OSCE, Russia, Ukraine** and the separatists from **Donetsk and Luhansk**, has been the framework for subsequent attempts to end the war.
- The Minsk-II agreement was **also endorsed by UNSC Resolution 2202** on 17 February 2015.

Challenges

- **Russia not a direct party:** It does not make Russia a direct party although it was signed by the Russian Ambassador to Ukraine, Mikhail Zurabov, the agreement **does not mention Russia**.
- Which was in favour for **Russia to evade responsibility** for implementation and maintain itself as a disinterested arbiter.
- Hence, in effect, it is only dealing with **Ukraine and the separatists in the East** thereby giving Russia the leeway to violate it citing technicalities.
- A few more Normandy Format meetings took place in the years that followed. Nevertheless, an agreement was reached to remove light and heavy weaponry.

EXTERNAL FACTORS THAT ACTED AS SETBACK IN NORMANDY TALKS

Angela Merkel's Exit

- She could **speak Russian** and was known for her impressive consensus-building skills.
- The long impact of the Merkel era and **her equation with Putin** is something that the newly elected **Scholz cabinet does not enjoy**.

A Lacklustre EU

- EU believed in the **idea that its economic weight may be converted into geopolitical power** and influence.

Steinmeier Formula

- It was designed to implement the **political clauses** of the Minsk accords (I and II), especially about **holding elections in Donbass**.

Failed:

- It failed because it was in line with Russia's interpretation but against Ukraine's national interests.

PRESENT SITUATION

First Normandy Format (2022)

- It was held on **26 January 2022 in Paris** and were **attended by advisers** to the leaders of the Normandy Four.
- The **advisers promised** unconditional support to the observance of the **ceasefire**, which was agreed on 22 July 2020.

Second Normandy Format (2022)

- It happened on **10 February 2022**.
- A consensus was achieved on the Ukrainian suggestion to unblock the work of the **Trilateral Contact Group** towards a peaceful settlement about humanitarian issues in the Donbass war.
- **No linear solution** to the crisis in Eastern Ukraine.

Moscow's perspective on Ukraine

Ukraine remains as an unstable and internally split, more a geopolitical theatre of war and less a sovereign country.

- To achieve this EU needs to respond to economic coercion by **China** and **structural changes** within its security and fiscal policies as proposed by Macron.

US Not Being a Party

- **Ukraine has supported the US involvement** in the Normandy Format for balancing Russia's presence because neither France nor Germany are in a position to deter Russia.
- The US has **decided to not join the Format** but continues to support its diplomatic developments.

- From the Russian perspective, the US **would make the entire peace process** collapse its related to US suggestions in Minsk clause.

German Economic Interests in Russia

- **Energy:** It has been pushing for dialogue because of its dependence on Russia for **natural gas** and other commercial interests.
- **Economy:** The leaders of some of Germany's biggest companies like **Siemens AG, Bayer AG, Deutsche Bank AG, SAP AG and Volkswagen AG** are set to meet Russian President Putin early next month in a show of economic diplomacy aimed at urging all sides in the Ukraine standoff to back away from war.
- **In 2021 Germany's exports to Russia grew by 15 per cent** and its **imports from Russia grew by 48 per cent** from 2020.
- **Armoury:** Recently, **Germany blocked the fellow NATO ally, Estonia**, from providing military support to Ukraine and **refused to issue permits for German-origin weapons** to be exported to Kyiv.

French Economic and Strategic Interests in Russia

- **Economy:** French business interest has big stakes in Russia in the energy, locomotive and food sectors.

- **Defence:** Russia's favourable view of France may be inferred from Macron's emphasis on the idea of **European Defence** that is **separate from NATO**.
- **AUKUS:** It is logical for Moscow to leverage this French anger towards the US through the recent unpleasantries around AUKUS. AUKUS came the first serious cleavage in the 150-year-old US–France alliance.

Russia interests

- **Energy:** The dialogue helps secure Russia's larger economic interests Gazprom's stakes with **Nord Stream 2**, the volatility in financial markets due to ongoing East–West tensions is also worrying.
- **Economy:** There has been heavy selling on Moscow's volatile stock market, with the **high prices of oil and gas** Molex index The Russian side is under mounting economic pressure.

Road Ahead:

- The Normandy Format indeed offers a 'Pareto optimal' space for any sustainable solution towards settlement. Its efficiency should be assessed in terms of prevention of a 'major war' in Europe, development of settlement mechanisms like the Minsk agreements and the ceasefire line.

BIG TECH: THE PHONY KNIGHT OF DEMOCRACY

In February 2022, the United States Department of Homeland Security (DHS) released its latest **national terrorism advisory**. Besides its usual overview of the terrorist threat to the US homeland, the advisory stands out for mentioning two points.

- **US ORIENTED:** It highlights "**widespread online proliferation of false or misleading narratives** regarding unsubstantiated widespread election fraud and COVID-19." It adds that this is one of the key factors contributing to the current heightened threat environment in the United States (US).
- **GLOBAL PERSPECTIVE:** It mentions that DHS is "working with public and private sector

partners, as well as foreign counterparts, to **identify and evaluate "mis-, dis-, and mal-information" (MDM)**, including false or misleading narratives and conspiracy theories spread on social media and other online platforms **that endorse or could inspire violence.**"

Consequence:

- These two points taken together imply that anyone posting MDM on social media about COVID-19 or elections will be potentially regarded as a **domestic threat actor** and, therefore, subject to **surveillance**.

- The wide cooperation that social media platforms 'Big Tech' are extending to the government in moderating the content on their websites and carrying out surveillance.

Complicity of Big Tech in working with the American State for surveillance and complying with its regulations is not new

- As revealed by whistle-blower, Edward Snowden in 2013, Big Tech platforms including Microsoft, Google, YouTube, Facebook, and Apple had all willingly participated in the PRISM digital surveillance programme executed by the US National Security Agency (NSA).
- Acting as surveillance intermediaries, these social media platforms helped the NSA harvest communications content and associated metadata.

Selective attitude towards India

- Compare this cooperative attitude in the US to Big Tech's confrontationist approach towards the Indian security establishment in similar matters of disinformation and propaganda.

Some instances where tech giants have not cooperated

- Last year, on Republic Day, when farmers' protests in Delhi peaked with the violence at the Red Fort, the Indian government directed social media platforms to take down the anti-India content and some accounts that it believed incited violence.
- However, platforms like Twitter played hardball by taking a stubborn position.
- Although it temporarily suspended hundreds of accounts, Twitter refused to put an outright ban on such content, arguing that its position was as per its "principles of defending protected speech and freedom of expression".
- A similar defiant attitude was displayed when the government on 25 February 2021 notified new norms under the Information

Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021, classifying many Big Tech platforms as 'significant social media intermediaries.

- These rules mandated additional due diligence, including publishing monthly compliance reports, identifying the "first originator of the information," and appointing a nodal officer for 24x7 coordination with law enforcement agencies.
- In response, Twitter resisted compliance and argued that the new rules undermined free speech. Meanwhile, Facebook-owned WhatsApp messaging service sued the Indian government claiming that the new rules would violate the privacy of its users.

Hypocrisy of Big Tech

- It is selective in choosing which national rules to comply with and which to resist. This selective approach enables it to profit from the hate speech and disinformation thriving on its platforms while grandstanding about free speech and hiding behind 'safe harbour provision' when it comes to complying with national rules.

Capitalist and colonial mindset of Big Tech

- It will abide by the western governments' regulations, given the latter's strong anti-trust laws and stringent regulatory pressure, but when it comes to the developing world's regulations, Big Tech will seek leeway.

Way forward:

- It is time India shows the way forward by making the Big Tech platforms answerable. India need not necessarily strengthen the anti-competition regulations, design a robust content code, enforce data localisation, and foster an ecosystem of social media platforms. By doing this, India can protect its citizens' data and privacy, shield them from harmful content while simultaneously creating a fair marketplace and stimulating innovation. Such an approach will demonstrate India's

commitment to an inclusive global digital order and give a sense of ownership to the developing world.

AFGHANISTAN: IT ISN'T JUST ABOUT THE GIRLS

The issue in Afghanistan isn't about the US or the West and the rest being either mean or magnanimous in defeat; it is about the nature and character of the Taliban regime, how it relates with the rest of the world, and what threats it holds for the region and beyond.

- To focus, **only on either the humanitarian crisis** in Afghanistan or the **possibility of a resurgence of the Islamic State Khorasan (ISK)** if the Taliban are not bailed out and not allowed to settle down, **is to miss the wood for the trees**

Crisis in Afghanistan

- Toxic ideology:** A **responsible and sensible state cannot ignore** the danger that this medieval fanatical force will present to the rest of the world if it is allowed to consolidate and stabilise.
- Terror links:** Taliban's close association and **fraternal links** with both international jihadist terror groups like Al Qaeda and regional terror outfits like **Jaish-e-Mohammad (JeM), Tehrik-e-Taliban Pakistan (TTP) and Jamaat Ansarullah.**

The bar set by international community for Taliban's take over is not very high:

- Inclusive and representative government:** That gives other **ethnic groups** and **minorities** a stake in the system.
- Rights: Guaranteeing rights of women** and ethnic, sectarian and **religious minorities** (including the right to education and work);
- Delinking from terrorist networks:** Breaking ties with terrorist groups and not allowing Afghan soil to be used against any country or as a safe haven by regional and global terrorist outfits.

Taliban 'commitments' vs basic DNA of the Islamist force

- While Taliban's have held out assurances, even issued orders, the **media has been strangled.**
- Civil society activists have been **intimidated, disappeared, even killed.**
- Girls are being deprived of education** schools and colleges remain closed to them.
- Summary executions** and reprisal killings are a **new normal.**
- Freedom to **travel remains restricted;** the promise of an inclusive government (whatever that is) remains a **pipedream.**

Steps in the direction of recognising Taliban despite undelivered mandate

- Pakistan:** It has been constantly pushing for getting the Taliban Emirate recognised.
- OIC:** It **managed** to not only get some pledges of assistance but also **called for unfreezing of financial resources** by the US.
- UN:** The next month the UN launched the **largest ever humanitarian appeal for a single country,** seeking more than **US \$5 billion.**
- European:** Some European countries had promised to **pay the salaries of Afghan teachers.**
- Foreign delegations:** Delegations from different countries had started going to Kabul or meeting the representatives of the Emirate in Doha.

But despite all the advocacy in favour of the Taliban, the Executive Order issued by the US President **to block the release of Afghanistan's foreign exchange reserves to the Emirate** has, for the foreseeable future at least, stalled the chances of Taliban gaining any legitimacy or recognition.

Road Ahead:

- **Instead of making short-term tactical moves that give her some advantage**, India needs to take a longer term, strategic view of what is happening in Afghanistan. India needs to understand that if a baleful force like Taliban consolidates, the brunt of this development will be felt by countries like India. The temptation

exists to reach out to the Taliban and exploit the visible and maybe even growing divide between the Taliban and Pakistan. But it must be resisted. While a weak Pakistan is definitely in India's favour, a strong or even stable Afghanistan under an unreconstructed Taliban isn't necessarily going to be a good thing for India either.

TAPPING TECHNOLOGY FOR MULTILINGUAL LEARNING

The theme of International Mother Language Day in 2022 – “Using Technology for Multilingual Learning: Challenges and Opportunities” – is one of special relevance to us. The underlying concept is to discuss the role of technology to further the cause of multilingual education.

International Mother Language Day

- While languages are among the key bridges that ensure cultural and civilisational continuity, globalisation and Westernisation have impacted not just the growth but also the survival of many of our dialects in this rich cultural and linguistic tapestry.
- In **November 1999, the UNESCO General Conference approved the declaration of February 21 as International Mother Language Day**, in response to the declining state of many languages; it has been observed throughout the world since 2000.
- UNESCO has been striving to protect the cultural and linguistic diversity of member-states through such **pro-active international measures. According to the UN agency, at least 43% of the estimated 6,000 languages spoken in the world are endangered.**

Role of Technology in Multilingual Education

- The central idea is to leverage technology to **support and enrich the teaching-learning experience on a multi-lingual level.**
- It also aims at achieving a **qualitative, equitable and inclusive educational experience.** Inevitably, the widespread use of technology would fast-track development.
- Technology can provide **new tools** for protecting linguistic diversity. Such tools, for

example, **facilitating their spread and analysis, allow us to record and preserve languages which sometimes exist only in oral form.**

- Learning in (your) mother tongue is at the **core of building a sense of self-esteem and identity.**
- Technology can be one of the ways to **create real and enjoyable atmosphere for young language learners and increase their language awareness** when it is used correctly.
- Technology also lets **young language learners gain language skills** outside the classroom when they interact actively.

Challenges in using technology in multilingual learning

- **Requisite skills** employed in distance teaching,
- **Internet access,**
- **Adapting materials and content in diverse languages.**
- The effects of multilingualism in children proliferated negative beliefs that such a “condition” led to **emotional instability and confusion, cognitive delay, and in some cases even schizophrenia.**

Road Ahead:

- It would be pertinent to note that the **National Education Policy (NEP) 2020** is a visionary document which encourages the use of mother tongue as the medium of instruction till at least Class five but preferably till Class eight and beyond.
- In drawing up a road map for the future, the NEP seeks to tailor the teaching and learning process and modify it by making it holistic, value-based

and inclusive. The use of mother tongue in teaching is bound to create a positive impact on learning outcomes, as also the development of the cognitive faculties of students.

- There is a pressing need to create and improve scientific and technical terminology in Indian languages. This would help transform the educational experience by making existing knowledge systems in a range of disciplines accessible to learners.
- It would be relevant to recall the words of the renowned physicist, **Sir C.V. Raman**, who

observed with great clarity and vision that **“we must teach science in our mother tongue. Otherwise, science will become a highbrow activity. It will not be an activity in which all people can participate.”**

- Our policy-planners, educators, parents and opinion leaders must bear in mind that when it comes to education in mother tongue and local languages, we can take the cue from European countries as well as Asian powers such as Japan, China and Korea, among others.

START OF A NEW ERA: FROM JAKARTA TO NUSANTARA

ASEAN's largest country, Indonesia, plans to **shift its capital** from Jakarta to a new city, **Nusantara**, which is 2,000 kilometres away from the former. Jakarta is an old Javanese city, developed during the Dutch period whereas Nusantara will be a **greenfield city**. The shift will be from Indonesia's most populated Java to a sparsely populated Kalimantan Island in Borneo.

Why Shift in Capital?

- The new capital city will be built as a **new locomotive for the transformation** towards an Indonesia based on **innovation, technology, and a green economy**.
- The primary reasons for the shift are **challenges emerging from climate change such as massive flooding which even impedes Central Jakarta**.
- The **extraction of drinking water from aquifers is getting shallower**.
- **Redistribution of regional concentration and equitable wealth creation opportunities** are the reasons stated for relocation.
- Kalimantan is known as the **land of fortune as opportunities for coal mining, palm oil plantations, and large tracts for cash crops** are available there. It is also known for its orangutan sanctuaries and rain forests.

- There are **unconfirmed expectations that investments will come from the UAE, Europe, China, Korea, and Japan**. The **burden will completely be on Central Government**.
- Another criticism of the relocation plan is the **potential forced removal of the indigenous Paser-Balik people from their lands, forest clearance, and threats to local flora and fauna including endangered orangutans**.
- There will be a **water shortage around Nusantara as groundwater lacks easy access**. The rivers get a draft from the strong sea tides, making them brackish. **The cost of water reservoirs in the region is likely to high**.
- The **construction will become costly** because the **sedimentation requires deep foundations** to be built as the ground is not strong.
- There are **no primary forests** left in the region of Nusantara. During the rains, there is **no natural hold on the flow of water, therefore inundating the region**.
- The region is **full of coal deposits**. If the **frequent forest fires** reach the shallow coal streams, then they will **end up generating smoke and cause air pollution**.

Road Ahead:

Emerging criticisms for shift in capital

- The shift to Nusantara should be seen in the context of the maritime fulcrum project with the intention to create infrastructure in all regions of Indonesia for rebalancing purposes. Moreover, well before its independence, a new language, Bahasa Indonesia, was created, replacing the dominant Javanese. This created a unified country with cultural diversity.

- It is highly unlikely that Indonesia would give up that effort by allowing Java's influence to overwhelm Kalimantan. A benign outlook towards a promising legacy, with a smart new development can be anticipated. Such a substantial shift will be accompanied by implementation hurdles. Nevertheless, Indonesia will benefit from a smart move to a smart Nusantara in the long term.

WHY IS ISRAEL PM NAFTALI BENNETT'S VISIT TO BAHRAIN SIGNIFICANT?

The recent visit of the Israeli President Naftali Bennet to the Kingdom of Bahrain has highlighted, Israel's increasing role in Middle East politics. This comes at the back of Israel's participation in the **International Maritime Exercise 2022 (IMX 22)**, where 60 countries took part in the military exercises including nations like Saudi Arabia and Oman with which Israel has no official relations.

- In many ways, these efforts to normalise ties were meant to be after the Abraham Accords of 2020 were hammered out with US' ex-president Trump presiding over the peace deal that brought together Israel, the United Arab Emirates (UAE), and Bahrain.

Genesis:

- The **Middle East has always been a turbulent region** on account of its history rooted in colonial power as well as various internal factors in many of the nations.
- One of the biggest **focal points of agitation in the Middle East has been the formation of Israel, which many Arab nations considered as illegal and infringing on the rights of the Palestinians.**
- These grievances led to **significant conflicts such as the Arab-Israeli conflicts of 1948, 1956, 1967, and 1973**, apart from giving rise to several non-state violent actors that carried out terrorist activities against the state of Israel.
- While the **last half of the decade saw many other conflicts such as the Iran-Iraq war, the Iraqi invasion of Kuwait, the Yemeni civil**

war, and many others, Israel has continued to grab the limelight sporadically.

- Yet, in the last few decades, **Israel has been consistently forging itself as an island of peace in a turbulent region** and has now emerged as one of the important power brokers in the region. Several factors explain this growing importance of the nation to the region.

Factors supporting Israel's role in the Middle East

- **Israel's alliance with the United States of America looms large over every alliance in the region.** For nations like **Saudi Arabia, the UAE, and other gulf countries which have relied on the US for security and oil purchasing guarantees, this paved the way for thawing ties with Israel.**
- The **US's appetite to stay in the Middle East diminished** and is coincided with Israel's role as a supplier of defense technology to many nations across the world.
- Most recently, as part of the **Abraham Accords of 2020**, weapons sales between the nations involved have led it to be dubbed as the 'Arms Sales Accords'. This also demonstrates how the demand supply equation helps move relations. This also **demonstrates how the demand supply equation helps move relations.**
- The **Iran factor is another that provides impetus to Israel and other Gulf and Arab nations to come together.** Iran has been a prominent critic and rival of Israel. In a similar vein, the Gulf nations which have based most of their domestic and foreign policy on ensuring the

survival of their respective royal families have opposed Iran.

- Fourthly, many **Islamist actors sparked or supported the growth of various non-state actors including groups like the Muslim brotherhood, Islamic State and Al Qaeda**. Over time, these groups have come to challenge the Gulf establishments too which have led to Arab nations to coalesce further with Israel against Islamist actors.

Challenges to Israeli acceptance

- **Saudi Arabia has not officially established relations** despite (reportedly) having covert ties with the nation.
- This is crucial given that **Saudi Arabia is the most important power broker in the region and within the Organization of Islamic (OIC) grouping** which is the most prominent grouping of Muslim nations.
- A bigger challenge for Israel is that **people-to-people relations** which have also been a focus of the Israeli leadership is yet to thrive. Given

repeated episodes of aggression is likely that the Arab public will not warm up so easily to Israelis coming to their nations which could create security risks, especially in nations that are not so stable.

Conclusion

- Regional politics in the Middle East which are powered by the Gulf nations are largely moving towards a position where Israel is accepted within the folds and Iran is shunted to the side.
- Two key factors here are Saudi Arabia's official alliance with Israel which will embolden every other nation in the region given its Islamic credentials and reduced tensions and conflicts between Israel and Palestine that will provide Israel a higher acceptance level amongst the Arab public. While the former seems easy, the chances of the latter taking place is not guaranteed.
- Thus, while Israel may ratchet up its trade and defence ties with the other nations, it would have to ensure security for its citizens across the Arab world, should they want to travel these nations.

A FORGOTTEN CONTINENT FROM 40 MILLION YEARS AGO MAY HAVE JUST BEEN REDISCOVERED

A low-lying continent that existed some 40 million years ago and was home to exotic fauna may have "paved the way" for Asian mammals to colonize southern Europe, new research suggests.

About Balkanatolia

- Balkanatolia was a **series of islands or an island continent**, comprising approximately the **modern Balkans and Anatolia**, that for much of the Eocene maintained a land fauna distinct from that of either Western Europe or Asia.
- In **south-eastern Europe**, Eocene finds of **Amynodontidae, Hyracodontidae, Brontotheriidae, and Anthracotheriidae** have **affinities to Asian, but not western European**, forms, possibly up to 10 million years before the Grande Coupure.
- **Wedged between Europe, Africa and Asia**, this forgotten continent – which

researchers have dubbed "Balkanatolia" – became a **gateway between Asia and Europe** when **sea levels dropped and a land bridge formed**, around 34 million years ago.

- Around 34 million years ago, at the **end of the Eocene epoch, huge numbers of native mammals disappeared from Western Europe as new Asian mammals emerged**, in a sudden **extinction event now known as the Grande Coupure**.
- Balkanatolia served as a **stepping stone for animals to move from Asia into western Europe**, with the transformation of the ancient landmass from standalone continent to land bridge – and subsequent invasion with Asian mammals – coinciding with some "dramatic paleogeographic changes".

Colonisation of Southern-Europe

- Recent fossil findings in the Balkans, however, have upended the timeline, pointing towards a 'peculiar' bioregion that appears to have enabled Asian mammals to colonize south-eastern Europe as much as 5 to 10 million years before the Grande Coupure occurred.
- Around 50 million years ago, Balkanatolia was an isolated archipelago, separate from the neighboring continents, where a unique collection of animals distinct from those of Europe and eastern Asia thrived.
- Then a combination of falling sea levels, growing Antarctic ice sheets and tectonic

shifts connected the Balkanatolia continent to Western Europe, between 40 to 34 million years ago.

- This allowed Asian mammals including rodents and four-legged hoofed mammals (aka ungulates) to adventure westward and invade Balkanatolia.
- The fossil record of mammals and other vertebrates living on islands is usually sparse and patchy, whereas the rich terrestrial fossil record of Balkanatolia provides a unique opportunity to document the evolution and demise of island biotas in deep time.

THE UKRAINE CRISIS: ITS IMPACT ON INDIA

The face-off over Ukraine between Russia and the United States and its NATO allies has been dominating the headlines for a while now with tensions ratcheting up as we receive dire public warnings everyday of a Russian invasion any day now. India has to tread a fine line in this imbroglio: Taking care of the welfare and evacuation of Indian students and the possibility of oil price hike.

About Ukraine

- Ukraine may be a developing country and the poorest in Europe. It is the **second largest country there, behind Russia**, by area.
- In terms of population the **eighth largest** with its 42 million inhabitants.
- It has been **independent since 1991**, following the collapse of the Soviet Union, though it had been a part of the Russian Empire and the Soviet Union since the 18th century.
- **Donbas Region**, which includes **Donetsk and Luhansk Provinces in the East**, became the focus of a separatist struggle between Russian backed militia and the Ukrainian military.
- A conflict that continues to this day, **despite the European Union, Russia and Ukraine having earlier agreed to a ceasefire** following the signing of the Minsk Protocol.

Impact of Ukraine Crisis on India

- Indian Government find itself having to worry about the **welfare and evacuation of the 20,000-odd Indian students there**.
- It may face **increasing possibility of oil price hike** and its implications for our economy in the event of a shooting war.
- Any escalation in **Ukraine will shift focus and allow China an opportunity to act even more aggressively against India, Taiwan and the QUAD**.
- **India is Ukraine's largest export destination in the Asia-Pacific and the fifth largest overall, official data shows. A breakout of hostilities will hit bilateral trade between the two countries.**
- **Ukraine is India's major exporter of sunflower oil, followed by inorganic chemicals, iron and steel, plastics, chemicals among others.**
- **With the region's peace hanging in balance, Indian companies with exposure to the European Union have come under pressure as investors fear the impact on business from the escalating tension.**

Road Ahead:

- The Government is trading a fine line as it balances its response without damaging its

relationship with either of the protagonists, with both of whom it has close ties.

- But the brutal truth is morals and values count for little and national interest is paramount. This crisis **provides our government an**

opportunity to focus on pursuing our own national interest to the full. Government can throw its full weight behind the side that we perceive will help us to effectively **counter China's aggressive designs.**

IRAN–RUSSIA RELATIONS UNDER RAISI: THE EURASIAN DIMENSION

On 19 January 2022, Iran's President Ebrahim Raisi visited Moscow. During his meeting with his Russian counterpart, Vladimir Putin, Raisi presented a draft of Iran–Russia 20-year Cooperation Agreement.

Iran–Russia 20-year Cooperation Agreement

- **Bilateral cooperation in infrastructure, energy, banking and trade** were the main focus of the interaction.
- The **common understanding of the two countries on regional and international issues is at the basis of joint cooperation.**
- As the **implementation of Iran–China 25-year Comprehensive Strategic Partnership**, Iran's push for a similar long-term cooperation agreement with Moscow underscores how relations with China and Russia are being deepened under the rubric of the Look to the East policy.
- It **linked revival of Iran's economy with resolving the nuclear issue with the West and integrating with international economy**, has envisaged Look East policy based on **strengthening economic ties with Iran's neighbours** and key non-Western powers as the long-term strategy serving Iran's geo-economic and geopolitical interests.

Geo-economic Opportunities

- The **bilateral trade between Iran and Russia doubled** in the last two years from being US\$ 2 billion in 2019 to US\$ 4 billion in 2021, with the value of Iran's exports to Russia passing US\$ 1 billion for the first time.
- Since 2019, more than **50 per cent of the total bilateral trade is being conducted through national currencies** as both countries seek to **break dollar dominance** in trade and finance.

- **Tehran shares Russia's vision of 'Greater Eurasia'** as a "powerful new geopolitical space that could pose a fundamental challenge to the US-led liberal international order".
- It provides Iran with opportunities to **advance its own geo-economic position, especially its transit role and trade**, by participating in and seeking synergies with various trans-continental connectivity projects in Eurasia.
- **Iran is the link between the Eurasian Economic Union, China's Belt and Road Initiative and the North–South Corridor infrastructure projects.** Iran could be the connecting link between South and North Eurasia through the North-South Corridor, **connecting Central Asia and Russia to India. The north-south corridor can strengthen the convergence infrastructure in the form of the 'Great Eurasia'.**

Challenges

- Transport and transit infrastructure has developed at a modest pace and new geopolitical realities following **Azerbaijan's victory in the Second Karabakh War in 2020 have thrown up new challenges.**
- **Iran was forced to look for alternative transit routes to Armenia**, a member of the EAEU, and Russia, after **Baku imposed custom duty on Iranian trucks travelling via Goris-Kapan highway, to Yerevan and on to Russia.**
- **Turkey's actions in the Caucasus are seen in Tehran or Moscow as part of the efforts by the West to increase its regional footprint** and the EU and the US supported trilateral partnership between Turkey, Azerbaijan and Georgia especially in east–west

connectivity as a strategy of pluralism in energy and geopolitics aimed at minimising Russia and Iran's economic influence in the Caucasus.

- To realise its transit potential, **Tehran needs financing to renovate its infrastructure and manage its competition with Baku.**

Shaping a Eurasian Order

- The **Russia–Iran geopolitical convergence in the Caucasus–Caspian region and Central Asia is based on their shared opposition to the NATO expansion**, popular unrest against region's autocratic leaders as Western-backed colour revolution and their shared belief that regional powers should shape the security architecture in Eurasia.
- Moscow considers **Iran's participation as necessary in settling regional crises in Syria, Iraq and Afghanistan**. In the Caucasus, Iran remains concerned by Baku's irredentist claims on Armenian territory and border with Iran, the rising influence of US allies such as **Turkey, Israel and fears about Azerbaijan becoming a launchpad for attack against Iranian territory and the presence of Syrian mercenaries in the Caucasus facilitated by Turkey during the war.**
- Similarly, in Afghanistan following the **US withdrawal and Taliban takeover** of the country, both Tehran and Moscow have been concerned about it becoming a **source of regional instability, terrorism and drug trafficking.**
- **Russia is the region's primary security partner, the experience of military-technical cooperation between Russia and Iran and a coordinated campaign in support of**

government in Syria means that Iran not only hopes to replicate the success in Afghanistan but also strengthen its position as Russia's co-operative security partner in Eurasia.

- Iran sees its **'counter-terrorism' cooperation with Russia in Syria as a 'model of regional cooperation'** that succeeded in preventing state disintegration against the rise of Sunni-jihadist forces and advanced regional efforts towards political settlement of the crisis.

Conclusion

- In addition to the geopolitical and geoeconomics convergences and challenges facing Iran and Russia in the Eurasia, strengthening of Iran–Russia bilateral relations and its regional dimension is also facilitated by the inter-factional struggle for power in Iran which has for now settled in favour of Iran's conservatives.
- The Western-vector of Iran's foreign policy with the overarching goal of normalising Iran's international relations and integrate it with the global economy, the conservatives sought discrediting them ideologically as 'Westerners' and liberals.
- A long-term partnership with Russia can contribute to stability and security in their shared neighbourhood, bring geo-economic opportunities and also weaken the influence of moderates and reformists who have supported the cause of economic reforms that will jeopardise the economic dominance of the Islamic Revolution Guards Corps (IRGC) and other para-governmental foundations (bonyads) in order to make way for a productive private sector.

UN WORLD FOOD PROGRAMME APPEALS FOR FUNDS TO ASSIST THOSE AFFECTED BY CYCLONE EMNATI

The United Nation's World Food Programme (WFP) has appealed for funds to assist those affected by the Cyclone Emnati in Madagascar.

UN World Food Programme

- The World Food Programme (WFP) is the **food-assistance branch of the United Nations**. It is the world's largest humanitarian organization **focused on hunger and food**

security, and the largest provider of school meals.

- **Founded in 1961, it is headquartered in Rome** and has offices in 80 countries. As of 2020, it served 115.5 million people in 80-plus countries, the largest since 2012.
- In addition to emergency food relief, **WFP offers technical assistance and development aid, such as building capacity for emergency preparedness and response, managing supply chains and logistics, promoting social safety programs, and strengthening resilience against climate change.**
- The agency is also a **major provider of direct cash assistance and medical supplies, and provides passenger services for humanitarian workers.**
- WFP is an **executive member of the United Nations Sustainable Development Group**, a consortium of UN entities that **aims to fulfil the 17 Sustainable Development Goals (SDG), with a priority on achieving SDG 2 for "zero hunger" by 2030.**
- The World Food Programme was **awarded the Nobel Peace Prize in 2020** for its efforts to provide food assistance in areas of conflict, and to prevent the use of food as a weapon of war and conflict.

About Cyclone Emnati

- **Intense Tropical Cyclone Emnati was a tropical cyclone that affected Madagascar, only two weeks after Cyclone Batsirai.**
- **The sixth tropical disturbance, the second tropical cyclone, and the second intense tropical cyclone of the 2021–22 South-West**

Indian Ocean cyclone season, Emnati formed from a zone of disturbed weather.

- It **continued westward**, and steadily intensified before getting named Emnati.
- **Due to present dry air and wind shear**, the storm had struggled to intensify significantly, and it became a category 1-equivalent on the Saffir-Simpson Scale later.
- Emnati then **underwent a lengthy Eyewall Replacement Cycle**, which strongly weakened the storm as it moved closer to Madagascar.

About Tropical Cyclones

- A tropical cyclone is a weather phenomenon that is essentially a rapidly rotating storm system with characteristics such as a **low-pressure center, strong winds and thunderstorms that produce heavy rain, among others.**
- **Cyclones rotate in a counter clockwise direction in the Northern Hemisphere and in a clockwise direction while in the Southern Hemisphere.**
- In the tropics, there is a **narrow zone of low pressure which stretches across the equator.** The winds on the north side of this zone blow from the north-east (the north-east trades) and on the southern side blow from the south-east (south-east trades).
- **The low-pressure area is heated over the warm tropical ocean which leads to the rise of air from this area in discrete parcels, ultimately causing the formation of thunderstorms.**
- This creates a **flow of very warm, moist, rapidly rising air, leading to the development of a centre of low pressure, or depression, at the surface.**

THE GROWING DIVERGENCE IN EUROPE OVER RUSSIA

Europe and the European Union are **divided more than ever**, specifically on the Russian threat against Ukraine. Europe assumed the role of a **bystander** due to culmination of **disunity, inability, and historical dependence on the US for European security.**

ISSUES AMONG THE EUROPEAN COUNTRIES

- UK Prime Minister is surrounded by domestic scandal.
- France begins its preparation for its Presidential Elections due in April.

- The new German coalition government is yet to find their unified voice against Russia.
- Eurozone is encountering increasing inflation largely due to higher energy prices.
- Europe has been dealing with an **energy crisis** for the past several months which has led to **rising energy prices**.
- Europe have unequivocally **outsourced security and diplomatic efforts to Washington**. The transatlantic relationship over the years has become skewed and asymmetrical **largely dictated by the US**.

IDEAS AND RESPONSES FOR EUROPEAN ARMY

- The French President, Emmanuel Macron, ever since coming to power in 2017 has advocated establishing a true **European army and increasing Europe's military spending**. However, his appeal has found minimal resonance across the bloc with the majority of the member states finding **comfort in aligning with Washington for its security purposes than creating a European army**.
- The collaborative military **defence spending dropped from €5.5 billion in 2017 to €4.1 billion in 2020** due to which the EU member states fell short of their 2017 commitment to **spend at least 35 percent of their equipment procurement budget with other member states**.
- **Permanent Structured Cooperation (PESCO): Ambitious initiatives** such as the Permanent Structured Cooperation (PESCO), the **European Defence Action Plan**, and establishing **new defence funds** to facilitate the financing of research and development of EU military capabilities have **not necessarily progressed** as the European Defence Agency (EDA) warned EU member states over the lack of spending on defence research and technology.

Taliban's takeover of Afghanistan and European policymaker's idea of strategic autonomy

- After the Taliban's takeover of Afghanistan in 2021, the European policymakers **pro-actively sponsored investing in European strategic**

autonomy to decrease its dependence on Washington and conjure consensus within Brussels to make its own autonomic decisions.

AFTER BREXIT, FRANCE AND GERMANY HAVE BECOME THE TWO FIGUREHEADS IN THE EU'S GOVERNANCE AND POLICYMAKING

- **France:** In Macron's recent visit to Kremlin, he reiterated avoiding war and bridging the differences between Europe and Russia through diplomacy and trust-building measures.
- **Germany:** Germany's new chancellor, Olaf Scholz also visited Moscow. Germany's refusal to supply weapons to Kyiv, hesitancy in increasing Germany's troop presence in Eastern Europe and the future of the Nord Stream 2 pipeline was severely opposed by Washington.
- **NATO:** The defence ministers from NATO member states have met to strengthen their diplomatic strategy against Russia which is a major threat to European security since the Cold War. Fearing the fallout in Eastern European states, NATO troops have been deployed in Poland and the Baltic states to contain any Russian aggression. NATO is set to come up with **four new battle groups in South-Eastern Europe as France has offered to lead the battlegroups in Romania**.

Sanctions on Russia and Energy security

- Europe and the West have **threatened heavy sanctions on Russia if it invades Ukraine**; however, Europe also faces a major energy security conundrum if it imposes sanctions on Russia.
- **Energy security:** The EU **imports 39 percent of its total gas imports and 30 percent of petroleum oil imports from Russia** with CEE (Bulgaria, Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland, Romania, Slovenia, Slovakia) countries being almost **100 percent dependent on Russian gas**.
- **Temporary resolution:** In absence of any signs of de-escalation from Russia, the **EU has asked Qatar and Japan to provide LNG**

shipments as an alternative to Russian imports. However, this is a temporary resolution to a longer problem.

- **Trans-Anatolian Natural Gas Pipeline (TANAP):** The EU now attempts at diversifying its hydrocarbon imports by looking at Norway and Southern Europe can increase its imports via the Trans-Anatolian Natural Gas Pipeline (TANAP) and the **Trans Adriatic Pipeline**.
- **Nuclear energy:** The EU is also aiming to **incorporate nuclear energy** into its energy architecture; however, nuclear availability is declining in Western European states due to **phase-outs** and other countries have raised **objections** against the inclusion of nuclear energy.
- **EU-AU:** EU is now looking at Africa for its energy imports and is eager to invest in **joint EU-AU research on renewable energy**, therefore, the EU aims to bolster Africa's role in the EU's hydrogen imports.

CURRENT SITUATION IN EUROPE:

- **Regional security** affecting climate actions that can be detrimental not only to the **carbon neutrality** ambitions but also cause **disruption to livelihood across the continent**.
- **Poland** is increasingly worried about Ukraine's invasion primarily because it **shares its border with Ukraine**, and any war-like scenario would create a **massive influx of migrants** from Ukraine.
- The **Baltic states** are cautious fearing that Russia will cut its energy supply, thereby, causing economic distress in the region.

PUTIN'S MOVES ARE HARDLY 'CHESS THUMPING'

The Russian President's actions this week may yield tactical gains but hardly pass the test for strategic victory.

- Diplomacy has retreated as the smouldering Ukraine crisis took a decisive turn this week
- On February 24, Russian President Vladimir Putin launched "**special military operations**" with the objective of "**demilitarising Ukraine**" but not "**occupying**" it.

- **France**, which is set for Presidential elections in April is concerned with **cyber-attacks and Kremlin's interference in their election**.
- The European Commission has proposed a new **emergency macro-financial assistance (MFA)** programme for Ukraine for €1.2 billion with €600 million ready to be dispatched immediately to maintain Ukraine's macroeconomic stability.
- In a span of seven months, Brussels has faced multiple geopolitical challenges particularly the **Afghanistan crisis**, the **natural gas crisis**, the **influx of migrants** at the Poland-Belarus border and now the Russian presence at the Ukrainian border.

Road Ahead:

- The aforementioned challenges now compel Brussels to investigate deeply into establishing **European strategic sovereignty** which would allow the bloc to be at the forefront of its geopolitical decisions against external threats. While seeking solutions for the future, Brussels could perhaps consider adopting **Gestalt psychology** whose adage states that, '**the whole is greater than the sum of its parts**'. Likewise, a **collected, cohesive, and unified EU is more likely to achieve optimal outcomes** against external threats rather than being divisive which not only threatens Europe but could also have significant geopolitical repercussions.

U.S., the European Union (EU), the United Kingdom, Australia, Canada and Japan.

- After 1945, this is the **second time that national boundaries are being redrawn by force**; the first was the **1999 North Atlantic Treaty Organization (NATO) air strikes on Serbian** forces that led to the creation of Kosovo.

A crisis in the making

- In the post-Cold War world that promised a **rule-based liberal international order**, the present act clearly sends the message— **“the strong do what they can and the weak suffer what they must”**.
- In 2022, Russia has fired the first shot but **NATO is not blameless either**.

Failed commitments:

- After the fall of the Berlin Wall in late-1989, then U.S. Secretary of State James Baker was meeting Soviet President Mikhail Gorbachev in Moscow in February 1990 to help ease the way for German unification. He assured Mr. Gorbachev that NATO understood the **“need for assurances to the countries in the East”**, adding that even with **Germany a part of NATO**, **“there would be no extension of NATO’s jurisdiction one inch to the east”**.
- By end-1991, USSR had broken up into 15 countries; Rather than look for a new European security framework, the **newly independent Baltic and central European states sought security in a U.S.-led NATO**.
- The **cost of expansion goes up** as it reaches closer to the Russian border was discarded and NATO adopted an **‘open door’** policy.
- Beginning in 1999, NATO has added 14 new members in stages. At the NATO summit in 2008, at U.S. President George Bush’s urging, an in-principle opening for Ukraine and Georgia was announced, though France and Germany, conscious of Russian concerns, successfully opposed defining a time frame. It was a bad compromise and the damage was done.
- Later that year, **Russia intervened in Georgia on the grounds of protecting the Russian**

minorities and took over the **northern provinces of Abkhazia and South Ossetia**.

- In 2014, following the **Euromaidan protests against the pro-Russian President Viktor Yanukovich, Mr. Putin annexed Crimea**. For Russia, **Crimea is vital as the peninsula hosts Russia’s Black Sea fleet**, providing it access to the Mediterranean and its bases at Latakia and Tartus in Syria.
- At the same time, pro-Russia separatists, assisted by Russian mercenaries, created autonomous regions in the **Donbas region**.
- Despite no timeline for membership, **Ukraine was made a NATO Enhanced Opportunity Partner in 2020**.
- The presence of **British and U.S. warships in the Black Sea began to increase** since 2019 a move that Russia saw as potentially threatening.

Grievances

- Beginning with **NATO’s bombing of Serbia in 1999**, interventions in Afghanistan, Iraq and Libya and **colour revolutions** to engineer **regime changes, the U.S.’ unilateral withdrawal from the Anti-Ballistic Missile (ABM) Treaty in 2002** coupled with missile defence deployments in Poland and Romania that Russia perceived as offensive, were accumulating.

Faltering European diplomacy

- **France and Germany** initiated talks between Ukraine and Russia under the **Normandy format** leading to the Minsk agreements, in 2014 and 2015.
- **Minsk-1 was for a ceasefire between Ukraine and the Russian-backed separatists**.
- **Minsk-2 was between Ukraine, Russia, the two separatist regions of Luhansk and Donetsk and the Organization for Security and Co-operation in Europe (OSCE)**.

Result:

- **Supportive declarations** by France and Germany were intended to address Russian security concerns.

- Ukraine undertook to introduce certain constitutional amendments to **provide a degree of autonomy to the two provinces and Russia** was to assist in withdrawal of all foreign forces.
- **Implementation failed:** However, neither side implemented and positions have only hardened since.

Recent line of events on various countries and how its related to the Ukrainian crisis:

- **France:** In the **intense diplomacy during the last six weeks**, particularly the back-to-back visits by French President Emmanuel Macron and German Chancellor Olaf Schulz to Moscow and Kiev, **there was talk of reviving the Normandy format.**
- But Ukrainian President Volodymyr Zelensky **was in no mood to oblige** with over 1,50,000 Russian troops poised on his border and Mr. Putin was looking for his own face saver.
- Mr. Macron has a difficult re-election coming up in April and Chancellor Schulz has already been criticised for being soft on Russia because of energy dependency.
- **USA:** Mr. Biden faces a critical mid-term election in November that could see the **Senate shift to Republican control and had already faced considerable flak for the messy withdrawal from Afghanistan last year. His aim was to ensure trans-Atlantic unity in NATO.**

- Mr. Putin would not want to take over Ukraine. However, the **separatist groups that currently control only part of the provinces of Luhansk and Donetsk would want to extend** their territory beyond the current **Line of Contact** dividing the separatists and the Ukrainian forces.
- A Russian military **presence in Belarus puts pressure on the 65-mile long Suwalki corridor that constitutes the boundary between Lithuania and Poland** and more importantly, separates Belarus from Kaliningrad, the Russian enclave on the Baltic Sea that hosts its Baltic fleet.

The move has weakened Russia than strengthening

- Mr. Putin may claim victory in the near term, but in the long term, he has over-reached himself. **NATO has been rejuvenated, the trans-Atlantic unity strengthened and Russia's economic ties with Europe have been adversely impacted.**
- Worse, Russia will become **more dependent on China** – for political support as well as a market for its energy exports. This will eventually weaken its hand in central Asia.
- The challenge is to **constrain the adversary's options** while increasing one's own options and space for manoeuvre. His actions this week may yield tactical gains but hardly pass the test for strategic victory.



WHY HAVE THE PROTESTS AGAINST BRU RESETTLEMENT IN TRIPURA FLARED UP?

Tripura's Bru people are in the news?

- 515 displaced Brus were moved out of their camps in the North Tripura district and sent to two locations in Dhalai district in the state as a part of the **permanent resettlement of the refugees**.
- A quadripartite agreement was signed among the Bru leaders and Central, Tripura, and Mizoram governments in January last year for the resettlement of some 35,000 Brus from Mizoram.

Who are Bru's?

- **They are a community indigenous to the Northeast, living mostly in Tripura, Mizoram, and Assam.**
- In Tripura, they are recognised as a **Particularly Vulnerable Tribal Group**.
- In Mizoram, they were targeted by ethnic organisations who demanded that the Brus be excluded from electoral rolls.
- Their **exodus in 1997** was spurred by violent clashes in **Mamith subdivision**, a Reang-dominated area when they demanded the

creation of an autonomous council that was vehemently opposed by Mizo groups.

The quadripartite agreement:

- In January 16, 2020, a final quadripartite pact was signed by the governments of Tripura and Mizoram, along with the Centre and Bru organisations to settle around 32,000 Brus in Tripura permanently.
- The Bru who returned to Mizoram in the eight phases of repatriation since 2009, cannot, however, come back to Tripura.
- To ascertain the numbers of those who will be settled, a **fresh survey and physical verification of Bru families living in relief camps will be carried out.**
- **All cash assistance will be through Direct Benefit Transfer (DBT), and the state government will expedite the opening of bank accounts and the issuance of Aadhaar, permanent residence certificates, ST certificates, and voter identity cards to the beneficiaries.**

PHASI WOOD FOR JAGANNATH CHARIOT THIS YEAR ENTIRELY FROM PRIVATE LANDS; FOREST LOSS, CLIMATE CHANGE AFFECTING NATURAL SUPPLY

- Around 72 logs of Phasi, 14 feet in length and 6 feet in girth are used for making the wheels of the jagannatha chariots.

- These logs mostly came from private land owners. They donated the logs to the temple committee for the chariot.
- Around 865 logs of Phasi, Dhaura (*Anogeissus latifolia*), Asan (*Terminalia elliptica*) and Simal

(*Bombax ceiba*), along with a few others, are the tree species majorly used for the construction of chariots of Jagannath, Balabhadra and Subhadra every year.

What are phasi, dhaura and asan and trees?

Phasi trees:

- **Anogeissus latifolia** is a species of small to medium-sized tree **native to the India, Nepal, Myanmar, and Sri Lanka.**
- Phasi trees grow are mostly found in the **alluvial floodplain of the Mahanadi.**
- Phasi trees take **50-60 years to mature.**
- Its leaves **contain large amounts of gallotannins, and are used in India for tanning and firewood.**
- The tree is the **source of Indian gum**, also known as **ghatti gum**, which is **used for calico printing** among other uses.

Dhaura trees:

- An erect tree sometimes reaching 18-21 m bark, **smooth, light coloured, young parts glabrous or silky pubescent.**
- Bark **useful in diarrhoea, dysentery, cough, headache.**
- Gum **used in leucorrhoea and tonic in postnatal treatment.**
- The wood is extensively **used for axle handles, construction, agricultural implements, house posts, poles, excellent fuel and charcoal, yields a gum used in Calica printing.**
- **Leaves used for tanning.**

Asan trees:

- **Terminalia elliptica** is a species of **Terminalia native to southern and southeast Asia in India, Nepal, Bangladesh, Myanmar, Thailand, Laos, Cambodia, and Vietnam.**
- **Outside of its native range, it is cultivated in southern China.**
- It is a prominent part of **both dry and moist deciduous forests in southern India up to 1000 m.**

- The bark is **fire-resistant.** The wood is coarse, fairly straight grained, dull to somewhat lustrous and without any smell or taste.
- **Terminalia tomentosa** has a remarkable attribute: some members of the species store water in the dry season.
- The **leaves are used as food by Antheraea paphia (silkworms)** which produce the **tassar silk (Tussah)**, a form of commercially important wild silk.
- **Water stored in the stem** is often tapped and used as a **source of potable water** in the summer by forest folk.

Impact of these trees on climate change?

- Loss of forest cover.
- Their regeneration has been affected.
- Rapid climate change leading to erratic rainfall and cyclones in the region.
- The survival rate of the plantations too has cast a shadow on the project since slow growth will mean longer gestation period.

Road Ahead:

- As part of the **Green Mahanadi Mission**, spreading awareness among the masses and requesting them to start growing Dhaura trees on their land along with fruit trees. These woods should be added in sacred grooves category for their conservation.
- The alarm bells signaling the urgent need to reclaim the ecological cover and rescue the environment have once again been sounded. And people should be worried, if only for god's sake.

Additional information

Jagannatha Yatra of Puri:

- Ratha Jatra, the Festival of Chariots of Lord Jagannatha is celebrated every year at Puri, the temple town in Orissa, on the east coast of India.

Deities:

- The presiding deities of the main temple, **Sri Mandira, Lord Jagannatha, Lord Balabhadra and Goddess Subhadra**, with the **celestial wheel Sudarshana** are taken out from the temple on their respective chariots.

Features:

- The huge, colourfully decorated chariots, are drawn by hundreds and thousands of **devotees on the badadanda**, the grand avenue to the **Gundicha temple**, some two miles away to the North.
- After a stay for seven days, the deities return to their abode in Srimandira.
- **Other names:** The festival is also known as **Gundicha Jatra, Ghosa Jatra, Navadina Jatra, Dasavatara Jatra** and by a variety of other names.

CENTRE PLANS TO TWEAK NO-BUILD ZONE AROUND MONUMENTS

- The Ministry of Culture is seeking to amend **Ancient Monuments and Archaeological Sites and Remains (AMASR) Act, 1958**.
- The **100-metre prohibited area** for **construction activity around** Centrally-protected monuments could be replaced with

site-specific limits to be decided by an expert committee.

- The Ancient Monuments and Archaeological Sites and Remains (AMASR) Act, 1958, was amended in 2010 to declare the 100-metre radius of protected monuments as prohibited areas and the next 300-metre radius as regulated areas.
- The proposed amendment would change Section 20A of the Act, which refers to the prohibited area, to rationalise the prohibited and regulated areas.
- Expert monument committees would decide the prohibited area around a particular monument, which could be as wide as **500 metres** for some sites like the **Taj Mahal**.
- The amendment would also enable the ASI to act against encroachment by holding the relevant authorities liable in case of illegal buildings at a protected site.

GI TAG SOUGHT FOR THREE PRODUCTS FROM U.P.

- A GI tag is a sign used on products that have a specific geographical origin and possess qualities or a reputation by virtue of their geographical association.
- Three applications from Uttar Pradesh have been filed with the Geographical Indications Registry.
- The application is seeking a Geographical Indication (GI) tag for the **Bundelkhand Kathiya Gehu** (Wheat), **Banarasi Tabla** and **Sitapur Durrie**.
- Bundelkhand Kathiya Gehu has **high nutritional value** and a **high fibre** content. It is usually sown in the last week of October or first week of November and is harvested between March and April.

- A durrie is a thick flat **woven rug/carpet** traditionally used as floor coverings. Though durries are made in various parts of India, the applicants have indicated that the Sitapur Durrie is unique and is different from a carpet.
- These durries are made of **cotton, wool, jute** and **silk** b weavers who work in cottage industries, kharkhanas or privately run factories spread across villages in Sitapur town, Biswan, Laharpur among others.
- Tabla is one of the most important musical instruments in Banaras and it is made of different kinds of wood like sheesham, neem, mahogany and babla wood. There is a huge demand for these tabla's in the local market as well as the international markets.

VETERAN SINGER LATA MANGESHKAR DEAD, SHE LIVES IN HER SONGS

Acclaimed singer **Lata Mangeshkar** breathed her last at Breach Candy Hospital, Mumbai on Sunday. She was 92. The singer, called the **Nightingale of India**, was admitted to the hospital in January with Covid-19 and pneumonia.

Lata Mangeshkar?

- **Lata Mangeshkar** (born **Hema Mangeshkar**; 28 September 1929 – 6 February 2022) was an Indian playback singer and music composer.

Daughter of Pandit Deenanath Mangeshkar and Shevanti Mangeshkar, Lata belonged to a musical family. Her father was a well-known Marathi musician and theatre artiste. She was first tutored by her father and later appeared as a child artiste in several of his plays.

- She is widely considered **one of the greatest and most influential singers in India**.
- Her contribution to Indian music industry in a career spanning **seven decades** gained her honorific titles such as the **Nightingale of India, Voice of the Millennium and Queen of Melody**.
- Lata Mangeshkar recorded her first Hindi song called "**Mata Ek Sapoot Ki Duniya Badal De Tu**" for the **Marathi feature Gajaabhaau**, which had released in 1943.

Some notable achievements:

- Lata had recorded songs in over **thirty-six Indian languages** and **few foreign languages**, though primarily in Hindi and Marathi.
- In 1987 the **Dadasaheb Phalke Award**.
- In 2001, **Bharat Ratna**, India's highest civilian honour and is only the **second female singer, after M. S. Subbulakshmi**, to receive this honour.
- France conferred on her its highest civilian award, Officer of the **National Order of the Legion of Honour, in 2007**.
- In 1974, she became the **first Indian to perform at Royal Albert Hall, London**.

Guinness controversy

In 1974, The Guinness Book of Records listed Lata Mangeshkar as the most recorded artist in history, stating that she had reportedly recorded " not less than 25,000 solo, duet and chorus backed songs in 20 Indian languages " between 1948 and 1974.	Her record was contested by Mohammad Rafi , who was claimed to have sung around 28,000 songs .
After Rafi's death, in its 1984 edition , the Guinness Book of World Records stated Lata Mangeshkar's name for the " Most Recordings ", but also stated Rafi's claim.	The later editions of Guinness Book stated that Lata Mangeshkar had sung no fewer than 30,000 songs between 1948 and 1987 .
Mangeshkar herself has stated that she does not keep a record of the number of songs recorded by her, and that she did not know from where Guinness Book editors got their information.	The entry was discontinued by Guinness editions in 1991 without explanation , while several sources continued to claim that she recorded thousands of songs, with estimates ranging up to figures as large as 50,000.
	In 2011, the entry was revived by <i>Guinness</i> crediting the record to her sister Asha Bhosle as the most recorded artist in music history , " for recording up to 11,000 solo, duet and chorus-backed songs and in over 20 Indian languages since 1947 ".
	Since 2016 , current record in this category belongs to P. Susheela , for recording at least 17,695 songs in 6 languages , not counting some lost early recordings.

100 YEARS FOR 'CHAURI CHAURA' INCIDENT

The Prime Minister has remembered the heroes of our freedom struggle on **completion of hundred years of Chauri Chaura incident.**

Chauri Chaura incident:

- The historical Chauri Chaura incident occurred in Chauri Chaura town of Gorakhpur district of the United Province (Uttar Pradesh) in British India on **4th February 1922.**
- A large group of protesters, participating in the **Non-cooperation Movement**, clashed with police, who opened fire.
- In retaliation the demonstrators attacked and **set fire to a police station**, killing all of its occupants. The incident led to the deaths of three civilians and 23 policemen.
- **Mahatma Gandhi**, who was strictly against violence, **halted the Non – cooperation Movement** on the national level on 12 February 1922, as a direct result of this incident.

What was the significance of this incident?

- 3 civilians and 22 policemen died in this incident.
- British colonial authorities declared **martial law** around this region.
- There was **halt on the countrywide movement** against British authorities i.e., Non-Cooperation Movement.
- It makes the efforts of Mahatma Gandhi unsuccessful in acquiring independence.

Non-Cooperation Movement:

- It was an unsuccessful attempt in 1920–22, organized by Mohandas (Mahatma) Gandhi, to induce the British government of India to grant **self-government**, or **swaraj**, to India.
- It was one of Gandhi's first organized acts of **large-scale civil disobedience (satyagraha).**
- The movement arose from the widespread outcry in India over **the massacre at Amritsar in April 1919**, when the British-led troops killed several hundred Indians.
- Gandhi strengthened the movement by supporting (on nonviolent terms) the contemporaneous **Muslim campaign against**

the dismemberment of the Ottoman Empire after World War I.

- It consists of **Indians resigning their titles; boycotting government educational institutions, the courts, government service, foreign goods, and elections; and, eventually, refusing to pay taxes.**
- It was first time the showcasing of **Hindu-Muslim unity** at a big scale.
- The movement marked the **transition of Indian nationalism from a middle-class to a mass basis.**

Why was Non-Cooperation Movement called off?

After an angry mob murdered police officers in the village of Chauri Chaura (now in Uttar Pradesh state) in February 1922, Gandhi himself called off the movement; the next month he was arrested without incident.

RAJYA SABHA DEBATES USE OF PRIVATE BILLS TO AMEND PREAMBLE TO CONSTITUTION

- Rajya Sabha Deputy Chairman Harivansh said that there have been number of instances in the past when private member bills to amend the Preamble to the Constitution have been introduced in both the Houses of Parliament and its legislative competence is decided by Council and not the Chair.
- Preamble is part of the Constitution and as per Article 368 of the Constitution, Parliament may, in exercise of its constituent power, amend by way of addition, variation or repeal any provision of the Constitution and a Bill for the purpose can be introduced in either House of the Parliament.

AHEAD OF ASSEMBLY POLLS IN FIVE STATES, ELECTORAL BONDS WORTH RS. 1,213 CRORE SOLD

- While questions pertaining to the legality and opacity of the Electoral Bond scheme still persist, the 19th round of sale of electoral bonds from January 1-10 – a month before the start of assembly elections in five states – has secured the second-highest amount of donations recorded in any phase.
- The sale of electoral bonds worth over Rs 1,213 crore recorded in January 2022 is second only to

the Rs 2,256 crore garnered through the sale of electoral bonds in the ninth phase of sale from April 1 to 20, 2019 – ahead of the Lok Sabha elections.

- As per the data provided by SBI, the sale of electoral bonds during the 19th phase took place at 12 branches.

PM MODI UNVEILS GIANT 'STATUE OF EQUALITY' IN REMEMBRANCE OF SAINT RAMANUJACHARYA

Prime Minister will inaugurate the **Statue of Equality**, a gigantic statue of **Ramanujacharya of 216 ft**, on February 5 on the outskirts of **Hyderabad**.

- Government is celebrating his **1,000th birth anniversary** as the **'Festival of Equality'**, upholding the view that the **world is one family**, **'vasudhaiva kutumbakam'**.

Ramanujacharya:

- **Born in 1017 in Sriperumbudur in Tamil Nadu**, Ramanujacharya is revered as a Vedic philosopher and social reformer.
- He travelled across India, **advocating equality and social justice**.
- Ramanuja revived the **Bhakti movement**, and his preaching inspired other Bhakti schools of thought.
- He is considered to be the inspiration for poets like **Annamacharya, Bhakt Ramdas, Thyagaraja, Kabir, and Meerabai**.
- He wrote **Sri Bhasya and Gita Bhasya**.

What is the philosophy of Ramanujacharya?

- He was the founder of **"Vishisht Advaita"** philosophy i.e., **qualified monoism**.
- According to him, salvation can be attained through **Karma, Gyan and Bhakti**.

- From the time he was a young budding philosopher, Ramanuja appealed for the **protection of nature and its resources like air, water, and soil**.
- He spoke about **universal salvation through devotion to God, compassion, humility, equality, and mutual respect**, which is known as **Sri Vaishnavam Sampradaya**.

Why is it called the Statue of Equality?

- Ramanuja was an advocate of social equality among all sections of people centuries ago, and **encouraged temples to open their doors to everyone irrespective of caste** or position in society at a time when people of many castes were forbidden from entering them.
- He took education to those who were deprived of it. His greatest contribution is the propagation of the concept of **"vasudhaiva kutumbakam"**, which translates as **"all the universe is one family"**.
- According to Chinna Jeeyar Swami, the Vaishnava seer behind the Statue of Equality, Ramanujacharya social philosophy was designed to cross the boundaries of the caste system and to embrace the whole of humanity.
- The statue was **proposed and designed by Chinna Jeeyar**.

UNION BUDGET 2022 | FINANCE MINISTER NIRMALA SITHARAMAN RAISES WAGER ON CAPEX PUSH FOR GROWTH, JOBS

Finance Minister Nirmala Sitharaman, in the **Union Budget for 2022-23**, has **raised the bet on public capital expenditure to pump prime the investment cycle** and spur India's economic recovery from the pandemic through 2022-23.

- The **'Effective Capital Expenditure'** of the Central Government is estimated at **10.68 lakh**

crore in 2022-23 or about **4.1% of GDP**, factoring in **Grants-in-Aid to States** for creating capital assets.

- **Budget 2021-22 had allocated ₹5.54 lakh crore for capex**, which has been raised to nearly **₹6.03 lakh crore** in revised estimates.

What is Capex by government?

- **Capital expenditure** is the money spent by the government on the development of machinery, equipment, building, health facilities, education, etc. It also includes the expenditure incurred on acquiring fixed assets like land and investment by the government that gives profits or dividend in future.
- India's economic recovery is continuing to benefit from the **multiplier effects** from the increase in **public investment**, adding that **capex** holds the key for a **speedy and sustained revival** and **job creation**.
- The capital spending push will also **induce demand for services** and **manufactured inputs** from large industries and micro, small and medium enterprises (MSMEs), while **helping farmers** through better infrastructure.
- To sustain the economy to come out of the effects of the pandemic with high growth, we need to capital expenditure **to make up** for the **setback of 2020-21**.
- The **Economic Survey on January 31** noted a **nascent private investment** is underway, they still seem to require support to rise to their potential and to the needs of the economy.
- **Public investment** must continue to take the lead and **pump-prime the private investment** and demand in 2022-23.
- **Fifteenth Finance Commission Chairperson N.K. Singh**: The sharp increase in capital expenditure, particularly **focused on infrastructure, and efforts to enhance digital connectivity to all villages**.
- The most special and unique aspect of the Budget this year is **public investment**. At Rs 7.5 lakh crore in 2022-23, It is **four times** more than the UPA government's Rs 1.87 lakh crore in 2013-14.

Impact:

- When the government incurs such a huge expenditure, it will bring more **investment, expand modern infrastructure, and create a positive impact** among iron and

cement producers, it will create many job opportunities as well.

- It will eventually provide relief to the common man, making his **life easier and better**.

Infrastructure:

- With **logistics support**, farmers are able to sell fruits and vegetables in markets more easily. **Multi-modal logistics parks, cargo terminals** will ensure higher exports. This means higher production and more jobs.
- The plans to roll out **5G technology** and schemes for farmers, fundamentals of the economy were strong and the nation was moving in the right direction.
- The **digital rupee** will open up new opportunities for the **FinTech** sector. Stating that India will soon be introducing **digital currency** to keep pace with the rapidly changing financial sector that is increasingly dealing with **cryptocurrencies, non-fungible tokens (NFTs)** and other forms of **digital assets**.
- **Digital payments will be regulated**, much like standard currency is regulated by the Reserve Bank of India RBI and ensure such payments are more **secure, efficient, and safe**, and go a long way towards paving the way for a global digital payments' infrastructure."

Momentum in tax collections:

- **Controller General of Accounts (CGA)**: Data shows that for the first nine months of the **current fiscal year 2021-22 (FY22)**, the **Centre's revenue receipts** across taxes and dividends already stood at **₹17.3 lakh crore**, just shy of the full year budget of **₹17.9 lakh crore**.

There are many factors that contribute to this remarkable outcome:

- Higher income tax and Goods and Services Tax (GST) collections are on the back of a robust performance of India's organised sector, amidst increased formalisation of the economy.
- **Notwithstanding the pandemic and the intense hurt amongst the unorganised** sectors, tax collections for this

fiscal year **will end well ahead** of the original Budget projections.

- This Budget, therefore, revised up FY22 **Central revenue receipts to ₹20.8 lakh crore**, nearly **₹3 lakh crore higher than the original Budget**.
- The momentum in tax collections notwithstanding the Omicron wave, actual revenue receipts may exceed even this number by an **additional ₹0.5 lakh crore-0.7lakh crore**.

Concerns:

- **Bharat net** project to connect all villages **will now be ready by 2025** as indicated the Budget speech.
- Data from the ILO suggest that India's employment to population (over the age of 15) ratio has steadily dropped from 55% in 2005 to 43% in 2020.
- In 2020 it was 52% in Bangladesh, 63% IN China and 73% in Vietnam.
- Women work force in India 20%, while they comprise 30% and 70% Of the work force in other three countries.
- While the intent to revive the investment cycle is notable, the speed of implementation of public spending projects remains a source of concern. In 2021-22, by December, for instance, several **central public sector enterprises as well as line ministries in charge of capital spending were struggling to meet this year's targets**.
- As **per CMIE data across manufacturing and services, India lost nearly 1 crore jobs between December 2016 and December 2021**.
- **Fiscal deficit:** Despite the **much higher revenue receipts than budgeted**, the overall FY22 fiscal deficit is projected to end at **₹15.9 lakh crore (6.9% of GDP)**, higher than the **Budget Estimates of ₹15.1 lakh crore**.
- **Reasons:**
 - **Additional spending** towards food and fertilizer subsidies, increased allocations towards the National Rural

Employment Guarantee Scheme and export incentives, and a clean-up of the books of Air India prior to its sale all contributed towards increased expenditures.

How the State has visioned to counter the effect?

- However, a **sustained momentum** in tax collections will provide additional degrees of fiscal policy freedom to foster domestic jobs and output.
- **The idea is to back investments into capital expenditure as the way to achieve this**.
- For the **next fiscal year FY23**, Government has **increased capital expenditure budget or investments** into productive **capital creation to ₹7.5 lakh crore**, 24% higher than the FY22 revised estimate of **₹6 lakh crore**.
- **And just 1% increase** in revenue expenditure, i.e., into items such as salaries, pensions, interest, and subsidies.

Comparison and progress in Capex:

- **Between FY11 and FY21**, capital expenditure averaged just **12%** of the government's overall expenditure. For the current **FY22**, that ratio increased to **16%**, and for **FY23**, the government has proposed to take it to **19%**.

Few caveats and risks:

- Not all the headline capital expenditure is indicative of fresh greenfield investments. The ₹0.5 lakh crore of clean-up of Air India's books this year counts as capital expenditure.
- For **FY23**, the government has set aside **₹0.8 lakh crore** to partly clean up the books of NHAI and BSNL.
- There is a visible thrust on hard capital expenditure, the outlays towards critical areas **such as education, healthcare and urban infrastructure remain subdued**.
- The thrust on capital expenditure has resulted in notably **higher fiscal deficit** numbers than expected. Such high fiscal deficits can put pressure on interest rates and the Reserve Bank of India, even as it raises the **risk of inflation**,

higher current account deficits, and the attendant threats to financial stability.

Way forward:

- **The key lies in execution.** The finance minister has provided ample funds for the infrastructure thrust. It is up to the entire administration – Central, State, and local – to ensure that the **funds are utilised in a timely fashion,**

and result in delivery of world-class infrastructure.

- Alongside, **ease of doing investments** have to be continually addressed, especially around key areas such as **land acquisition, contract enforcement, and policy stability.** Sustained investments in manufacturing and value-added services hold the key for the growth of small businesses, jobs, and our economic well-being.

AFSPA KILLED THE NAGA COAL MINERS IN MON

An unfortunate botched-up military operation, involving one of the most elite and battle-hardened units of the Indian Army, led to the killing of unarmed coal mine workers in **Oting in Mon District of Nagaland** in December 2021.

- This incident led to a spiralling of violence that led to more deaths, and anger and distrust among the local population, furthering the divide with the security forces operating in the region.
- This once again brought into crosshairs the **Armed Forces (Special Powers) Act (AFSPA), 1958** and its continued applicability stretching over decades in several states of the Northeast.

Genesis of AFSPA:

- The British had promulgated **Armed Force Special Powers Ordinance in 1942** to suppress the Quit India Movement.
- On the lines of this Ordinance, Government of India promulgated 4 ordinances in 1947 to deal with the Internal Security Issues arising due to partition in Bengal, Assam, East Bengal, and United Provinces. These ordinances which later became Acts were repealed in 1957.
- In 1958, AFSPA was enacted to deal with the growing insurgency in Assam and Manipur, later it was expanded to all seven north-eastern states.
- Later on, the Act was extended to Punjab and Chandigarh via a separate Act in 1983. This act was withdrawn in 1997.
- In 1990, it was applied to Jammu and Kashmir.

Special powers asserted under AFSPA?

- **Governor of the State and Central Government can declare any part or full state as "Disturbed Area",** if it is in their opinion, necessary to prevent terrorist activity or any such activity that might disrupt the sovereignty of India, cause insult to National Flag, Anthem and Constitution.
- **Moveable and immovable properties can be taken by armed forces.**
- It gives **special powers to army officers** in the disturbed area to shoot (even to kill) any **individual who violates the law and is suspected to violate the law.**
- Army officers can **fire at anyone carrying anything that may be used as a weapon** with only such a warning as he may consider necessary.
- Army may **arrest anybody without a warrant** and carryout searches without consent.
- Once a person is taken into custody, he or she has to be **handed over to the nearest police station as soon as possible.** (This time is not specified.)
- Once AFSPA is implemented, **no prosecutions shall be instituted** except with the previous sanction of Central Government in respect of anything done or perpetuated to be done under this act.

Why AFSPA should go?

- The base upon which Disturbed Area is declared not defined.

- The provisions violate **Article 21 [Protection of Life and Personal Liberty]**, **Article 14 [Right to Equality]**, etc.
- Grave Human Rights Violations have helped the insurgents to mobilise the people against the Government which further weakens the essence of Democracy.
- It has been alleged that the immunity granted by the Act has led the Armed Forces to misuse the powers given to them and act commit the offences like **fake encounters, sexual assaults, etc.**
- It leads to **suspension of Fundamental Rights and Liberties guarantee to citizens** by the Constitution which **weakens the democracy**.

Why AFSPA should stay?

- National security cannot be compromised for peace to prevail and people exercise their human rights. It is very **essential for people to live in environment free from fear**.
- It is essential for armed forces to function effectively in insurgency and militancy affected areas.

- The provisions of this act have played a crucial role in **maintaining integrity and sovereignty of the country**.
- Hundreds of armed personnel lose their lives every year. It is crucial to empower them, its withdrawal could reverse in poor morale of forces.

Road Ahead:

- When mistakes happen, it is important to fix responsibility. There has to be a lesson learning centre so that past mistakes are not repeated and successes can be replicated.
- Making the armed forces villain in the narrative would be akin to what Pontius Pilate, the Roman Governor of Judea did at the crucifixion of Christ.
- Those responsible for addressing the grievances of the affected population should refrain from doing that.
- Instead, the focus of debate and discussion should shift from merely treating the side-effects of an attempted cure to finding what caused the disease in the first place. It might offer solutions to the entire problem.

BUDGET 2022: WHAT FM NIRMALA SITHARAMAN SAID ON ARTIFICIAL INTELLIGENCE, DRONES, DIGITAL PAYMENTS AND MORE

This techno-optimism underpinned Finance Minister Nirmala Sitharaman's 2022 budget speech, where AI was described as a **sunrise technology** that would "assist **sustainable development** at scale and **modernise the country**."

Economic prosperity vs Environmental necessity:

- The national dreams of economic prosperity and global competitiveness, underwritten by AI, there is also an environmental cost and the **nexus of technology, development, growth and security** a cost that comes a is **environmental impact** set by powerful actors.
- The part that **artificial intelligence plays in climate change has come under scrutiny**, by developing tools to **quantify the carbon cost of machine learning models and by switching to a sustainable artificial**

intelligence infrastructure the ill-effects can be reduced.

'Anatomy of an AI system':

- Starting from **extracting metals from the Earth** and the resulting environmental effects, to the **sweatshops of programmers** that keep the system going, to the personal data about the user that the device gathers, they offered a visual picture of AI's impact on the environment and human rights.
- It has become an urgent matter to consider the role of AI technology in the climate crisis. The **United Nations** has called climate change a "**defining crisis of our time**" and, according to the **Climate Reality Project**, **97%** of climate scientists concur that human activity is its main driver.

- The key mitigation pathways to avoiding a global environmental catastrophe include bringing emissions to zero by the middle of the twenty-

AI seems destined to play a dual role:

first century, and limiting the average **global warming to 1.5 °C**.

It can help reduce the effects of the climate crisis, such as in **smart grid design, developing low-emission infrastructure, and modelling climate change predictions.**

AI is itself a significant emitter of carbon.

- The researchers at the **University of Massachusetts Amherst** analysed various **natural language processing (NLP) training models** and estimated that the **carbon footprint of training a single big language model is equal to around 300,000 kg of carbon dioxide emissions**. This is of the order of **125 round-trip flights between New York and Beijing**, a quantification that laypersons can visualize. This is **only a part of the problem**.

The “race” for dominance in AI is far from fair:

- **Developed countries are way ahead:** Few developed economies possess certain **material advantages** right from the start. They frame **the rules** and they have an advantage in **research and development**, and possess a **skilled workforce** as well as **wealth to invest** in AI.
- **Example: North America and East Asia** alone account for **three-fourths** of global private **investment** in AI, **patents** and **publications**.

AI and state of inequity in Governance:

- **There is an emerging challenge at the nexus of AI and climate change that could deepen this inequity.**
- The **energy use** of training and operating large AI models is one.
- In **2020**, digital technologies accounted for between **1.8% and 6.3%** of **global emissions**.
- AI development and adoption across sectors has skyrocketed, as has the demand for **processing power** associated with **larger AI models**.

- But governments of developing countries see **AI as a silver bullet** for solving complex socio-economic problems, that will result in **growing share of AI** in technology-linked emissions in the coming decades.

AI ethics and sustainable development:

- **UNESCO** in November 2021 adopted the Recommendation on the **Ethics of Artificial Intelligence**, calling on actors to “**reduce the environmental impact of AI systems**, including but not limited to its carbon footprint.”
- **Technology giants** like Amazon, Microsoft, Alphabet and Facebook have announced “**net zero**” policies and initiatives.
- These initiatives are a good sign, **but they only scratch** the surface.
- **Global AI governance** and **climate change policy** (historically) are contentious, **being rooted in inequitable access to resources**.

Challenges on developing and underdeveloped countries:

- AI’s social and economic **benefits are accruing to a few countries**,
- **Skewed participation in policy making:** Most of the current efforts and narratives on the relationship between AI and climate impact are being **driven by the developed West**.

How serious is the talk on AI vs Climate cost?

- Like most nexus issues, the relationship between climate change and AI is still a **whisper in the wind**.

- It is **understudied**, not least because the largest companies working in this space are neither transparent nor meaningfully committed to studying, let alone acting, to substantively limit the climate impact of their operations.

Next level AI: “Tech-aware climate policy, and climate-aware tech policy”

- **Mandate transparency, account** for the entire tech ecosystem, **watch** for rebound effects, make **non-energy policy** a standard practice, **integrate** tech and climate policy, **curb** the use of AI to extract fossil fuels, and **address** AI’s impact on climate refugees.

Need to quantify:

- To tackle in reducing AI’s climate impact is to **quantify its energy consumption** and **carbon emission**, and to make this information transparent.
- The **material details** of the costs of large-scale AI systems are **vague in the social**

imagination, to the extent that a layperson might think that building a machine learning (ML)-based system is a **simple task**. Part of the enigma lies in the absence of a standard of measurement.

Road Ahead:

- Governments of developing countries, including India should **assess their technology-led growth** in the **context of AI’s climate costs**.
- **Advantage** for developing countries they are **not plagued by legacy infrastructure** it would be easier for them to **“build up better”**.
- Developing countries AI-led growth paradigm can be **sustainable, resource efficient** and **upgraded** than their Western counterparts.
- In the end “a lot of what the climate fight is about is that we need solidarities, and people on the ground, across the world to making efforts to create this kind of transparency.”

JAMMU AND KASHMIR DELIMITATION COMMISSION LIKELY TO GET ANOTHER EXTENSION

The J&K Delimitation Commission is likely to get a second extension of its term this month.

What is Delimitation commission?

- Delimitation literally means the **act or process of fixing limits or boundaries** of territorial constituencies in a country or a province having a legislative body.
- The job of delimitation is assigned to a high-power body. Such a body is known as **Delimitation Commission or a Boundary Commission**.
- The Delimitation Commission in India is a high-power body whose orders have the force of law and cannot be called in question before any court.
- The orders come into force on a date to be specified by the President of India in this behalf.
- The copies of its orders are laid before the House of the People and the State Legislative Assembly concerned, but no modifications are permissible therein by them.

Functions of Delimitation commission?

- The main task of the commission is redrawing the boundaries of the various assembly and Lok Sabha constituencies based on a recent census.
- If the members of the Commission have differing opinions, then the decision of the majority will be taken into consideration.
- The Commission releases draft proposals to the public through the Gazette of India and the official gazettes of states, and also in regional language newspapers.
- It also conducts public sittings wherein the public’s opinion is heard through written or oral representations.

What are the significances of Delimitation Commission?

- The Delimitation Commission is a panel with legislative backing that operates independently of the government and political parties.
- It determines the number and boundaries of constituencies in order to have a population that is nearly equal in all constituencies.

- Identifies seats reserved for Scheduled Castes and Scheduled Tribes in areas with a sizable population.

UNION BUDGET 2022-23: HOW WILL 'KISAN DRONES' BENEFIT FARMERS, EXPERTS ASK

Union Finance Minister Nirmala Sitharaman announced February 1, 2022 the Centre will promote 'Kisan Drones' to help farmers assess crops, digitise land records as well as spray insecticides and nutrients.

- In 2021, the Union Ministry of Agriculture and Farmers Welfare brought out a **standard operating procedure for spraying pesticides and nutrients through drones.**

Kisan Drones:

- The Centre will promote Kisan Drones, **chemical-free natural farming**, public-private partnerships for the delivery of digital and high-tech services to farmers across the country during the financial year 2022-23.
- The use of Kisan Drones to be promoted for crop assessment, digitization of land records, spraying of insecticides and nutrients.
- The use of Unmanned Aerial Vehicles (UAVs) commonly known as drones have great potential to revolutionize Indian agriculture and **ensure country's food security.**

Significances of Kisan Drones?

- It will help to **reduce human exposure to poisonous chemicals.**
- It will help to **digitise land records.** These flying objects will survey the land, the government proposed, and officials can use the data to match with recorded information, according to the plan.
- Drones and **sunshine industries** such as artificial intelligence, geospatial systems, semiconductors, space economy, genomics and pharmaceuticals, green energy and clean mobility systems will receive attention.
- It has the potential to **assist sustainable development** at scale and modernise the country.

- They provide **employment opportunities for youth**, and make Indian industry more efficient and competitive.
- Start-ups **supporting farmer-producer organisations (FPO)**, machinery for farmers on a rental basis and information technology-based services will be strengthened.

Standard Operating Procedure (SOPs) for spraying pesticides and nutrients through drones:

- The formation of **Farmer Producer Organisation (FPOs)** and the **Agriculture Infrastructure Fund (AIF)** will bring about a revolution in the lives of small farmers.
- Aim will be of **Doubling Farmer's Income by 2022.**
- The SOP for drone regulation for pesticide application covers important aspects **like statutory provisions, flying permissions, area distance restrictions, weight classification, overcrowded areas restriction, drone registration, safety insurance, piloting certification, operation plan, air flight zones, weather conditions, SOPs for pre, post and during operation, emergency handling plan.**

BUDGET 2022: STARTUPS WILL BE PROMOTED TO FACILITATE 'DRONE SHAKTI', VOWS NIRMALA SITHARAMAN

With the announcement of **Drone Shakti** in the Union Budget, the industry got a massive push after the **liberalising of the Drone Rule in 2021.** The government said start-ups will be promoted to facilitate Drone Shakti, with '**drone as a service**'.

- "The Drone Shakti announcement shows government's clear vision and focus towards this emerging industry.

Impact:

- The country will witness the use of large **unmanned aircraft systems** weighing more than **150 kilograms** across the sectors.
- **Kisan Drones** are already being used for **crop assessments, land records, spraying of insecticides**, and are expected to boost a wave of technology in the Agri and farming sector.

DrAAS:

- The **drones-as-a-service (DrAAS)** model is also expected to help consolidate India's fragmented drone industry and encourage manufacturers and service providers to collaborate, industry executives said.
- **Drone Shakti** scheme, can be translated as the '**power of drones**'.
- Start-ups will be promoted to facilitate 'Drone Shakti' through varied applications and for Drone-As-A-Service (**DrAAS**)
- Courses for skilling will also be started in selected ITIs across all States.

Role of service providers:

- Emerging technologies **being expensive** or their use is **not understood** by most customers, **DrAAS** will allow **service providers** to transfer the benefits of technology to customers in all sectors without having to invest in the capital expenditure
- **Drone Shakti's perspective** is consolidating **the efforts** in the drone ecosystem (i.e.) basically **institutionalizing** and **creating a framework** where **multiple stakeholders** can work together.

Cycle of innovation:

- It also makes adoption (of drones) economical for customers and provides incentive to manufacturers and service providers to work together on a continuous cycle of innovation.

Demonstration is crucial to expand the drone industry:

- Drone Shakti will **enable easier demonstration** through **service providers**,

and **not limit it to drone manufacturers** with limited funds.

- This will help demonstrate **returns on investment** and **expand the scope of businesses**.
- The **operation** of these drones is not limited to **manufacturers** even **the service providers** can buy drones and offer crop health monitoring as a service.

Make in India and Make for the world:

- **Idea Forge** had signed a **\$20 million** contract with the **Indian Army in January 2021** to supply drones.
- Several states are examining **technical and safety parameters** to allow application of drones.

Training:

- Implementation will also require that **the customers availing the services are properly trained** to use the drones.
- Farmers who prefer to use drones, **proper training will be required** so that they are aware of the technology so they can use it in the **best possible way**.

License:

- Applying for a **license and getting it through DGCA** will still be a challenge.
- **Drone pilot license** can be relooked due to the administrative challenges it poses.

New Drone Policy 2021 for Ease of Doing Business:

- The Centre's **new drone policy** announced in August 2021, was designed to usher in an era of **super-normal growth while balancing safety and security considerations**.

30 key features of Drone Rules 2021:

- Built on a premise of **trust, self-certification** and **non-intrusive monitoring**.
- Designed to usher in an era of **super-normal growth while balancing safety and security** considerations.
- **Several approvals abolished:** unique authorisation number (UAN), unique

prototype identification number (UPIN), certificate of manufacturing and airworthiness (CMA), certificate of conformance (CC), certificate of maintenance (CM), import clearance (IC), acceptance of existing drones (AED), operator permit (OP), authorisation of R&D organisation (ARDO), student remote pilot licence (SRPL), remote pilot instructor authorisation (RPIA), drone port authorisation (DPA) etc.

- Number of forms reduced from **25 to 5**.
- Types of fees reduced from **72 to 4**.
- **Quantum of fee reduced** to nominal levels and delinked with size of drone. For instance, the fee for a remote pilot license fee has been reduced from INR 3000 (for large drone) to INR 100 for all categories of drones; and is valid for 10 years.
- **Digital sky platform** shall be developed as a user-friendly **single-window system**. There will be minimal human interface and most permissions will be self-generated.
- **Interactive airspace map with green, yellow and red zones** shall be displayed on the digital sky platform within 30 days of publication of these rules.
- **No permission required for operating drones in green zones**. Green zone means the airspace up to a vertical distance of **400 feet or 120 metre** that has not been designated as a red zone or yellow zone in the airspace map; and the airspace up to a vertical distance of 200 feet or 60 metre above the area located between a lateral distance of 8 and 12 kilometre from the perimeter of an operational airport.
- **Yellow zone reduced from 45 km to 12 km** from the airport perimeter.
- **No remote pilot licence required for micro drones** (for non-commercial use) and nano drones.
- **No requirement for security clearance** before issuance of any registration or licence.
- **No requirement of Type Certificate, unique identification number and remote pilot licence by R&D entities operating drones in own or rented premises, located in a green zone.**
- No restriction on foreign ownership in Indian drone companies.
- **Import of drones to be regulated by DGFT.**
- **Requirement of import clearance from DGCA abolished.**
- **Coverage of drones under Drone Rules, 2021 increased from 300 kg to 500 kg.** This will cover drone taxis also.
- DGCA shall prescribe drone training requirements, oversee drone schools and provide pilot licences online.
- Remote pilot licence to be issued by DGCA **within 15 days** of pilot receiving the remote pilot certificate from the authorised drone school through the digital sky platform.
- **Testing of drones for issuance of Type Certificate to be carried out by Quality Council of India** or authorised testing entities.
- Type Certificate required **only when a drone is to be operated in India**. Importing and manufacturing drones purely for exports are exempt from type certification and unique identification number.
- Nano and model drones (made for research or recreation purposes) are exempt from type certification.
- Manufacturers and importers may generate their drones' **unique identification number on the digital sky platform through the self-certification route.**
- Easier process specified for transfer and deregistration of drones through the digital sky platform.
- Drones present in India on or before 30 Nov 2021 will be issued a unique identification number through the digital sky platform provided, they have a DAN, a GST-paid

invoice and are part of the list of DGCA-approved drones.

- **Standard operating procedures (SOP)** and training procedure manuals (TPM) will be prescribed by DGCA on the digital sky platform for self-monitoring by users. No approvals required unless there is a significant departure from the prescribed procedures.
- Maximum penalty for violations reduced to **INR 1 lakh**.
- Safety and security features like **'No permission – no take-off' (NPNT)**, real-time tracking beacon, geo-fencing etc. to be notified in future. A six-month lead time will be provided to the industry for compliance.
- **Drone corridors** will be developed for cargo deliveries.
- Drone promotion council to be set up by Government with participation from academia, start-ups and other stakeholders to facilitate a growth-oriented regulatory regime.
- The **Ministry of Civil Aviation** said these rules were **built on the premise of trust, self-certification, and non-intrusive monitoring**.
- The rules are based on the premise of trust and self-certification. **Approvals, compliance requirements and entry barriers** have been significantly reduced.'

New guidelines for application of drones in the field of agriculture:

- The union **Ministry of Agriculture and Farmers Welfare** amended the guidelines of the **sub mission on agricultural mechanisation** to promote use of drones in agriculture.
- It will provide **grants** of up to **100%** to agriculture enterprises on purchase of drones.
- Under the **liberalized Drone Rules 2021, payload capacity** for drones for farming activities was increased from **300kg to 500kg**.
- India had **approved a PLI scheme for manufacturing drones and drone components** in the country.

Present areas of application:

- Drones are also being used in **surveillance systems for Railway Security**.
- Pilot project, where drones are deployed to **deliver Covid-19 vaccines** is being led by the ICMR, is rolled out in Manipur, Nagaland and Andamans and Nicobar Islands.
- Drones are also being used for **surveillance of Covid-19 hotspots and containment zones**.

PRIME MINISTER'S DEVELOPMENT INITIATIVE FOR NORTH-EAST (PM-DevINE)?

Recently, a new scheme called Prime Minister's Development Initiative for North-East (PM-DevINE) was announced by Union Minister for Finance.

PM-DevINE?

- It will finance infrastructure in the spirit of PM Gati Shakti and social developmental projects established on the felt needs of the Northeast.
- For example, Bamboo link roads in Mizoram to help transport bamboo from forests and management of pediatric and adult hemotolymphoid (head and neck) cancers in the region.

- It will be executed through the North-Eastern Council.
- The states slated to benefit include Assam, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Sikkim, Nagaland, and Tripura.

Objectives

- This will enable livelihood activities for youth and women.
- It is aiming to fill the gaps in various sectors, such as socio-economic development, infrastructural development, etc.

What are the significances of PM-DevINE?

- It is aiming to bring the rest of India closer to North-East India.
- It is aiming for providing better infrastructure and connectivity in the North-Eastern states.
- Rail and air connectivity are no longer a dream for the people of the Northeast. All the capitals of the North-eastern states are now being brought on the railway map.
- The NER is strategically located with access to the traditional domestic market of eastern India, along with proximity to the major states in the east and adjacent countries such as Bangladesh and Myanmar.
- It will enhance tourism sector in the North-East region.

Additional Information

PM GATI SHAKTI

- It is a National Master Plan for Multimodal Connectivity.
- This is a digital platform that aims to bring 16 Ministries including Railways and Roadways together for integrated planning and coordinated implementation of infrastructure connectivity projects.
- The last-mile connectivity of infrastructure will be facilitated to reduce travel time for people.
- It is based on six pillars:

- Comprehensiveness
- Optimisation
- Prioritisation
- Synchronisation
- Analytical
- Dynamic

NORTH EASTERN COUNCIL

- North Eastern Council (NEC) is a statutory advisory body constituted under the North Eastern Council Act 1971 and came into being on 7 November 1972 at Shillong.
- The eight States of Northeast India viz. Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim, are members of the council.
- It is the nodal agency for the economic and social development of the North Eastern Region.
- NEC members: The Governors and the Chief Ministers of the 8 states including Sikkim, Chairman and 3 members who are nominated by the country's President.
- It aims to discuss matters related to socio-economic and infrastructural planning and to formulate proposals for securing the balance between the development of north east areas with regard to coordinate and unified regional planning.

BENEFITS OF OROP SCHEME

Recently, the Raksha Rajya Mantri Shri Ajay Bhatt has provided information on the implementation of the One Rank One Pension (OROP).

One Rank One Pension (OROP):

- It was decided to implement the OROP scheme in 2015 by the Ministry of Defence with benefits effective from 1st July, 2014.
- It implies that every pension-eligible soldier retiring in a particular rank gets the same pension, irrespective of his date of retirement.
- The implementation of the scheme was based on recommendation of the **Koshiyari committee**.

Salient Features of One Rank One Pension (OROP)

- Pension of the past pensioners would be re-fixed on the basis of pension of retirees of calendar year 2013 and the benefit will be effective from 01st July 2014.
- Pension will be re-fixed for all pensioners on the basis of the average of minimum and maximum pension of personnel retired in 2013 in the same rank and with the same length of service.
- Pension for those drawing above the average shall be protected.
- Arrears will be paid in four equal half-yearly instalments. However, all the family pensioners including those in receipt of Special/Liberalized

family pension and Gallantry award winners shall be paid arrears in one instalment.

- In future, the pension would be re-fixed every 5 years.
- Personnel who opt to get discharged under Rule 16B of the Army Rule 1954 or equivalent Navy or Air Force Rules will not be entitled to the benefits of OROP. It will be effective prospectively.

EVOLUTION OF MECHANISED INFANTRY

Colonel Poshuk Ahluwalia was commissioned into the Mechanised Infantry and is a Graduate of the Defence Service Staff College (DSSC), Wellington.

Origin and evolution of mechanised infantry:

- The need to mechanise our Infantry was **first felt after the 1965 war**.
- The 1971 war saw some of these battalions take part in action on both fronts (Eastern and Western) as part of combat groupings with armoured units for the first time.
- Due to conceptual employment and philosophy, Mech Inf today stands to lose out from two sides:
 -
 - the one hand, Mech Inf lacks the enormously **effective protective armour and dominating firepower** of the modern main battle tank.
 - on the other hand, as an **exemplar of infantry's toughness and skill**, it pales in comparison to both? the Standard Infantry and Airborne Infantry, at least in popular perception among the rank and file.
- Forces that are overly specialized or confined to narrowly prescribed functions are not flexible tools for combined arms warfare.

Analysis and Lessons:

- **Dismounted manoeuvre** does not diminish the value or the significance of lethality of the weapon systems but it sought to encircle enemy forces.
- The Mech Inf provides a complimentary effect to make tank shock action far more effective to **make seizure of terrain more definitive**.

Significance of One Rank One Pension (OROP)

- OROP implies that uniform pension be paid to the Armed Forces Personnel retiring in the same rank with the same length of service regardless of their date of retirement.
- OROP implies bridging the gap between the rate of pension of the current pensioners and the past pensioners at periodic intervals.

- Armies that were **incapable of fully mechanising** all their arms recognised it as a glaring deficiency and prevented them from exercising combined arms warfare at an effective tempo.
- Complimentary combined arms seek to **integrate wholly different systems** or capabilities to complicate and multiply the types of threat that would arise while facing an opponent.

Way forward and recommendation

Force structuring:

- Exploiting the **enhanced mobility** of the infantry allows rapidity of operations.
- In modern warfare, an **amphibious landing** is the most complex of all military manoeuvres Mech Inf is best suited for this role as it is the '**only arm**'.
- The airborne force of the Indian Army should be allotted with an Independent Mechanised Infantry Company to provide it with adequate staying power.

Operational:

- There is a need to have the **air/naval assets** to move an adequately strong force in the envisaged time frame capable of achieving its aim till such time the remainder force is built up.
- Mechanised Infantry Battalion with its complement of ICVs should be raised and employed as a **Corps reserve force during counter terrorist operations**.
- **Employment of mechanised forces** automatically increases the firepower and

technological quotient of an attacking force thereby reducing the required force ratios.

Organisational:

Changes in mechanised infantry batallion:

- Enhanced Capability of The **Infantry Stick which break-up in a 4:3 concept.**
- With availability of radio communication down to the section level by way of the **Digital Control Harness, a Section Commander** is now capable of direct communication with the ICV.
- **Infusion of technology** to include better communication and situational awareness, allows seamless fire and manoeuvre of the dismounts and ICV.

- The **lethality** of a mechanised infantry section is very high as compared to an infantry section.

Conclusion

- Institutional construct and modes of expression that treat Mechanised Infantry as something less than “real” infantry must be replaced by better ways of articulating its role.
- Borrowing the German notion that the primary characteristic of Mechanised Infantry is the agility with which it transitions between mounted and dismounted action would be apt. The concept of ‘agility’ is a superior means of articulating the role of Mechanised Infantry.

WHAT IS WEST BENGAL’S ‘PARAY SHIKSHALAYA’, AN OPEN-AIR CLASSROOM INITIATIVE?

The West Bengal government has launched ‘**Paray Shikshalaya**’ – an **open-air classroom** in the neighbourhood programme – for students from **class 1 to 7.**

- The aim of this initiative is to encourage students who dropped out of schools during the Covid-19 pandemic to continue their education.

Initiative launched?

- On January 31, schools across the state opened for classes 8 to 12. However, students studying in lower classes continued to take the online classes.
- A section of doctors and parents were also in favour of reopening of schools.

- In view of the rising demand for physical classes, the state government reopened schools and also launched this neighbourhood classes initiative.

Who will attend these classes?

- Initially, the initiative was meant for primary school students (1 to 5).
- The students in classes 6 and 7 were also included as physical classes in schools did not reopen for them.
- Arrangements for mid-day meals have also been made for the students taking neighbourhood classes.

VIRAT-ANUSHKA INVESTS IN PLANT-BASED MEAT BRAND, BLUE TRIBE

Blue Tribe, the plant-based meat brand, has raised undisclosed funding from actor Anushka Sharma and cricketer Virat Kohli. **Blue Tribe, the plant-based meat company** is working on the mission to reinvent meat-consuming methods.

Plant-based meat:

- Plant-based meat is a term that people use to describe foods that **mimic meat products but are made from plants.** These products include **vegetarian-friendly alternatives.**
- Ingredients that brands use in plant-based meat products can include Trusted Source:

- vital wheat gluten or seitan
- soy and tofu
- pea protein
- potato starch
- coconut oil
- beans and lentils
- nuts and seeds
- Vegetables

What are the problems with the meat we are eating?

- **By 2050,** the world population is projected to reach nearly **10 billion.** According to the Food

and Agriculture Organization, **food production must increase by 70% to feed this larger population.**

- Also, it takes nearly **20 times more land to feed people a meat-based diet** compared to what a plant-based diet does, as crops are consumed directly instead of being used to feed animals, which also needs land.
- The meat industry wastes a **tremendous amount of water** too with about one-third of the world's water consumption going for producing animal products.
- Heavy antibiotics use in livestock and poultry feed is leading to an increase in **antibiotic resistance**, which is one of the biggest threats to global health, food security, and development today.
- It plays a major in **greenhouse gas emission** which further lead to climate change.

Benefits of plant-based meat?

- Plant-based foods **require fewer resources**—namely land and water and are generally associated with **lower greenhouse gas emissions and less impact on global warming.**
- Close to 20% of the planet's fresh water is used in the production of meat and dairy, and animal agriculture is a major driver of climate change, contributing around 14.5 percent of global greenhouse gas emissions.

- **Reducing the risk of cardiovascular disease**
- **Reducing the risk of cancer**
- **Reducing saturated fat intake will lower cholesterol**
- **Improving blood sugar control**

What are the challenges associated with plant-based meat?

- Some of the meat substitutes can be heavy in **food colorings, textural additives and are high in sodium.**
- There are issues associated with some meat substitutes, such as soybeans. **Hexane, a chemical solvent used to remove oil from soybeans, is a neurotoxin and an air pollutant.**

Road Ahead:

- India is uniquely poised to be a leader in this sector as crops such as millets, ragi, pulses, and chickpeas which grow here are ideal raw ingredients for plant-based meats. Also, the world's first center of excellence for clean meat is going to be established in the state-funded Institute of Chemical Technology (ICT).
- This sector can alleviate the climate impact of the meat industry, augment farmers' incomes, combat malnutrition and spare the lives of billions of animals. It is a time we as a people support it and encourage it to flourish.

PRADHAN MANTRI KISAN SAMPADA YOJANA EXTENDED TILL MARCH 2026

Recently, the Prime Minister of India has extended the time period of Pradhan Mantri Kisan Sampada Yojana (PMKSY) to 31st March 2026.

Pradhan Mantri Kisan Sampada Yojana (PMKSY)

- The Cabinet Committee on Economic Affairs (CCEA) had approved the Central Sector Scheme - SAMPADA (Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters) in its meeting held in May 2017.
- The scheme was renamed as "Pradhan Mantri Kisan SAMPADA Yojana (PMKSY)" on 23 August

2017 for the period 2016-20 coterminous with the 14th Finance Commission cycle.

- The Scheme is being implemented by the Ministry of Food Processing Industries (MOFPI).

Significance of Pradhan Mantri Kisan Sampada Yojana (PMKSY)

- It is a comprehensive package which will result in creation of modern infrastructure with efficient supply chain management from farm gate to retail outlet.

- It will not only provide a big boost to the growth of food processing sector in the country but also help in providing better returns to farmers.
- It is a big step towards doubling of farmers income, creating huge employment opportunities especially in the rural areas, reducing wastage of agricultural produce, increasing the processing level and enhancing the export of the processed foods.

Objectives of Pradhan Mantri Kisan Sampada Yojana (PMKSY)

- Creation of modern infrastructure for food processing mega food parks/ clusters and individual units.
- To create effective backward and forward linkages - linking farmers, processors and markets.
- To create robust supply chain infrastructure for perishables.

Schemes implemented under Pradhan Mantri Kisan Sampada Yojana (PMKSY)

Mega Food Parks

- Mega food park typically consists of supply chain infrastructure including collection centers, primary processing centers, central processing centers, cold chains and around 25-30 fully developed plots for entrepreneurs to set up food processing units.
- The Mega Food Park project is implemented by a Special Purpose Vehicle (SPV) which is a Body Corporate registered under the Companies Act.

Integrated Cold Chain and Value Addition Infrastructure

- The aim of the Scheme is to provide integrated cold chain and preservation infrastructure

facilities, without any break, from the farm gate to the consumer.

Creation/ Expansion of Food Processing/ Preservation Capacities (Unit Scheme)

- It aims at creation of processing and preservation capacities and modernisation/ expansion of existing food processing units with a view to increasing the level of processing, value addition leading to reduction of wastage.

Infrastructure for Agro-Processing Clusters

- It aims at development of modern infrastructure and common facilities to encourage group of entrepreneurs to set up food processing units based on cluster approach by linking groups of producers/ farmers to the processors and markets through well-equipped supply chain with modern infrastructure.

Creation of Backward and Forward Linkages

- Its aim is to provide effective and seamless backward and forward integration for processed food industry by plugging the gaps in supply chain in terms of availability of raw material and linkages with the market.

Food Safety and Quality Assurance Infrastructure

- For the around development of the food processing sector in the country, various aspect of Total Quality Management (TQM) such as quality control, quality system and quality assurance should operate in a horizontal fashion.

Operation Greens

- It was launched by the Ministry of Food Processing Industries (MoFPI) in November 2018 in order to stabilize the supply of Tomato, Onion and Potato (TOP) crops and control its price volatility.

NO NEED TO PHYSICALLY PORT THE RATION CARD FROM ONE STATE/UT TO ANOTHER UNDER ONE NATION ONE RATION CARD (ONORC) PLAN

Recently, the Union Minister of State for Consumer Affairs, Food and Public Distribution has informed that under the technology driven One Nation One Ration Card (ONORC) plan, as such there is no need to physically port the ration card from one State/UT to another.

One Nation One Ration Card?

- One Nation One ration card (ONORC) will help in providing grains, rice and wheat flour at subsidised rates for the economically weaker section of the nation.

- The ONORC scheme has been rolled out by the finance minister on 16 May during the last phase of the Prime Minister's Atmanirbhar Bharat Abhiyan which included stimulus funds of Rs.20 lakh crore.
- This ration card has been launched in all states and Union Territories in the country and 20 states have already agreed to implement this scheme in their state.

Purpose of the One Nation One Ration Card

- In the country, around 80 crore beneficiaries are entitled to receive subsidised food and grain under the National Food Security Act 2013.
- However, for the 80 crore beneficiaries, only 23 crore ration cards have been issued in all the states and Union Territories of the country.
- Previously, with the ration card, a beneficiary could only purchase subsidised food and grain from the PDS (Public Distribution System) which was assigned to them in their locality.

Benefits of the One Nation One Ration Card

- The major benefit of the One Nation One Ration Card is that the people who are eligible to receive subsidised food grain can do so from any FPS shop in any city.

- With many of the people migrating to different cities and the previous inability to purchase food grain in any other city, the One Ration card can help the livelihood of migrant workers all over the country.
- Under the ONORC, all the beneficiaries from one state can get their share of rations in other states where the ration card was originally issued.
- Any recipient can use their ration cards at any PDS shop across the country.
- ONORC is aimed at providing universal access to PDS food grains for migrant workers.
- ONORC will also give the beneficiaries the opportunity to choose their own dealer.
- With many cases of misallocation, the beneficiary can switch to another FPS shop instantly, if there is any case of foul play.
- This scheme will be beneficial for women and other groups, since social identity and other contextual factors will provide them with a strong backdrop in accessing PDS.
- The ONORC will also help achieve the target set under SDG 2: Ending hunger by 2030.
- It also aims to address the poor state of hunger in India, where India has been ranked 102 out of 117 countries in the Global Hunger Index.

SUICIDES DUE TO UNEMPLOYMENT HIGHEST IN COVID-HIT 2020

Over 16,000 people committed suicide due to bankruptcy or indebtedness while 9,140 people ended their lives due to unemployment between 2018 and 2020.

- As many as 9,140 people ended their lives due to unemployment, the highest number of such cases – 3,548 were reported in 2020, the year a lockdown was imposed in the country due to COVID-19.
- 5,213 people committed suicide due to bankruptcy or indebtedness in 2020, 5,908 in 2019 and 4,970 in 2018. A total of 3,548 people committed suicide due to unemployment in 2020, 2,851 in 2019 and 2,741 in 2018.
- The government had launched a number of programmes for employment and income

generation for the citizens such as the Aatmanirbhar Bharat Rojgar Yojana (ABRY) to incentivise employers for creation of new jobs along with social security benefits and restoration of employment.

- The National Career Service (NCS) Project for job seekers and employers for job-matching in a dynamic, efficient and responsive manner has a repository of career content for job seekers.
- To address the burden of mental disorders, the government is implementing the National Mental Health Programme (NMHP) and is supporting the implementation of the District Mental Health Programme (DMHP) under NMHP in 692 districts of the country.

DRONE IMPORT BANNED; DEFENCE, R&D EXCEPTIONS

The government has banned the import of drones other than for defence, security and research purposes.

- The aim is to **promote 'Made in India' drones** but the **ban will not apply to the import of drone parts**.
- The government has taken a series of steps to **boost domestic manufacturing of drones** and drone components including announcing a **Rs 120-crore Production Linked Incentive (PLI) scheme** and liberalising drone operation rules.
- Import policy for drones in CBU (Completely Built Up) /CKD (Completely Knocked

Down)/SKD (Semi Knocked Down) form, is prohibited with exceptions provided for R&D, defence and security purposes.

- The new Drone Rules, 2021 reduced compliances and fees required to be paid to operate drones.
- The Civil Aviation Ministry also launched an airspace map of India, demarcating areas where drones can be used without permission and areas in which drones cannot be operated without obtaining prior permission from authorities.

ATAL TUNNEL RECOGNISED AS THE LONGEST HIGHWAY TUNNEL

Atal Tunnel has been officially recognised as the '**World's Longest Highway Tunnel above 10,000 Feet**' by World Book of Records.

- World Book of Records UK, is an organisation that catalogues and verifies extraordinary records across the world with authentic certification.
- The Atal Tunnel was dedicated to the nation by Prime Minister Narendra Modi on October 3, 2020.

- The **9.02 km long**, strategically significant, Atal Tunnel, that runs under the '**Rohtang Pass**' was constructed on the **Manali - Leh Highway** under the challenging conditions of freezing temperatures in extremely difficult terrain.
- Construction of this tunnel has reduced the distance on Manali - Sarchu road by 46 km and travel time by four to five hours, providing all-weather connectivity on the Manali - Leh axis.

DELHI 11TH AMONG WORLD CITIES IN CONGESTION INDEX, REVEALS REPORT

Traffic congestion in Delhi is slowly inching back to pre-pandemic levels. However, the **city's rank of 11th in congestion among global metros** in 2021 is a dip from its **8th rank the previous year**.

- Global geolocation technology specialist **TomTom** released the 11th annual Traffic Index.
- The report has compiled the detailed traffic trends in 404 cities in 58 countries throughout 2021.
- According to the report, Delhi had a congestion level of 48% in 2021 compared with 47% in 2020 and 56% in 2019.
- A **48% congestion** means that on **average, travel times were 48% longer than during baseline non-congestion conditions**. A

30minute trip in free-flow condition would take 14 minutes longer on average with a 48% congestion. The average congestion level in 2021, according to the report, ranged between 77% during evening peak hours and 53% during the morning rush hour.

- The highest average daily congestion in 2021, 71%, was on Saturday, August 21 last year, when the city recorded 139 mm of rainfall. Overall, September saw the highest average monthly congestion level of 56%, followed by October (54%) and December (53%).
- The lowest congestion levels were logged in April and May with 38% and 15%, respectively, when the deadly second Covid wave kept the capital immobile.

- In 2021, the data suggests the average travel time increased by 1 minute per day.
- According to the report, an average Delhiite spent 152 hours, or six days and eight hours, of extra time when driving in the rush hours in 2021.
- This ranges from 23 minutes extra driving in rush hour per 30 minutes of a trip during the evening

rush hour and an extra 16 minutes during the morning rush for a 30-minute trip.

- In 2019, an average Delhiite spent 28 minutes extra for a 30-minute trip during the evening peak and 22 minutes extra during the morning rush.
- The average time lost by a Delhiite in rush hour traffic over 2019 was seven days and 22 hours.

AFTER SP, BSP PROMISES RESTORATION OF OLD PENSION SCHEME FOR GOVERNMENT EMPLOYEES IN UTTAR PRADESH

A scheme that keeps coming up in the Uttar Pradesh election discourse, and has found mention in the manifestos of both the Samajwadi Party and Congress, is the pension for government employees.

New Pension Scheme?

- The scheme, now referred to as the **National Pension System (NPS)**, was introduced by the Centre for all appointments after January 1, 2004.
- The NPS is regulated under the **PFRDA (The Pension Fund Regulatory & Development Authority) Act, 2013**.
- Under the NPS, every **government employee is allotted a Permanent Retirement Account Number**, and has to **mandatorily contribute 10% of pay and dearness allowance** to the pension fund, which is matched by the government. This money can then be invested by fund managers.
- After the latest amendment, in 2019, the government **share of the contribution has been raised to 14% from 10%**.
- At superannuation, the **employee can withdraw 60% of the corpus** but is required to invest at least 40% to purchase an annuity from an insurance firm regulated and registered by government authorities.
- The interest on the annuity is to be provided as a **monthly pension to the employee**.

What is the difference with the old pension system?

- The basic difference is that the NPS is a **contribution-based pension system**.
- Under the old system, **pension was fixed as 50% of the last basic salary drawn**, along with other benefits. Hence, the benefit due was defined beforehand.
- In case of NPS, the **pension benefit is determined by factors such as the amount of contribution made, the age of joining, type of investment, and the income drawn from that investment**.

Eligibility Criteria of NPS Scheme

- **Any Indian citizen** can open the NPS account.
- The **minimum age** eligibility for opening the NPS account is **18 years** whereas the **maximum age** limit for opening the NPS account is **65 years**.
- The applicant should be **KYC compliant**.
- The applicant should both have any **pre-existing NPS account**.
- **Non-Residential Indians (NRIs) can also open an NPS account** and can make full use of the benefits they carry.
 - The individual should age between 18 years -60 years.
 - The individual must complete the KYC norms.
 - OCIs and PIOs are not eligible.
 - The contribution towards the national pension scheme should come either from an NRE or NRO account.

MODERNIZING BORDER MANAGEMENT

India needs to have a stable neighbourhood before it achieves its aim of a **\$5 trillion economy by 2024** and long-term aim of becoming the **second largest economy by 2050**. Therefore, it is important to first have an effective and sustainable border management paradigm.

Need of border modernisation?

- **Almost all states and UTs barring Delhi, Chandigarh, Chhattisgarh, Madhya Pradesh, Telangana and Jharkhand have either land border or coastal states** and hence are important stakeholders in the Border Management function.
- **Historically inherited territorial disputes** involving its two nuclear armed neighbours, over which five wars have already been fought.
- **Unconventional war** between sides whose military power differs greatly, waged by the weaker side using non-traditional means like **terrorism**.
- War waged by a country using means other than established forms of armed conflict, to make the adversary capitulate even without a classical war (**economic wars, water wars, legal wars etc**).
- **Technological/ Informational warfare** – combination of cyber, space, electronic, propaganda, psychological, media and social media wars.

Challenges in implementing modern border management

- Currently, military planning is hamstrung by **lack of a clearly articulated and integrated military strategy**.
- **Lack of modernisation**. An alarmingly large percentage of equipment is of old vintage, due to many proposals for acquisition and upgradation of new equipment having been inordinately delayed.
- Expanding hollowness in arms and ammunition over the years, due to quality issues related to indigenous production of modern ammunition,

compounded by **inadequate budgetary support**.

- The Army of the future will have to be **technologically oriented**, with many more specialists, as compared to generalists.
- **Inefficiency and apparent lack of accountability** of various organs of the Defence Ministry responsible for indigenous design and manufacture of weapons, equipment and ammunition for the Army, namely the Defence Research and Development Organisation (DRDO), Ordnance Factory Board (OFB) and Defence Public Sector Units (DPSUs).

Ways of Modernising Border Management

- **Smooth movement of people and trade** can be implemented by adopting technologies like use of **Biometric data and AI** which is used at smart borders to identify people and run random security checks.
- Maintaining and sustaining new technological solutions will require **upgradation of skill of the existing manpower** to be bridged by use of contractors in the interim and also reviewing the recruitment intake e.g., **AI, Machine Learning, counter-drone technologies** etc.
- The BGFs, dealing with the border population, needs to be **gender sensitive** and more responsible. Hence, incorporation of **Mahila Police** is an essential component.
- An adverse incident can snowball out of proportion in both countries, hence **narrative building and force sensitisation** of the nuances of border management are essential to achieve a strategic communication strategy.
- A three-to-four-fold **increase in the Capital outlays** is required for the BGFs to modernise and adopt Smart Border Management solutions augmented by a quick responsive force and legal cooperation with the respective state agencies.

Conclusion

- Good political relations enable better coordination between border guarding forces and ease of living in the border population and expansion in trade. A coordinated and strong

state administration on the border augmented by the border guarding forces, will prevent the exploitation of economically marginalised by transborder syndicates.

- India needs to progressively build capability of hard military power, soft power and demonstrated power in its quest to be recognised

NATIONAL EMPLOYMENT POLICY

- In order to study various facets of the employment & unemployment scenario in the country, the Government has launched three surveys viz.
 - All-India Quarterly Establishment Based Employment Survey (AQEES);
 - All India Survey on Migrant Workers;
 - All India Survey on Domestic Workers.These surveys will cover both organized & unorganized sectors.

Why National Employment Policy?

- The proposed National Employment Policy may set **sector-specific targets to boost job opportunities** in areas like textiles.
- The National Employment Policy is aimed at **formalising the country's workers, including migrants, so that they get the benefits of job and social security.**
- It is aimed at **improving the potential of job creation by drawing investments to employment-intensive sectors, policy interventions and attracting new industries by creating an enabling environment.**
- It may also take into account the **jobs expected to be created by production-linked incentive schemes** in many sectors.

Statistics related to Employment in India

- According to **Periodic Labour Force Survey**, less than 10% of young adults (aged 20-29 years) in states such as Punjab, Haryana, and Tamil Nadu work on farms and in Kerala, it is less than 2%.
- **Employment-to-population ratio among young adults in India has declined to 43.4% in 2018-19 from 63% in 2004-05.** This is a

as a 'regional power with global influence', which can deter threats to its stability and integrity. The Army, as the largest component of the Indian military, has to be prepared to play its mandated role in the interests of defence and security of the country.

sharper fall than the decline to 64% from 74.5% for the 30-59-years age group over the same period.

- **Tamil Nadu continues to have the highest ratio of non-farm employment of young adults at 41.5% in 2018-19**, but the pace of increase has slowed, while in Karnataka it has risen rapidly.
- In terms of employment share the **unorganised sector employs 83% of the work force and 17% in the organised sector. There are 92.4% informal workers** (with no written contract, paid leave and other benefits) in the economy.

Advantages of National Employment Policy

- It will help to **improve the rank of country in Ease of Doing Index.**
- It will help **increase participation of various stakeholders such as women, unorganised workforce** in the economic development of the country.
- It will help to **achieve the target of 5 trillion-dollar economy by 2024.**
- It will provide **job security such as pension, provident fund, gratuity, etc.,** with the implementation of Four Labour Codes.
- This would **minimise economic losses and optimise the use of limited resources.**

Road Ahead:

- NEP will also be crucial for **Implementation, Monitoring and Evaluation.** This is important for the **Digital India objectives and outcome-based decision making** as per the MoSPI and NITI Aayog's recent efforts for data and planning.

- For this, the **maintenance of a real-time database and repository and monitoring of the employment status of the labour force** is important. It would require enormous efforts in the beginning but would yield more than proportionate results in the immediate future. There are many **schemes for employers and workers, e.g., EPFO, ESIC, PMJDY, MSME, Start-ups, BOCW, PMSYM, PMSBY, SHGs**, and so on.
- National Employment Policy can provide a **360° framework, having inclusive and sustainable planning and enabling environment and holistic impactful approach towards decent employment and vision of New India**. The Sustainable Development Goal (SDG) Goal 8 14 states -- promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Additional Information

Production-Linked Incentive Scheme (PLI)

- PLI is the sum of government incentives that are **directly linked to manufacturing performance**.
- The more goods companies manufacture in India the better incentives they will get. The **incentives are of diverse types: subsidies, monetary benefits, etc.**
- The **government offers PLIs to both foreign manufacturers and domestic companies**. While foreign manufacturers are encouraged to start production in India, domestic companies are asked to expand their operations and export.
- To **promote indigenous production, reduce dependence on a single market or geographical region, cut down on imports and make domestic industries globally competitive**.
- Since **manufacturing is a capital-intensive industry and has a long gestation period, incentivising capital-rich global firms to set up facilities for incremental output** makes more sense.

PRODUCT LINKED INCENTIVE (PLI) SCHEME FOR FOOD PROCESSING INDUSTRY (FPI)

Production Linked Incentive Scheme for Food Processing Industry (PLISFPI) has been formulated by the Ministry of Food Processing Industries as part of "Aatma Nirbhar Bharat Abhiyaan" for enhancing India's manufacturing capabilities and enhancing exports with an outlay of **Rs 10,900 crore**.

What is an FPI?

- Food processing, any of a variety of operations by which **raw foodstuffs are made suitable for consumption, cooking, or storage**.
- Food processing generally includes the **basic preparation of foods, the alteration of a food product into another form (as in making preserves from fruit), and preservation and packaging techniques**.
- A number of food-processing innovations have even resulted in new products, such as **concentrated fruit juices, freeze-dried coffee, and instant foods**.

- Foods and food supplements have also been processed from such hitherto **untapped sources as oilseeds (chiefly protein-rich soybeans and cottonseeds); mutant varieties of crops; leaves, grasses, and aquatic plants; and highly nutritious fish meal and concentrates**.

Why Food Processing?

- **Enhance farmer's income** by better utilization and value addition of agricultural produce.
- **Minimize wastage at all stages** in the food processing chain by the development of infrastructure for storage, transportation and processing of agro-food produce;
- **Introduce of modern technology** into the food processing industries from both domestic and external sources;

- **Encourage R&D** in food processing for product and process development and improved packaging;
- **Provide policy support**, and support for creation of Infrastructure, capacity expansion/ Upgradation and other supportive measures form the growth of this sectors;

What are the advantages of FPI?

- **Increasing availability and convenience.**
- **Use-by dates on perishable foods** that show us how long it is safe to eat, and labelled storage guidance to help us keep our food correctly.
- Increased choice allows us to have a **more varied diet**, which is more likely to **provide all the nutrients required for good health and ensuring food safety.**
- We **fortify and enrich foods to add micronutrients, like trace minerals and vitamins.** The main aim is to address dietary deficiencies.

What are the disadvantages of FPI?

- Food processing **removes some of the nutrients, vitamins and Fibre present in the food.**
- Processed foods are obtained from laboratories and not nature. The **foods are genetically modified and may cause gastrointestinal disorders, infertility and can damage your organs.**
- The **trans fats and sugar** present in processed items can **cause inflammation, an unhealthy condition that leads to asthma.**
- **Tightly regulated labelling system that have exceeded their sell-by dates results in wasting large amounts of food that is still safe.**
- There are significant **environmental costs associated with producing and disposing of plastic and routinely transportation of foods by air.**

Recommendations for making India self-reliant in FPIs?

- The problem of wastage can be addressed by **charities and by some governments**

- France has become the first country to prohibit supermarkets from throwing away unsold food, enabling them to donate it to charities instead.
- A storage room where the concentrations of oxygen, carbon dioxide and nitrogen, as well as the temperature and the humidity are regulated to **maintain the quality and safety of food products.**
- Make processed food with varied diet include in **Mid-day Meal scheme and eliminate child malnourishment.**
- **Help women with processed food to eliminate issues of anaemia.**
- It will help India to achieve its goal of **5 trillion-dollar economy** as well as it will help to **improve its ranking in Global Hunger Index.**

Road Ahead:

- **India's food processing sector is one of the largest in the world and its output is expected to reach \$535 bn by 2025-26.** The Food Processing sector in India has a quintessential role in linking Indian farmers to consumers in the domestic and international markets. The Ministry of Food Processing Industries (MoFPI) is making all efforts to encourage investments across the value chain.
- Going forward, the adoption of food safety and quality assurance mechanisms such as Total Quality Management (TQM) including ISO 9000, ISO 22000, Hazard Analysis and Critical Control Points (HACCP), Good Manufacturing Practices (GMP) and Good Hygienic Practices (GHP) by the food processing industry offers several benefits.

Additional information

PLI Scheme

- The government announced the PLI scheme for the food processing sector with an outlay of ₹10,900 crore.
- The incentive is linked to **local production and sale of products.**
- The scheme was launched to support the **creation of global food manufacturing champions** commensurate with India's natural

resource endowment and to support Indian brands of food products in international markets.

- The scheme has **three broad components**.
- The first component relates to **incentivizing manufacturing of four major food product segments viz. Ready to Cook/ Ready to Eat (RTC/ RTE) including millet-based foods, Processed Fruits & Vegetables, Marine Products and Mozzarella Cheese.**

- The second component is intended for **incentivizing Innovative/ Organic products of SMEs across all the above four food product segments including Free Range - Eggs, Poultry Meat and Egg Products.**
- The third component relates to **support for branding and marketing abroad to incentivize the emergence of strong Indian brands.**

INDIA'S 2030 NATIONAL RAIL PLAN EYES A GREENER AND CHEAPER NETWORK

Indian Railways have prepared a National Rail Plan (NRP) for India – 2030. The Plan is to create a 'future ready' Railway system by 2030.

About NRP

The objectives of NRP:

- The NRP is aimed to **formulate strategies based on both operational capacities and commercial policy initiatives to increase modal share of the Railways in freight to 45%.**
- The objective of the Plan is to create capacity ahead of demand, which in turn would also cater to **future growth in demand right up to 2050** and also increase the modal share of Railways to 45% in freight traffic and to continue to sustain it.
- To achieve this objective all possible financial models including **Public Private Partnership (PPP)** are being considered.
- NRP is **aimed to reform Railways** to make it **more efficient, greener and modern** which will translate into cheaper, safer and assured mode of transport to the common man be it in passenger or freight segment.

Main features of the National Rail Plan have been identified: -

- Formulate strategies based on both **operational capacities and commercial policy initiatives to increase modal share of the Railways in freight to 45%.**
- **Reduce transit time of freight** substantially by **increasing average speed of freight trains to 50Kmph.**

- As part of the National Rail Plan, **Vision 2024** has been launched for accelerated implementation of certain critical projects by 2024 such as
 - 100% electrification,
 - multi-tracking of congested routes,
 - upgradation of speed to 160 kmph on Delhi-Howrah and Delhi-Mumbai routes,
 - upgradation of speed to 130kmph on all other Golden Quadrilateral-Golden Diagonal (GQ/GD) routes and elimination of all Level Crossings on all GQ/GD route.
- Identify **new Dedicated Freight Corridors** and **new High Speed Rail Corridors.**
- **Sustained involvement of the Private Sector** in areas like operations and ownership of rolling stock, development of freight and passenger terminals, development/operations of track infrastructure etc.

Advantages of NRP

- It will help to **reduce emissions via adopting greener technologies.**
- It will **provide employment** opportunities.
- It will help India to **achieve 5 trillion-dollar economy.**
- It will help India to **stand on the terms of Paris agreement.**
- It will help to connect the areas which are still disconnected from such public transport.
- Through development of Direct Freight Corridors, the railway will be more able to fulfill

its promises of efficiency and timeliness as well as bring down logistics cost.

Road Ahead:

- In effect the National Rail Plan envisages an initial surge in capital investment right up to 2030 to create capacity ahead of demand and

increase the modal share of the Railways in freight by 45%.

- Post 2030, the revenue surplus generated would be adequate to finance future capital investment and also take the burden of debt service ratio of the capital already invested. Exchequer funding of Rail projects would not be required.

AGRICULTURAL PRODUCTS' EXPORT DEVELOPMENT AUTHORITY (APEDA) CELEBRATES 36TH FOUNDATION DAY

Agricultural Products Export Development Authority (APEDA) celebrated its **36th Foundation Day**. APEDA actively supported the Government in taking the **export of agricultural products to USD 20.67 billion** in 2020-21 from USD 0.6 billion in 1986 when it was founded. APEDA also helped expand the **export basket to 205 countries**.

- The share of APEDA exports (USD 20.67 billion) constituted 49% of overall Agri- product exports in 2020-21 out of which, Cereals and fresh horticulture comprised 59%, Cereal preparations and miscellaneous processed items 23% and animal products 18%.

About APEDA

- The Government in **1986 had set up APEDA through an Act of Parliament under the Ministry of Commerce and Industry, Government of India.**
- The newly created body **replaced the then existing Processed Food Export Promotion Council.**
- The APEDA had been undertaking most of the activities as per its mandate and scope of work allocated spanning its **14 product categories which mainly includes the sector of fruits and vegetables, processed fruits and vegetables, animal, dairy and poultry products and cereals.**
- Over the years, APEDA has been **handling issues concerning product safety and global promotion for all its product categories**, comprising more than 800 tariff lines.

- APEDA has been constantly **sensitizing its trade exporters about export requirements and also providing assistance for setting up of infrastructure facilities for common uses** and as well as by the concerned member exporters for having export-oriented production for exports from the country.
- Considering the importance of food safety and traceability required by the importing countries of developed economies, APEDA took a number of **initiatives in the area of quality development such as preparation of standards, procedures for identified potential products, development of residue monitoring protocol, recognition of laboratories and implementation of traceability systems**, etc.

Significance of APEDA

- With respect to the export of scheduled products, **APEDA registration is mandatory.**
- Exporters can avail the various **financial assistance schemes** of APEDA.
- It helps the exporters in **brand publicity through advertisement, packaging development, database up-gradation and surveys** etc.
- **Provides guidelines** to exporters about the various products and countries for export.
- Registered members can participate in training programmes organized by APEDA for various scheduled products and thereby **improve their business.**

Challenges in implementation of APEDA

- The **backward integration in India especially for perishables is inefficient and unorganized, resulting in quality and longevity issues.**
- From the export perspective, the importing nations are becoming more and more stringent with respect to the production norms/traceability at the farm level.
- **Lack of synergy between the state and central government** as agriculture is a state subject, while the state's role for exports is undefined.
- Certification & Signing authority at the ports are not available round the week and 24*7. For a consignment to be shipped on Sunday, the formalities need to be completed beforehand which affects the cost and longevity of the product.
- **Unregulated input (chemicals)** usage at the farm level.
- **Inadequate harvest and post-harvest management** affects quality and shelf life of the produce.
- Delay in the **Transport Assistance Scheme** affects the working capital cycle of the

exporters as the exporters consider TAS while determining the final selling price.

Road Ahead:

- The experience of many countries world over suggests that export orientation of the agriculture sector is one of the prerequisites for its success in global trade. Further, it has also been observed that export orientation of agriculture sector is sustained when complemented with a quality produce, sizeable processing industry and strong domestic market. As India lacks in these requirements, agri exports potential has not been fully tapped.
- Though India is at the forefront of production of various agri commodities but there is a need for strategic interventions in line with prevailing export requirements to provide a boost to agri exports. Eight-pronged strategy covering Product Segmentation, Quality Enhancement, Market Diversification, Market Penetration, Value Addition, Agriculture Infrastructure Upgradation, Skill Development and Branding/Promotion supported by conducive exports policy and regulations will be critical in ensuring competitiveness of India's agri export trade globally.

GOVT APPROVES RS 26,275 CRORE PLAN FOR POLICE MODERNISATION; RS 18,000 CRORE FIXED FOR SECURITY EXPENDITURE IN J&K, NORTHEAST

Recently, the government has approved the **umbrella scheme of modernisation of police force** for the next five years with a financial outlay of **Rs 26,275 crore.**

- More than Rs 18,000 crore of this money will go towards security related expenditure in Jammu and Kashmir, Left Wing Extremism areas and the Northeast.
- The approval for the period 2021-22 to 2025-26, moves forward the initiative to **modernise and improve the functioning of Police Forces** of States and Union Territories.
- The scheme comprises all relevant sub-schemes that contribute to modernization and improvement.

- Under the five-year plan, provision has been made for internal security, law and order, adoption of modern technology by police, assisting states for narcotics control and strengthening the criminal justice system by developing a robust forensic set-up in the country.
- The scheme for modernization of state police forces has a Central outlay of **Rs 4,846 crore.**
- The approval includes central outlay of Rs 2,080 crore "to develop operationally independent and high-quality forensic sciences facilities in States/Union Territories for aiding scientific and timely investigation through modernization of resources".

- **Police' and 'law and order'** fall under the category of subjects within the **domain of the State** as per Entry 2 of List II of the VIIIth Schedule in the Constitution of India.

- The Ministry of Home Affairs (MHA) has been supplementing the efforts and resources of the States, from time to time, by implementing the Scheme for Modernisation of State Police Forces (MPF Scheme) since 1969-70.

OVER 144 STUDENTS OF GMCH-32 TAKE THE NEW CHARAK SHAPATH

The National Medical Commission (NMC), the regulator for medical education and practices that replaced the Medical Council of India in 2020, has suggested to medical colleges that the traditional **Hippocratic Oath** should be replaced by a "**Charak Shapath**".

- The Indian Medical Association (IMA), the national representative platform of doctors of modern medicine, is yet to issue a statement on the proposal, but statements by individual doctors on social media suggest the medical community is divided in its opinion.

Hippocrates and Hippocratic Oath

- The Hippocratic Oath is attributed to **Hippocrates of the island of Kos**, a Greek physician of the classical period (4th-5th centuries BC, until the death of Alexander the Great in 323 BC), broadly corresponding to the period from the death of the Buddha (486 BC) to the rise of the Mauryas (321 BC) in India.
- Among the great contemporaries of Hippocrates were the Athenian philosopher Plato and his teacher Socrates, and Plato's student and Alexander's tutor, the polymath Aristotle.
- The Corpus Hippocraticum is a collection of 70 books on medicine; however, most scholars agree that the Hippocratic Oath was probably not the work of the individual identified as the historical Hippocrates, the "father of modern medicine".
- The oath seems rather to be "**more Pythagorean (who lived a century or more before Hippocrates) in its moral and ethical flavour and it might have been enriched by other authors in antiquity**".

No one version of the oath

- There is no universally accepted version of the physician's oath. Many medical schools around the world hold a ceremony in which graduating

doctors swear to a broad charter of ethics that are sometimes customised by individual institutions. A version of the 'physician's code of ethics' is commonly displayed in hospitals or clinics in most places, including India.

- The AMA describes its Code of Medical Ethics as a living document that has evolved as medicine and society have changed. The AMA's Code was adopted in 1847, and underwent updates in 1903, 1949, 1957, and 2008.
- The World Medical Association (WMA) adopted an international code of medical ethics in 1949, which was amended in 1968, 1983, and 2006. In May last year, the WMA published a proposed modernised version of the international code, "outlining physicians' duties towards their patients, other physicians, health professionals and society as a whole".

Charaka and Charak Samhita

- Like several other sages mentioned in the literature of ancient India, the historicity of Charaka is uncertain, and the compendium of medicine that carries his name is unlikely to have been the work of a single individual.
- The **Charak Samhita** is a medical pharmacopoeia and collection of commentaries and discussions on medical practices that is dated to the 1st-2nd centuries AD.
- Along with the compendium of **Susruta** (c. 4th century AD), which is about surgery, the Charak Samhita is considered **the foundational text of ancient Indian medicine**, which was an evolved system of understanding and treating disease that resembled that of Hippocrates and Galen (2nd century AD), and was in some ways ahead of the Greeks.

- The ancient Indian interest in physiology is understood to have drawn from yoga and mysticism, and to have been enriched by the growth and spread of Buddhism to new lands, the arrival of the first Christian missionaries, and the contact with Hellenic practitioners of medicine.
- In theory and praxis, ayurvedic medicine today remains broadly unchanged from these ancient Indian principles.

Ancient Indian system of medicine

- At the heart of ancient Indian medicine is the doctrine of the three 'doshas' (humours).
- It was believed that a balance of the three vital fluids, wind, bile/ gall, and mucus/ phlegm is essential for good health – and that these humours were tied closely with the scheme of the three 'gunas' or universal qualities – virtue/ lucidity (sattva), passion/ energy (rajas), and dullness/ torpor (tamas). To the three primary humours, wind, bile, and phlegm, some authorities added a fourth, blood.

- The functions of the body are regulated by the five 'winds' or vayu – udana, which emanates from the throat and accounts for speech; prana, from the heart, responsible for breathing and swallowing; samana, in stomach, involved in digestion; apana, in the abdomen, ensuring excretion and procreation; and vyana, which causes the motion of blood.
- Food is seen as the key to good health: it is why the body exists – and as bad food causes sickness, good food heals.
- A passage from the Charak Samhita describes a debate among sages which concludes with the view, "The use of good food is one cause of the growth of a person, and the use of bad food is a cause of diseases" – even though the debate is not conclusively closed.
- Surgery reached great heights in ancient India. Basham noted that the caesarian section was known, bone-setting was highly evolved, and plastic surgery was "developed far beyond anything known elsewhere at the time".

RESTORATION OF FRENCH HERITAGE STRUCTURE AT CHANDERNAGORE WILL BE COMPLETED SOON: AMBASSADOR LENAIN

The Registry Building, a **two-storied structure at Chandernagore** built in 1875 and a symbol of French settlement of the colonial town, has been **awaiting restoration for a long time**.

- Architects, heritage enthusiasts, State government officials and diplomats have on several occasion in the past few years visited the crumbling building located on the strand opposite Rani Ghat jetty on the banks of Hooghly and have assured about the restoration of the structure.
- French Ambassador to India Emmanuel Lenain, who recently visited Kolkata, expressed hope that the **restoration of the Registry Building** was "moving forward nicely".
- A memorandum of understanding (MoU) was signed in February 2019 between France and the West Bengal government on the side lines of the Bengal Global Business Summit to work to

restore the French era buildings for adaptive reuse.

- **Chandernagore** or Chandannagar was the **first trading post on the eastern bank of the Hooghly**, set up by the French in 1696.
- There are several buildings in the town that are a reflection of rich architectural heritage of the town.
- Other than the buildings and structures that have been given the heritage tag there was a total 99 Indo-French heritage structures have been identified (by the French) in Chandernagore that needs to be resorted.
- Chandannagar was a French colony between 1678 and 1950 (when it was called Chandernagore) and still has many of the old buildings.
- The Registry Building, also known as **Chander Bari**, which is now in rather dilapidated

condition, was the first French court house in India, built around 1875.

- Apart from the Strand on the River Ganga, the town is known for the **Sacred Heart Church** (inaugurated in 1884), Institute de Chandernagore (former home of French

Governor Dupleix) which now includes a museum and a school to learn French language, an elegant mansion called **Patal Bari** (where you have subterranean rooms), several temples, including the terracotta built Nandadulal Temple, etc.

INFORMATION WARFARE AND INDIA'S LEVEL OF PREPAREDNESS

India's strategic thinkers realise well that the intensity of the information war mounted against India is increasing. For instance, Stoke White, a UK-based firm, released a forty-one pages report, titled India's War Crimes in Kashmir: Violence, Dissent and the War on Terror, on 14 January 2022.

Informational Warfare:

- According to the **North Atlantic Treaty Organisation (NATO)**, Information Warfare is "an operation conducted in order to **gain an information advantage over the opponent**."
- It consists in controlling one's own information space, protecting access to one's own information, while acquiring and using the opponent's information, destroying their information systems and disrupting the information flow."
- Information warfare is a type of **non-kinetic warfare** and has 4-Ds as its objectives:
 - "Dismiss the Critic";
 - "Distort the facts";
 - "Distract from the main issue"; and
 - "Dismay the audience".
- States have been involved in **information warfare and psychological warfare since times immemorial**.
- Even Kautilya, the military strategist in ancient India, had warned against the obvious **use of disinformation during wars**.
- In present times, the **internet has exacerbated the impact of information warfare** on kinetic wars and conflicts, making the nature of war citizen-centric, with blurring lines between the combatants and non-combatants.

The Basic Features of Strategic Information Warfare
Low entry cost:

- Unlike traditional weapon technologies, development of information-based techniques does not require sizable financial resources or state sponsorship. Information systems expertise and access to important networks may be the only prerequisites.

Blurred traditional boundaries:

- Traditional distinctions—public versus private interests, warlike versus criminal behavior—and geographic boundaries, such as those between nations as historically defined, are complicated by the growing interaction within the information infrastructure.

Expanded role for perception management:

- New information-based techniques may substantially increase the power of deception and of image-manipulation activities, dramatically complicating government efforts to build political support for security-related initiatives.

A new strategic intelligence challenge:

- Poorly understood strategic IW vulnerabilities and targets diminish the effectiveness of classical intelligence collection and analysis methods. A new field of analysis focused on strategic IW may have to be developed.

Formidable tactical warning and attack assessment problems:

- There is currently no adequate tactical warning system for distinguishing between strategic IW attacks and other kinds of cyberspace activities, including espionage or accidents.

Recommendations on how India can fight back Information Warfare:

- **Disinformation narratives** should be watched out for, rather expected, in current times of robust information technology.

- Think of narratives as a stream of running water.
- The flow of information should be tracked, and possibly capped while in its initial stages.
- **Tracing the origin of information** would help, specifically for sensitive topics pertaining to India – Kashmir, the North-East, Human Rights and religious minorities to name a few.
- **Field studies in sensitive areas** should be undertaken by Indian think tanks, and the reports generated be widely publicised.
- **Research centres should be made operational** in the said areas, these being of keen interest for the anti-India dissemination networks, thereby whetting the information being generated becomes of paramount importance.
- For **spreading awareness** (including on Social Media platforms), a network of good samaritans must be stimulated.
- The perception of Kashmiris, who encourages development and integration, must be well-reflected on social media platforms.
- Likewise, India must create awareness and have a good slogan such as **“India Against**

Disinformation” or “Stop the Fake News” – to facilitate our citizens to post correct information online.

Road Ahead:

- There is no way India could stop disinformation flow, but through improving communication strategy in the international system, India can reduce the adverse outcomes of the disinformation.
- To be credible, India also needs to formulate narratives supported by videos, images, write-ups, etc., concise and detailed forms by having an independent team with specialists and professionals who will proactively ensure its projections.
- Information is power, disinformation is an abuse of power and there is no end to disinformation. Therefore, diligent repetition of correct information is the key to setting a perception.
- India is a democratic nation; therefore, it must value the advantages of the Internet and Information. However, it should not compromise its national security by giving free-way to disinformation and must reduce its propagation.

‘ASSAULT ON THE HIMALAYAS’: CHAIRMAN OF CHAR DHAM COMMITTEE RESIGNS

Environmentalist **Ravi Chopra** has resigned as chairman and member of the High-Powered Committee (HPC) for the Char Dham Project, citing an assault on the Himalayas in an explosive letter.

- He wrote that sustainable development demanded approaches that were both geologically and ecologically sound.
- Chopra continued that “nature, however, neither forgets nor forgives such willful wrongs inflicted on her treasures. Nature sounded warning bells in June 2013 and February 2021 with disastrous consequences.”
- He called the Himalayas, the **‘marvel of Nature’**.

Chardham Mahamarg Vikas Pariyojna?

- The Chardham Mahamarg Vikas Pariyojna, whose foundation stone was laid in December

2016, seeks to **improve connectivity between four pilgrimage sites – Kedarnath, Badrinath, Yamunothri, and Gangothri** – in Uttarakhand.

- The Char Dham project will focus on the **widening of the existing roads** in the region, along with ensuring adequate and sufficient slope protection.
- The entire length of the highways will be two-laned with paved shoulder and with a minimum width of 10 metres, the government has announced.
- The projects also include **mitigation measures/stabilisation of chronic landslide & sinking spots/zones** as standalone project or part of road widening projects to avoid land slide and safety of road users.

- **Bio engineering methods** like **hydro seeding** are being used for vegetative growth on fragile slopes for their stability. All these measures shall safeguard the highway and habitation against natural calamity.

Significance of the Chardham Mahamarg Vikas Pariyojna?

- The improved **road connectivity**, which seeks to develop and widen these roads, will make **travel safer, economical, comfortable, environment-friendly, and all-weather.**
- Wider roads are required in the Char Dham region in order to **transport crucial military equipment to the mountainous territory, which is adjacent to the India-China border.**
- It will **boost economy and industries** related to travel in Uttarakhand.
- It will **develop the trust and security** between pilgrims and travellers for a safe journey.
- **New jobs** help local folks to make them financially strong which will **decrease the cases of migration.**

Concerns associated with implementation of Char Dham Project

- **The existence of river slopes depends on the vegetal cover.** These slopes become fragile for flash floods and landslides in the absence of vegetal cover.
- A significant portion of the project area falls under the dry deciduous biome along the dry

slopes of the rivers. **Ruthless harvesting or uprooting of vegetation in the widening of roads can prove to be perilous for the biodiversity and regional ecology.**

- Forest loss is among the major impacts of project – about 508.66 hectares of forest area would be diverted into the non-forestry purpose and 33,000-43,000 trees would be cut down to build roads.
- **The loss of forest will reduce the probability of maintaining effective reproductive units of plant and animal populations.**
- This will **increase wastage and garbage** in the region which directly pollute the rivers.
- **Increase in number of vehicles** further led to **melting of glaciers**, due to **increase in temperature** of the region.

Road Ahead:

- Known as **Devabhumi**, Uttarakhand is famous for its noted temples and heavenly destinations. Char Dham Yatra and Hemkund Sahib yatra are the **backbones of Uttarakhand tourism** and economy. This project will play the vital role in travel safety and the development of the state.
- Despite many concerns associated with it, the security and national interest cannot be ignored. Steps like bio-engineering and many steps to curb cases of national calamities.

WHAT IS DRIVING THE NEW LANGUAGE-DOMICILE PROTEST IN JHARKHAND?

Several parts of Jharkhand are seeing **massive protests against the inclusion of Bhojpuri and Magahi** as “regional languages” in district-level competitive examinations for government jobs.

Why are the protests taking place?

- In December 2021, the Jharkhand Personnel, Administrative Reforms, and Rajbhasha Department issued a **notification to include Magahi, Bhojpuri, and Angika** among others as regional languages in the district-level selection process through exams conducted by

the **Jharkhand Staff Selection Commission (JSSC).**

- The notification **triggered resentment in a section of people** especially in Bokaro and Dhanbad, who saw the inclusion of Bhojpuri and Magahi as an “**infringement**” on the rights of Adivasis and Moolvasis.
- The protesters argue that the “low population” of Magahi and Bhojpuri speakers in these two districts did not “warrant” the inclusion of these languages in the job selection process.

- Anecdotal evidence suggests there is a relatively small number of Magahi- and Bhojpuri-speaking people in these districts; however, no precise data are available.

About the examination

- Eligibility requirements are relatively modest, and the exams will be held for appointments to lower-level jobs in the districts.
- The notification is for the selection of matriculation- (Class 10) and Intermediate-

(Class 12) pass candidates at the district level through JSSC examinations.

- It is not applicable to the selection process at the level of the state.
- It would be the first time that the exams would have Bhojpuri, Angika, and Magahi as language papers, and the government was expected to announce details of the weightage and marks.

THE STRATEGIC ALLIANCE OF TRANS-BORDER INSURGENT GROUPS: A REASON FOR THE TURMOIL IN NORTH-EAST

Conflicts in recent times have become increasingly complex. It is widely held that the **nature, intensity, and frequency of conflict** has changed in recent years, shifting from direct conflict between states to insurgencies, guerrilla wars, terrorism, organised and large-scale criminal violence, and protests.

- As per the latest **MHA report on insurgency in the North-East**, about **16 major insurgent groups are active** in the region. However, the cross-border ties and strategic alliances that these groups have, work as force multipliers, complicating conflict dynamics.

Trans-Border Insurgency in North-East India?

- Border regions are widely recognized as **hotspots for latent conflict**, driven by a variety of intersecting factors such as **unresolved colonial tensions, unclear or contested border demarcations, the historically porous nature of border regions, natural resource competition, and the “less-” or “un-” governed nature of many such areas.**
- **Language/ethnicity, tribal rivalry, migration, ownership of local resources, and a pervasive sense of exploitation and alienation** have all culminated in violence and various demands from various Indian insurgent groups (IIGs).
- These **insurgent groups have links across the border.** They **acquire arms, recruit and train their cadres, and engage in illegal activities**

such as vandalism of public property, bombings, extortions, the murder of innocent civilians, Security Forces personnel, and attacks on/abductions of government employees, politicians, and people in business.

- **Problem of under development, lack of education and lack of livelihood opportunities exacerbates issues such as insurgency.**

Background of Security Problem

- **Three major hill communities – Kachin, Naga, and Zo** – live on both sides of the Indo-Myanmar border and are transborder people. They are also found in parts of India's Assam, and China's Yunnan province.
- The **north-eastern Indian states of Mizoram, Manipur, Nagaland, and Arunachal Pradesh share a sensitive 1,640-kilometre border with Myanmar.** What happens in Myanmar ultimately has its ramifications on these bordering states.
- The Nagas, who live on both sides of the border, have the same disdain for the International Border (IB) as the Pashtuns have for the Durand Line.
- The **United National Liberation Front (UNLF), along with the NSCN(K) and the ULFA, formed the Indo-Burma Revolutionary Front in May 1990 to launch**

a “united struggle for the independence of Indo-Burma.”

- The insurgent groups acquire weapons on the **Sino-Myanmar border from surreptitious sources**. Some of these weapons are manufactured in China’s Yunnan province, while others are made in Myanmar’s north-eastern gun factory.

China’s Role in Cross-Border Insurgency

- China’s Special Envoy for Asian Affairs, Sun Guoxiang, has emerged as a virtual mediator in the peace process with Myanmar armed factions such as the Kachin Liberation Army, Ta’ang National Liberation Army, Kokang Alliance Army, and the formidable **United Wa State Army (UWSA)**.
- The UWSA has been **granted extensive firepower in China over the years, including armoured vehicles, AK-47 rifles, assault weapons, and supposedly surface-to-air missiles**.
- The UNLFW includes the **National Socialist Council of Nagaland (Khaplang), the United Liberation Front of Assam (ULFA), the Kamtapur Liberation Organisation, and the National Democratic Front of Bodoland**.
- While Myanmar has resisted Chinese efforts to carry out projects on its soil that are opposed by the public, such as the \$6 billion, 6,000 MW **Myitson dam**, China will continue to use pressure to get its way, as it did with the Hambantota Port in Sri Lanka.
- China is **constructing vast energy, manufacturing, and transportation corridors across Myanmar to connect its landlocked Yunnan Province to the rest of the country**.

India’s actions

- **New Delhi should keep pressing Myanmar to take action** against these Indian insurgent organisations and their Myanmar allies.

- **New Delhi may like to appoint a dynamic person**, who is fully aware of the situation in the region and can balance the interests of the locals as well as the Government.
- **ONGC has been successful in its offshore natural gas exploration efforts**.
- **India’s Institute for Information Technology in Mandalay and the skill development centres created around Myanmar with Indian support have received high appreciation**.
- Under India’s Technical and Economic Cooperation Programs, hundreds of Myanmar **students’ study on scholarships** and take courses at professional institutes in India.

Road Ahead:

- Although India recognises the ties between cross-border groups, it has placed a greater emphasis on security rather than the region’s political, cultural, and economic issues. The biggest worry for India remains the potential of China to extend its military might via Myanmar.
- Commentators have proposed that **promoting economic growth, offering cultural recognition to minorities, opening political space for insurgent organisations, and cracking down on armed rebels could help calm the region’s tensions**. These measures failed partly because they were unable to account for challenges that existed outside of India’s boundaries.
- New Delhi will have to move beyond a simple military strategy in Myanmar to **integrate political, economic, and cultural components in its counterinsurgency strategy**. While New Delhi may prefer to avoid direct advocacy of democracy, it might assist Myanmar with border law enforcement and recommend measures to facilitate economic and cultural relations.

‘RUBBER BILL 2022 MAKES RUBBER BOARD REDUNDANT, DOESN’T ENSURE FAIR PRICE’

The Union Ministry of Commerce and Industry has proposed to repeal the Rubber Act, 1947 and replace it with the **Rubber (Promotion and Development) Bill, 2022**.

Need for a new act?

- Changes in India's industrial and economic scenario, **commitment towards ease of doing business, and need for the rationalization** of the functions of the Rubber Board.
- It is **imperative to remove the archaic provisions** that no longer meet the requirements of the present scenario and create a conducive environment for the development and growth of the industry.
- **Functions of Rubber Board need to be expanded** in a holistic manner so that areas/services already being provided are taken care of.
- Under the new bill, the Board shall be responsible for the **promotion and development of the Indian rubber industry**.

How is the Bill different from the Rubber Act of 1947?

- The **Bill brings natural rubber, its cultivation, rubber plantations, rubber wood and all associated agricultural activities under the ambit of the rubber industry**.
- This is a major change from the Act which did **not define rubber cultivation as an industrial activity**.
- Rubber plantations will be **under the Union or Concurrent List by default** once the Bill is passed.
- The Act had a provision that **mandated the central government to consult the Rubber Board** on important matters. This provision has been dropped, eroding the board's functional relevance and authority.

Implication of the Rubber Boards reduced advisory role?

- The **Bill gives the central government authority to supersede the Rubber Board**. The central government can take its own decisions without consulting the Rubber Board

and implement them through any person(s) (industry) it wants.

- The central government can **exempt any industry from having to register with the Rubber Board and seeking a trade certificate**. The exempted industry doesn't have to file returns with the board.
- This will **create anarchy** as the board will have no clue of the vital statistics. Possibly this route will also be used for importing rubber.
- While reconstituting a fresh board (at the end of the superseding period), the Bill says the **Centre can pick and choose members from the previous board**. It states that members of the previous board will be eligible to become members.
- But the government can conveniently avoid inconvenient members. The **Bill gives unbridled power to the Centre**.
- The **Rubber Board will become a mere rubber stamp**. No more free and fair debates of new ideas. Board will have to toe the "official" line. No functional autonomy. This defeats the whole purpose of having a Board.

Objectives of the bill

- To **promote the overall sustainability** of the Rubber Industry with respect to economic, social, and environmental dimensions.
- To **provide the required focus towards the development of the entire Rubber Industry** value chain from upstream production to downstream manufacturing activities.
- To **strategize towards the increase in area under Natural Rubber** by new planting without causing any adverse impact on forests/natural ecosystems and food security.
- To **facilitate the increase in average national rubber productivity** through appropriate agro management practices including systematic replanting and ensuring better income for the growers.
- To **strategize towards the meeting of the raw material requirement of domestic**

industry through domestic production as far as possible.

- To **promote activities for ensuring the quality of processed forms of NR** at par with international standards.
- To **promote the development of the rubber product manufacturing sector** and facilitate the export of quality rubber products.

Does the Bill protect the interests of the growers?

- The new **Bill is highly lopsided, favouring the industry and harming growers' interests.**
- Though the Bill defines a 'grower' as one who owns the estate, it is not the case.
 - The mean size of a rubber holding is hardly 0.5 hectare. **Rubber growers are small and marginal farmers**, and safeguarding their interests is crucial to sustaining rubber production in the country. Natural rubber cultivation gives livelihood to more than 1.3 million households.
- There are several provisions that **will hurt growers.**
 - The Bill provides for **fixing minimum / maximum price for rubber**. The grower does not need a minimum price, but a fair price. The Bill does not provide for fixing fair price.
- Also, if and when the **domestic market falls below the fair price**, the Act had a provision

enabling the Rubber Board to procure rubber and export, but this provision has been removed in the Bill. **Fixing the maximum price will only help the industry, not the grower.**

Road Ahead:

- For the next 25 years, Rubber Board has set a goal to quadruple India's export of rubber goods from the current earnings of 25,000 crores. In 2020, India was the world's sixth-largest producer of natural rubber. and the fourth-largest in south Asia, behind Thailand, Indonesia, and Vietnam. The land area available for natural rubber cultivation has increased over the past years.
- In 2020, just over 822 thousand hectares were used for rubber plantations across the country. A 2019 government report states that the production capacity in India is around 900,000 tonnes, of which around 75% is tapped.
- Traditional rubber-growing states comprising Kerala and Tamil Nadu account for 81% of production. Major non-traditional rubber growing regions are the North-Eastern states of Tripura, Assam, Meghalaya, Odisha, Karnataka, Maharashtra, and West Bengal. India is the 2nd largest consumer of NR globally with current consumption of around 1.1 million tonnes.

MAHARASHTRA FARMERS SET TO RE-LAUNCH PRO-GM CROP MOVEMENT

Farmers belonging to the Shetkari Sanghatana in Maharashtra are once again set to **defy the government's ban on Genetically Modified (GM) crops**. Since 2019 thousands of farmers have been openly sowing and cultivating herbicide-tolerant **Bt (HTBt) cotton** and **Bt brinjal**. On Thursday the pro-GM crop movement will be re-launched in Maharashtra once again.

GM Crops?

- GM is a technology that involves **inserting DNA into the genome of an organism**. To produce a GM plant, new DNA is transferred into plant cells. Usually, the cells are then grown in tissue culture where they develop into plants.

The seeds produced by these plants will inherit the new DNA.

- The **characteristics of all living organisms are determined by their genetic makeup and its interaction with the environment**. The genetic makeup of an organism is its genome, which in all plants and animals is made of DNA.
- The **genome contains genes, regions of DNA that usually carry the instructions for making proteins**. It is these proteins that give the plant its characteristics. For example, the colour of flowers is determined by genes that carry the instructions for making proteins

involved in producing the pigments that colour petals.

- Genetic modification of plants involves **adding a specific stretch of DNA into the plant's genome, giving it new or different characteristics**. This could include **changing the way the plant grows, or making it resistant to a particular disease**. The new DNA becomes part of the GM plant's genome which the seeds produced by these plants will contain.

What are Bt Crops?

- Bt Crops are transgenic crops that produce the same toxin as the **bacterium Bacillus thuringiensis in the plant cell**, thereby, protecting the crops from pests. The **bacterium secretes specific proteins known as "cry proteins" that are toxic to insects**. A few of the Bt crops include cotton, brinjal, corn, etc.
- When an insect feeds on the transgenic plants, the toxic cry protein present in the plants crystallizes the digestive system of insects, eventually leading to its death. However, **it has no harmful effects on the human digestive system**.
- Bacillus thuringiensis is a **gram-positive, spore-forming bacteria** which is mainly **found in the soil**. As stated above, it produces proteins that are toxic to insects. Organic farmers use this bacterium in a solution and spray it on the plants to protect them from pests.

Advantages of GM Crops

- It helps in improving the crop yield, thereby, raising the farmer's income. This results in increased farm production.
- They help in controlling soil pollution as the use of synthetic pesticides is reduced.
- Bt crops help in protecting beneficial insects.
- It can easily feed an increasing population due to increased yields in a short time.
- It leads to the production of disease-free crops owing to the reduction of pesticides.

- It leads to more productivity in a small area of land.

Disadvantages of GM Crops

- Bt crops are costlier than naturally grown crops.
- It can disrupt the natural process of gene flow.
- The pests might become resistant to the toxins produced by these crops and the crop production might decline.
- Lack of clarity on its impact on human health and environment.
- Many important crops like rice, brinjal and mustard introducing genetically modified versions could be a major threat to the vast number of domestic and wild varieties of these crops.

What are potential GM crops of the future?

- **Nutritional enhancement:** Higher vitamin content; more healthful fatty acid profiles;
- **Stress tolerance:** Tolerance to high and low temperatures, salinity, and drought;
- **Disease resistance:** For example, orange trees resistant to citrus greening disease or American chestnut trees resistant to fungal blight;
- **Biofuels:** Plants with altered cell wall composition for more efficient conversion to ethanol;
- **Phytoremediation:** Plants that extract and concentrate contaminants like heavy metals from polluted sites.

Road Ahead:

- GMOs benefit mankind when used for purposes such as increasing the availability and quality of food and medical care, and contributing to a cleaner environment. If used wisely, they could result in an improved economy without doing more harm than good.
- They could also make the most of their potential to alleviate hunger and disease worldwide. However, the full potential of GMOs cannot be realized without due diligence and thorough attention to the risks associated with each new GMO on a case-by-case basis.

THE STATE OF SURVEILLANCE IN INDIA: NATIONAL SECURITY AT THE COST OF PRIVACY?

Recent technological developments have completely changed the surveillance architecture, where the tools have become more intrusive and damaging to our democratic safeguards.

- For instance, the recent case of Pegasus “snoop gate”—a zero-click malware illustrated the evolution of the surveillance architecture, which can take control over the infected devices without the knowledge of the recipient.

Purpose of surveillance:

- One defined and legitimate purpose is to **preserve national security**, but the current state of surveillance reform in India is on an uneven keel between national security and privacy.
- To make **India’s surveillance system more responsive and predictive to enhance preparedness** for action at all levels.
- **Citizen-friendly surveillance system** will ensure individual privacy and confidentiality, enabled with a client feedback mechanism.
- **Improved data-sharing mechanism** between Centre and states.
- India aims to **provide regional and global leadership** in managing events that constitute a public health emergency of international concern.

Benefits of surveillance:

- An Increased Sense of Security
- Improved Productivity
- Lowered Chance of Crimes
- Protects country from external threats
- Improved information security and business continuity management

Drawbacks in India’s Surveillance System?

- While the Public Accounts Committee (PAC), formed by the parliament, audits the revenue and expenditure of the state, the national security funding like the **National Technical Research Organisation budget is categorised as special funds which don’t come under the purview of the PAC.**

- **Indian Telegraph Act, 1885 [Section 5(2)] and Information Technology (Amendment) Act, 2008 (Section 69) legislations are outdated** and raise the rights implications for citizens and bring forward concerns that such a broad sweep may undermine the democratic fabric of the nation.
- While under the **Information Technology (Procedure and Safeguards for Interception, Monitoring and Decryption of Information) Rules, 2009, no agency or a person can perform interception without direction and approval of the competent authority.** This is especially concerning as the maximum number of fundamental rights breaches are against the state, whereas excessive executive oversight has also kept the judiciary at arm’s length.
- Mass and lateral surveillance equally **curb the right to privacy and freedom of expression.**
- The surveillance **promotes spread of authoritarianism** in the government functioning since it allows the executive to exercise a disproportionate amount of power on the citizen and impacts their personal lives.

Ensure security through surveillance:

- India can create a **skilled and strong workforce** dedicated to surveillance activities.
- An **amalgamation of plant, animal, and environmental surveillance in a One-Health approach** that also includes **surveillance for anti-microbial resistance and predictive capability for pandemics** is an element suggested within this vision document.
- **Public Surveillance could be integrated within India’s three-tiered system.**
- Establish a **governance framework that is inclusive** of political, policy, technical, and managerial leadership at the national and state level.
- **Encourage innovations** at every step-in surveillance activity.

Steps taken by India to walk with the world in surveillance sector

- India bagged a couple of **top ranks in Forbes list of the most surveilled cities in the world**, where **Delhi stood at rank one** with about 1,826.6 cameras per square mile beating Chinese cities like Beijing, Wuhan, Xiamen, etc., and London.
- **Indian Cyber Crime Coordination Centre under the Ministry of Home Affairs** launched the **cyber volunteers' programme**, which seeks citizens to report unlawful activities on the internet and social media.
- The advancement in **The Indian Computer Emergency Response Team (CERT-In)**, which operates as the national agency for tackling the country's cybersecurity, has helped in lowering the rate of cyber-attacks on government networks.
- Aiming at strengthening the cybersecurity ecosystem in India — in line with the government's vision for a 'Digital India', **The Ministry of Electronics and Information Technology (MeitY) has launched Cyber Surakshit Bharat initiative**. This program was in association with the National e-Governance Division (NeGD).
- Amid the increasing number of government website hacking, email phishing, data theft, and privacy breach cases, the **Indian government has planned to conduct an audit** on all the government websites and applications.

Road Ahead:

- As a country that houses one of the largest democracies, our duty to empower our citizens

towards their rights is as important as our duty to preserve national security. National security and privacy have largely been viewed as competing interests over the years; however, with the advent of technology and means of digital surveillance, protecting citizens' information is also important. It is perhaps the best time to begin to view protecting the privacy and information of citizens as a facet of preserving national security.

- The system must also strengthen the accountability mechanisms in the form of judicial or parliamentary oversight and establish appropriate procedural safeguards. These steps would help to largely reduce the discretionary powers of the state, which, at present, have a wide scope to determine the extent to which it may use its powers of surveillance.
- The Supreme Court in the *K.S. Puttaswamy v. Union of India* upheld a citizen's right to privacy, specifically including informational privacy. As we adopt newer technologies such as Web 3.0 and increase digital penetration in India, we are hopeful that revamping the framework governing surveillance is amongst the government's top regulatory priorities.
- Therefore, we believe the push for robust surveillance reform for targeted surveillance will initiate a conversation on laying the pathway and foundations for new legal reforms for other forms of surveillance to find a balance between privacy and national security.

PRADHAN MANTRI FASAL BIMA YOJANA (PMFBY) ENTERS ITS 7TH YEAR OF IMPLEMENTATION

The Pradhan Mantri Fasal Bima Yojana (PMFBY) has successfully entered its 7th year of implementation with the upcoming Kharif 2022 season, completing 6 years of its implementation since its launch announcement on 18th February 2016 by Prime Minister Shri Narendra Modi at Sehore, Madhya Pradesh.

- Over 36 crore farmer applications have been insured under PMFBY, with over INR 1,07,059

crores of claims have already been paid under the scheme as of 4th February, 2022.

Pradhan Mantri Fasal Bima Yojana (PMFBY)

- A **flagship scheme** of the Government of India, PMFBY aims to provide **financial support to farmers suffering crop loss/damage arising out of natural calamities**. Launched 6 years

ago, the scheme was revamped in 2020 enabling voluntary participation of the farmers.

- It also made it convenient for the farmer to **report crop loss within 72 hours of the occurrence of any event - through Crop Insurance App, CSC Centre or the nearest agriculture officer**, with claim benefit transferred electronically into the bank accounts of the eligible farmer.
- **Integration of land records with the PMFBY's National Crop Insurance Portal (NCIP), Crop Insurance mobile app for easy enrolment of farmers, remittance of farmer premium through NCIP, a subsidy release module and a claim release module through NCIP** are some of the key features of the scheme.
- Through its **State/District Level Grievance Committee's**, the scheme also enables farmers to submit their grievances at the grassroots level.
 - This also includes acknowledging and resolving farmer grievances through IEC activities such as **Crop Insurance Week** which is celebrated twice bi-yearly, **PMFBY Paathshaala**, **social media campaigns**, a **toll-free helpline and email communication**.
- The scheme has been able to provide **financial assistance to the most vulnerable farmers**, as **around 85% of the farmers enrolled with the scheme are small and marginal farmers**.
- The recent announcement by Finance Minister of India Smt. **Nirmala Sitharaman** during her 2022-23 budget speech on the **use of drones for crop insurance will further strengthen the integration of technology for smooth implementation of the scheme on the ground**.

- Actuarial/bidder premium but uniform maximum premium of only **2%, 1.5% and 5%** to be paid by farmers for **all Kharif crops, Rabi Crops and Commercial/ horticultural crops respectively**. Premium over and above these limits is shared by the **Central and State Governments on 50: 50 bases except in North Eastern Region where it is 90: 10**.

Risks covered under the scheme

- **Yield Losses** (standing crops, on notified area basis). Comprehensive risk insurance is provided to cover yield losses **due to non-preventable risks, such as Natural Fire and Lightning, Storm, Hailstorm, Cyclone, Typhoon, Tempest, Hurricane, Tornado. Risks due to Flood, Inundation and Landslide, Drought, Dry spells, Pests/ Diseases** also will be covered.
- In **post-harvest losses**, coverage will be available up to a maximum period of 14 days from harvesting for those crops which are kept in **"cut & spread" condition** to dry in the field.
- For certain localized problems, **Loss / damage resulting from occurrence of identified localized risks like hailstorm, landslide, and Inundation** affecting isolated farms in the notified area would also be covered.

Road Ahead:

- It is to be noted that the scheme will be launching a doorstep distribution drive to deliver crop insurance policies to the farmers **'Meri Policy Mere Hath'** in all implementing States.
- The campaign aims to **ensure all farmers are well aware and equipped with all information** on their policies, land records, the process of claim and grievance redressal under PMFBY.

WORLD BANK SIGNS \$115 MILLION PROJECT TO STRENGTHEN WATERSHED MANAGEMENT IN KARNATAKA AND ODISHA

The Government of India, the State Governments of Karnataka and Odisha and the World Bank have signed a **\$115 million** (INR 869 crore) Programme (Rejuvenating Watersheds for Agricultural Resilience through

Innovative Development Programme) that will help national and state institutions adopt improved watershed management practices to help increase farmers' resilience

to climate change, promote higher productivity and better incomes.

REWARD Project

- The **Department of Land Resources, Government of India** has initiated a **World Bank** supported multistate project namely **Rejuvenating Watershed for Agricultural Resilience through Innovative Development (REWARD)**.
- It is expected to positively influence by **promoting resource efficient growth in selected watersheds, investing in human capital at State and National levels, and developing networks of scientific and technical partners.**
- The project will **enhance productivity and net income of farmers and contribute significantly to Lighthouse India by implementing new science and data-driven approaches for climate resilient watershed management, land resource inventory, land use planning, and precision farming in a range of agro-ecological conditions in participating states.**
- The project will directly address key strategic actions around agricultural and rural development, including **doubling farmers' incomes, more crop per drop, water to every plot, soil health, and promotion of entrepreneurship through technical and financial support for better delivery and impacts through improved planning approaches, capacity building, coordination and convergence, and supportive research and development.**
- The Government of India has committed to **restoring 26 million hectares of degraded land by 2030 and doubling farmers' income by 2023.**

- The **International Bank for Reconstruction and Development (IBRD)** financing will support Karnataka with \$60 million (INR 453.5 crore), Odisha with \$49 million (INR 370 crore), and the remaining \$6 million (INR 45.5 crore) will be **for the central government's Department of Land Resources.** The \$115 million (INR 869 crore) loan has a **maturity of 15 years, including a grace period of 4.5 years.**

Significance of REWARD

- Effective watershed management can **help enhance livelihoods in rainfed areas**, while building a more resilient food system.
- In this context, the new program will **help the participating state governments** in their efforts to **transform watershed planning and execution and adopt science-based planning** that could be replicated across the country.
- While a robust institutional architecture for watershed development already exists in India, renewed focus on **science-based, data-driven approaches** implemented through this project can **offer new opportunities for farmers in the face of climate change.**
- India has one of the largest watershed management programs in the world. This programme will further advance this progress by **developing and applying comprehensive spatial data and technologies, decision support tools, and knowledge exchanges.**
- The outcomes are **prevention of soil run-off, regeneration of natural vegetation, rain water harvesting and recharging of the ground water table.** This enables **multi-cropping** and the **introduction of diverse agro-based activities, which help to provide sustainable livelihoods to the people residing in the watershed area.**

THE STATE OF SURVEILLANCE IN INDIA: NATIONAL SECURITY AT THE COST OF PRIVACY?

The amendments made to the IT Act 2000 via the IT Rules 2021 and the wide exemptions to government and allied agencies in the proposed Data Protection Bill 2021

are taking the route that **prefers to exempt or weaken privacy practices towards citizens** as opposed to putting in place privacy-respecting practices.

- Surveillance as **statecraft finds its roots in history**, to **monitor the actions of citizens** for both defined and undefined purposes.
- One **defined and legitimate purpose** is to **preserve national security**, but the current state of surveillance reform in India is on an **uneven keel between national security and privacy**.

Technological developments Vs Surveillance architecture

- **Intrusive and damaging** to our democratic safeguards. For instance, the recent case of **Pegasus “snoop gate”**, can take control over the infected devices without the knowledge of the recipient.

Surveillance practices in India

- Historically, in India, surveillance has been a right of the state to deploy intrusive measures against citizens with minimal checks and balances.

MACRO-LEVEL SURVEILLANCE

- At the macro-level, the state uses various digital surveillance tools like **CCTVs and facial recognition cameras** to track the actions of the citizens as a mass.
- Recently, India bagged a couple of top ranks in Forbes list of the most surveilled cities in the world, where **Delhi stood at rank one** and **Chennai at rank three**.
- Besides, the **state in the past has incentivised lateral surveillance** at the peer-to-peer level to encourage citizens to monitor others for unlawful activities and report to the authority.
- For instance, recently Indian Cyber Crime Coordination Centre under the Ministry of Home Affairs launched the **cyber volunteers’ programme** which seeks citizens to report unlawful activities on the internet and social media.

MICRO-LEVEL SURVEILLANCE

- At the micro-level, the state is empowered to perform targeted surveillance in the form of interception.

- There are **various lawful interception systems** available in the Indian market which are **installed into the networks of telecom services and internet services** by the government through the license agreement.
- Though **interception is legal** in India under specific legal grounds, **hacking is a punishable** offence under the Information Technology (Amendment) Act, 2008 (Section 43 and 66).

Project Pegasus:

- The investigation reported that targets were concentrated in countries where **unlawful surveillance and poor legislative protections** were prevalent.
- In which 300 phone numbers that were surveilled belonged to **senior ministers, journalists, opposition leaders and judges, businesspersons, and activists from India**.

National security Vs Data protection:

- At present, in India, there is absence of a data protection regime and robust surveillance reform.
- The profiling of the individuals is therefore taking place **in silos, without key terms like suspects, suspicious activities**, etc., being defined.
- For example, the **Niira Radia phone tapping case** revealed that the government **doesn’t always follow procedures** with intercepted files to protect the right to privacy of the target, where the personal conversations were retained in addition to the relevant portions, since **these interceptions did not concern national security, to begin with**.

Caveats in the regulatory framework of targeted surveillance

- Under the **Indian Telegraph Act, 1885** [Section 5(2)] and **Information Technology (Amendment) Act, 2008** (Section 69), the state can “intercept, monitor, and decrypt any information for protecting sovereignty, national security,

friendly relations with international governments, integrating public order etc.”

Issues:

- The lack of clarity in these terminologies also provides leeway to the state to operate in opacity, exacerbated in the absence of an oversight mechanism, which doesn't go beyond the same department.

Broad mandates on surveillance VS No Standard operating Procedure

- Surveillance under broad mandates such as “to maintain public order, national security, and public safety”. these terms stand **undefined**, and their **contours are not clear** in the legislation or **backed by clearly-worded SoPs**.
- The current regulatory framework allows the **Central and state government directly or notified** agencies to conduct an interception of the communication without any oversight or contestation of the Parliament and judiciary.

Competent authority are executives acting as judges for their own cases

- The **Information Technology** (Procedure and Safeguards for Interception, Monitoring and Decryption of Information) **Rules, 2009**, provides that no agency or a person can perform interception **without direction and approval of the competent authority**.
- The **definition of the competent authority** under the rules remains at an **inter-department level**, at present, the Home Secretary or Joint Secretary (in case of emergency during the absence of the Home Secretary).

- This authorisation mechanism of interception **within the executive wing** without any **parliamentary or judiciary** oversight or involvement is meagre.
- This is especially concerning as the **maximum number of fundamental rights breaches are against the state**, whereas excessive executive oversight has also kept the **judiciary at arm's length**.

Financial dispensation not scrutinized by PAC

- While the Public Accounts Committee (PAC), formed by the parliament, audits the revenue and expenditure of the state, the national security funding like the **National Technical Research Organisation** budget is categorised as **special funds** which don't **come under the purview of the PAC**.

Road Ahead:

- As a country that houses one of the largest democracies, our duty to **empower our citizens towards their rights** is as important as **our duty to preserve national security**. At present, the legislation thrust apparent through the amendments made to the IT Act 2000 via the IT Rules 2021 and the wide exemptions to government and allied agencies in the proposed Data Protection Bill 2021 are taking the route that **prefers to exempt or weaken privacy practices towards citizens** as opposed to putting in place privacy-respecting practices. An unfortunate consequence of adopting such methods is that often this **compromises the privacy and security of law-abiding citizens themselves**.

EXPLAINED | HOW DID THE ABG SHIPYARD FRAUD HAPPEN?

The **Central Bureau of Investigation (CBI) filed a first information report (FIR) against** the former top officials of **ABG Shipyard** in the biggest known case of bank fraud in the country.

- Former officials have been charged with causing “**wrongful loss**” of **Rs. 22,842 crores** to an

ICICI Bank-led consortium of banks that also includes the State Bank of India.

- The Congress has accused the **Bharatiya Janata Party** government of a delay in filing the FIR, an allegation the BJP has dismissed.
- Earlier, in 2018, diamond merchants **Nirav Modi** and **Mehul Choksi** had committed fraud using

unauthorised letters of undertaking that caused a loss of more than Rs. 11,000 crores to Punjab National Bank.

What was the trouble at ABG Shipyard?

- ABG Shipyard, called itself India's largest shipbuilding and ship repair company in the private sector, saw an **accelerated fall** after 2011-12, the year in which it made its highest revenues. By 2014-15, its **revenues were just one-sixth of its peak**.

Promises by ABG:

- In its heyday, ABG Shipyard regularly highlighted its ability to construct **all types of quality ships, offshore rigs and specialised vessels**. It also got **orders from the Government**.
- The fall in its fortunes is linked to the global crisis that impacted the whole shipping industry. The SBI, recounting the history of this case in its complaint letter to the CBI, traces the crisis to a fall in commodity demand and prices and, subsequently, a fall in cargo demand. This, it says, led to order cancellations and an inventory pile-up, which then reflected in the books as a severe financial problem.

Debt Restructuring

In **March 2014**, the high debt-laden ABG Shipyard undertook a **Corporate Debt Restructuring scheme**, according to it:

- Lenders gave a brief **moratorium on interest rates, an extension of the repayment period**, a reduction in interest rates, among other such measures.
- In **2015**, it incurred a huge loss of over Rs. **900 crores**, its long-term borrowings, largely from banks, had crossed Rs. 4,300 crores.
- **The debt restructuring exercise failed**, with the company itself admitting in a BSE notice that it had defaulted in loan payment as well as in the terms of the scheme.
- The **consortium of banks declared the ABG Shipyard** accounts as a **non-performing asset**, but backdated with effect from **November 30, 2013**.

- In **2017**, ICICI successfully introduced insolvency proceedings against ABG Shipyard at the **National Company Law Tribunal**, which in **April 2019 ordered its liquidation**.
- The **claim amount** for ICICI Bank from ABG Shipyard is Rs. **7,089 crores**; IDBI Bank comes next (Rs. **3,639 crore**), followed by SBI (Rs. **2,925 crore**).

When did the scam take place?

- The fraud came to light when **Ernst Young (EY)**, which was appointed as a **forensic auditor** in 2018, submitted its report in January 2019. The period studied was between April 2012 and July 2017.
- The report reveals that the accused have colluded together and committed **illegal activities including diversion of funds, misappropriation and criminal breach of trust** and for purposes other than for the purpose for which the funds are released by the bank.
- The funds were allegedly used for unstated purposes, **investments were made through a Singapore-based subsidiary** and there were pay-outs running into hundreds of crores to related parties. **Properties were also bought from the funds provided by ABG Shipyard**.

Complaint:

- The **SBI filed the first complaint** in November 2019. Almost all the banks in the consortium had reported the account as fraud within about a year of the EY forensic audit report. The first to do so was Exim Bank (March 2019). This was followed by ICICI Bank (April 2019). SBI did so in June that year.

CBIs clarifications over SBI's complaint

- In March 2020, the CBI had sought clarifications on the **SBI's the absence of any internal investigation**. The SBI responded to this by pointing to the process by which it declared the account a fraud.
- One other CBI query in the March 2020 follow-up raised the **issue of consent of other consortium members in filing the complaint**. This, the SBI responded to by saying

it hadn't received the mandate of the other members at the time of filing of the first complaint but that many of them had provided consent for the same in meetings thereon.

Opposition vs Ruling government on NPA:

- **Opposition:** Why an FIR wasn't lodged despite the liquidation process starting five years ago, and the account being declared a fraud in 2019.
- **Ruling government:** In November 2013 it was declared a non-performing asset (NPA). After that, because a consortium of banks has had business with them, they have all sat together to see how best any restructuring can be done, which is a due process done for any account

under stress. **In general, for any account it takes 52 to 54 months to scrutinise it.** To the banks' credit they have taken lesser time than what is normally the average to detect this kind of fraud.

Road Ahead:

- The need of the hour to tackle NPAs is some urgent remedial measures. This should include: Technology and data analytics to identify the early warning signals, Mechanism to identify the hidden NPAs, Development of internal skills for credit assessment, Forensic audits to understand the intent of the borrower.

SEMINAR AT EXPO 2020 DUBAI SHOWCASES INDIA'S EXPORT POTENTIAL OF MILLETS, WAYS TO UPSCALE THE VALUE CHAIN

As part of the ongoing 'Food, Agriculture and Livelihood' fortnight, the India Pavilion at EXPO2020 hosted a seminar – 'India: Millet's production and upscaling value chain'. Senior government officials and sector experts deliberated on opportunities for Indian industry players producing and processing millets, to enhance the export potential of the country during the session.

- Speaking at the session, it was mentioned that, "We urge the start-ups and Farmer Producer Organizations (FPOs) to not only help in upscaling millets' value chain, connecting to domestic and international markets but also to creating an inclusive framework where we take producing communities along."
- The UN General Assembly adopted a resolution sponsored by India and supported by over 70 nations declaring 2023 as the 'International Year of Millets', aimed at raising awareness about the health benefits of the grain and its suitability for cultivation under changing climatic conditions.

Millets

- Millets are group of small grained cereal food crops which are **highly tolerant to drought and other extreme weather conditions** and are **grown with low chemical inputs** such as fertilizers and pesticides.

- Most of millet crops are native of India and are popularly known as **Nutri-cereals** as they provide most of the nutrients required for normal functioning of human body.
- Millets are classified into **Major Millets and Minor Millets** based on their grain size. **Pseudo millets** are so called because they are **not part of the Poaceae botanical family**, to which 'true' grains belong, however they are nutritionally similar and used in similar ways to 'true' grains.
- Millets are nutri cereals comprising of **sorghum, pearl millet, finger millet (Major millets) foxtail, little, kodo, proso and barnyard millet (minor millets)**. These are one of the oldest foods known to humanity. These are one of the several species of coarse cereal grasses in the family poaceae, cultivated for their small edible seeds.

Benefits of Millets

- It can give futuristic hopes and can help in **maintaining climate change**.
- It provides **everlasting nutrition**.
- **Long shelf life** facilitates their storage.
- It can **reduce the risk of chronic disease and promotes digestion** as it acts as anti-acidic.

- It can be **grown in less water** that's why it is drought tolerant.
- It provides **vitamins, minerals and fibres**.

FPOs

- FPO stands for Farmer Producer Organizations. FPO is an organization, where the **members are farmers itself**. Farmers Producers Organization provides **end-to-end support and services to the small farmers, and cover technical services, marketing, processing, and others aspects of agriculture inputs**.
- The major operations of Farmers Producer Organization (FPO) include the **supply of seed, machinery, market linkages & fertilizer, training, networking, financial and technical advice**.

Benefits of FPOs

- It helps farmers **make their cropping decisions based on next year's prices rather than last year's rates as well as break the crippling hold of middlemen and traders** and ultimately boost income for agricultural families.
- Farmer Producer Organization is promoted under **"One District One Product" to promote the specialization and better branding, marketing, processing and exports by FPO**.
- The goal is to **enhance the farmers' competitiveness and to increase their advantage in emerging the market**

THERE ARE JOBS, DISCOVER THEM

A few days ago, a news item caught attention. It was about the number of persons on the live register of the Employment Exchanges in Tamil Nadu. These are depressing numbers. Notably, these are of Tamil Nadu, a reasonably developed state.

- On March 31, 2021, there were 8,72,243 vacancies in the Central government and the government filled 78,264 vacancies. Nearly 8 lakh posts are vacant. There are jobs everywhere, but we do not make the effort to discover them.

Employment

opportunities. The main objective of an FPO is to **ensure better income** for the producers through an organized system of their own.

- Through accumulation, the primary producers can avail the benefit of the economies of scale. Farmers Producers have **better bargaining power** in the form of bulk buyers of produce and bulk suppliers of inputs.

Road Ahead:

- Millets have health benefits and can reduce obesity and malnutrition. It is well marked on vitamins, minerals and phytochemicals and it also helps beat hypertension, colon cancer and cardiovascular diseases as it reduces triglycerides present in the body. Now with the onset of the International Year of millets, India is ready to lead the world by sharing best practices, technologies, the goodness of millets and established values and experience with other countries.
- The Farmers Producer Organization provide adequate training & handholding and the CBBOs provide the initial training. Priority is given for the formation of Farmer Producer Organization in aspirational districts with at least one FPO in each block of the aspirational districts. It is a farmer organization from top to bottom, providing essential services to the farming community. Hence, the acceptance level in the farming community is high.

- Employment is the agreement which is performed between employer and employee which determines the task, the job role, the way of service and the contribution the employer must provide to the organization. Based on the job role and various other aspects a certain amount of remuneration and facilities is decided by employee which is provided in exchange of his service.

Importance of employment

- **Politically**, employment opportunities give the population a stake in the peace process by

providing young men and women with alternatives to violence.

- **Economically**, employment provides income to poor families, revives domestic demand for goods and services, and stimulates overall growth.
- **Socially**, employment can also promote social healing, encourage the return of displaced persons, and improve social welfare in the long run.

What Is Unemployment?

- The term unemployment refers to a situation when a person who is actively searching for employment is unable to find work. Unemployment is considered to be a key measure of the health of the economy.
- The most frequent measure of unemployment is the unemployment rate, which is the number of unemployed people divided by the number of people in the labour force. Many governments offer unemployment insurance to certain unemployed individuals who meet eligibility requirements.

Types of Unemployment

- **Frictional unemployment** occurs when people voluntarily change jobs within an economy. After a person leaves a company, it naturally takes time to find another job.
- Similarly, graduates just entering the workforce add to frictional unemployment. This type of unemployment is usually short-lived. It is also the least problematic from an economic standpoint.
- **Cyclical unemployment** is the variation in the number of unemployed workers over the course of economic upturns and downturns, such as those related to changes in oil prices. Unemployment rises during recessionary periods and declines during periods of economic growth.
- **Structural unemployment** comes about through a technological change in the structure of the economy in which labour markets operate.
- **Technological changes**, such as the replacement of horse-drawn transport by automobiles or the automation of manufacturing,

lead to unemployment among workers displaced from jobs that are no longer needed.

- **Institutional unemployment** results from long-term or permanent institutional factors and incentives in the economy. The following can all contribute to institutional unemployment:
- **Government policies**, such as high minimum wage floors, generous social benefits programs, and restrictive occupational licensing laws
- **Labour market phenomena**, such as efficiency wages and discriminatory hiring
- **Labour market institutions**, such as high rates of unionization

Causes of Unemployment

- Unemployment is caused by various reasons that come from both the demand side, or employer, and the supply side, or the worker.
- **Demand-side reductions** may be caused by high interest rates, global recession, and financial crisis. From the supply side, frictional unemployment and structural employment play a great role.

Employment strategies used to reduce employment

- Both the **organised and un-organised sectors must adopt labour-intensive technology** if sufficient employment opportunities are to be generated in both the rural and urban sectors of the economy.
- **Accelerating Investment in Agriculture in irrigation, rural roads, flood control projects, power generation and other infrastructure.** More credit to farmers at lower than market rates of interest from commercial banks will also ensure that the **small and medium farmers will be able to buy fertilizers, other high-yielding inputs, and arrange for their irrigation.**
- There is urgent **need for diversification of agriculture.** For example, there is an urgent need for a **relative shift from growing of crops to horticulture, vegetable production, floriculture, animal husbandry, fisheries etc.** which are more labour absorbing and higher income-yielding. In addition to this, promotion of

agro-processing industries for export purposes has a large employment potential.

- **Vacancies in many sectors should also be fulfilled. Providing skill development training** for upcoming technologies will also harness employment generation such as in sectors of AI, Machine Learning, etc.
- The **expansion of education and health care** not only promotes accumulation of human capital and thereby contributes to growth of output, it will also generate a good deal of employment opportunities.
- **More schools, hospitals, health care clinics in the rural and urban areas will not only create employment during their construction but also, and more important,**

when they start working to provide education and health services.

Road Ahead:

- India's most important need is jobs. The sectors that have the potential to create millions of jobs like teachers, librarians, arts & crafts gurus, coaches, lab technicians, designers and architects, city planners, engineers, forest guards, fishers, veterinarians, milk producers, poultry farmers, etc. running into hundreds of categories.
- MSMEs, particularly small and medium units, are the most prolific job-creators and hirers. Once jobs are created, they will start their own virtuous cycles – related jobs, incomes, wealth, tax revenues, care for the environment, charity, support for the fine arts and literature, and so on.

BYANJANA DWADASHI: HOW A 500-YEAR-OLD FESTIVAL IN ODISHA SYMBOLISES COMMUNITY, FOOD SECURITY AND BALANCED DIET

It is a gastronomic and epicurean delight with at least 701 dishes being prepared. Many criticise it as extravagance and a wastage of food. But the tradition of Byanjana Dwadashi that ended in Odisha's temple town of Puri, is a great step towards promoting food security.

Byanjana Dwadashi

- Byanjana Dwadashi is celebrated by **adherents of Vaishnavism**, the largest sect within Hinduism, which recognises Vishnu and his incarnations such as Krishna as the Supreme Godhead.
- The festival celebrates a variety of food (Byanjana in Odia) on the **12th day (Dwadashi) of the Sukla Paksha** or waxing phase of the moon **in the month of Margashira** (mid-December to mid-January).
- **Vaishnavites**, through this festival, commemorate an episode of the Mahabharata where **Yashoda observes that her son Krishna is pale and weak**. She realises that this is **because of lack of proper nutrition at a time when Krishna has devoted all his energy in fighting demons**.
- In order to fulfil his nutritional requirements, she prepares a lot of delicacies and feeds

him. **Krishna is not the only consumer of these delicacies. His friends – the Gopala Balakas or the cowherd boys – also eat with him.**

- The whole process symbolises the concept of **'Food for all'**. The kitchen may be one, but food should be for all – the very idea of community kitchen during times of crisis like the ongoing pandemic.

Balanced diet for nutrition

- Traditional Odia food is **low on oil and spices and is delightfully tasty, flavourful and healthy**.
- Festivals like Byanjana Dwadashi which celebrate our **traditional food prepared using locally available ingredients with traditional methods** are a great way to address hidden hunger or micro-nutrient deficiency.
- The **combination of food grains, pulses, vegetables, greens, roots, fruits, dairy, natural sugars like molasses and locally prepared oil and ghee** gives a wholesome meal. Byanjana Dwadashi should be an

inspiration to include balanced diet in our lifestyle.

- The hygiene aspect is also given utmost importance starting from preparation to consumption. It is **mandatory for the cooks and their helps to bathe and wear clean**

clothes before entering the kitchen. Each of them covers his / her mouth and head properly while cooking and serving food.

- The **consumers' hygienic status** is also important. One can get food only after washing his/her hands, feet and face properly.

48th KHAJURAHO DANCE FESTIVAL BEGINS IN MADHYA PRADESH

The 48th Khajuraho Dance Festival commenced from today in Madhya Pradesh. The weeklong festival will be held till February 26th. Governor of Madhya Pradesh Mangubhai Patel inaugurated the festival at Khajuraho this evening.

- The festival is being organized on the theme of Azadi ka Amrit Mahotsav. Renowned artists from across the country and the world are performing at the festival. On the first day Kathak performance by the disciples of late Pandit Birju Maharaj, Kalashram New Delhi is centre of attraction.
- Besides dance performances tourists are getting acquainted with the local culture, art and food by participating in interesting activities like heritage run, village tour, water rafting, e bike tour organised by tourist department during the festival.

About Khajuraho Dance Festival

- The festival is an **annual feature of dance and music** held in the month of March. Artists of national eminence are invited' to perform.
- **Originally conceived by the Madhya Pradesh Tourism Development Corporation, the Festival was first organised in 1975 to coincide with the India Tourism Year.**
- It marked the beginning of an **experiment in organised planning and integrated development of Khajuraho as a tourist resort.**
- It was thought that a **cultural extravaganza in March might help improve tourist arrivals in the lean period,** prolong their duration of

stay and, in general, provide a boost to tourism development here.

- The staging of a festival of dance and music is **aimed at improving the value of temples as a place of tourist attraction.**

Khajuraho School of Temple Architecture

- In the central part of India, the **Chandela rulers** developed a distinct style of temple making of their own – known as Khajuraho School or Chandela School.

The features of the temples included:

- In these temples, **both the interior and exterior walls were lavishly decorated with carvings.**
- The sculptures were generally **erotic in their themes and drew inspiration from Vatsyayana's Kamasutra.**
- The temples were **made of sandstone.**
- The temples had **three chambers – Garbhagriha, Mandapa and ardhmandapa.** Some temples had a vestibular entrance to the garbhagriha known as antarala.
- The temples were generally **north or east facing.**
- **Panchayatan style** of temple making was followed. The subsidiary shrines had **rekha-prasad shikharas** creating an impression of a mountain range.
- The temples were built on relatively **high platform and belong to Hindu as well as Jain religion.**
- Examples: **Kandariya Mahadev Temple, Lakshmana Temple** at Khajuraho, etc.

CHINA LOVES GUNTUR CHILLIS – HOW THE ANDHRA DISTRICT PRODUCED A SPICY GLOBAL PRODUCT

Under the **One District One Product Initiative**, Guntur, Andhra Pradesh declared its famous **chilli** as its signature product, hoping to leverage resources to promote its produce globally – 29 other districts followed suit, each declaring chillies their unique, signature product and setting the stage for a nationwide chilli faceoff.

- Order any Szechuan dish in China and the odds are that its famously spicy flavour comes from the Guntur chilli. China is the world's second-largest producer of chillies, yet since 2017-18 it has grown dependent on India, becoming the largest exporter of our red chillies. The Chinese prefer India's spicier and more pungent chilli to their own.

ODOP (One District One Product)

- **Launched in 2018**, India's ODOP (One District One Product) Initiative played a key role in opening up domestic Indian markets to China.
- Aimed at **promoting 'balanced regional development across all the districts of the country,'** the move has helped Indian producers discover new markets for their products.
- Under the initiative, district export hubs have been created that would push unique, local, and differentiated products globally.
- Each district came up with its **unique, signature product and the programme would help them identify and develop unique, geographically indicated district-specific products**, and promote them in global markets.

- **Kishtwar in Jammu and Kashmir chose saffron, Virudhanagar in Tamil Nadu chose its famous Sivakasi fireworks**, and so on.
- Under Aatmanirbhar Bharat programme, **the Ministry of Commerce promoted 106 products across 103 districts in the initial phase.**
- The USP of the initiative was that **each district would identify its unique differentiator and develop the capacity to become a world leader in production and export of that product.**

About Guntur Chilli

- Guntur Chilli is Originating from the **Guntur district, Andhra Pradesh.**
- It has **rich red color and hot flavour with high pungency** which is widely used in the preparation of various Indian dishes to develop colour as well as flavour.
- Guntur chilli is also **rich in vitamin C and Protein.**
- India today is the **world's largest producer and exporter of chilli** and is home to almost two dozen varieties.
- Almost **40 per cent of India's chilli production comes from Andhra Pradesh**, which is home to the **Guntur Mirchi Yard, Asia's largest chilli trading market.**

EMERGING CONTOURS OF SECURITY IN JAMMU AND KASHMIR

The violence in Jammu and Kashmir has comparatively declined in the last two years, with overall lesser number of terrorist incidents and killings of security forces and civilians than before. More importantly, after the **abrogation of Article 370** in August 2019, the security forces have succeeded in keeping in check mass protests and anti-state political mobilisation.

- To bring Jammu and Kashmir back on the path of normalcy, the decline in violence should pave the

way for **strengthening of democratic institutions at the grassroots level.** The dominant counter-terrorism paradigms consider **promotion of democracy** as the best method to decrease the utility of violence perpetrated by armed organisations. In absence of the democratic forms of government, people can easily be swayed by radical narratives.

Change on Ground

- In the last couple of years, the **security forces have also managed to curb external influence by reshaping the anti-infiltration grid**. The incidents of infiltration from across the border reported after August 2019 are comparatively lesser in number. The net infiltration in 2021 till 31 October drastically came down to 28.
- The majority of the militants killed in Jammu and Kashmir last year belonged to outfits like **Jaish-e-Mohammad (JeM) and Lashkar-e-Taiba (LeT) and The Resistance Front (TRF)**, which police claims is an offshoot of LeT and emerged after August 2019.
- Another interesting fact is that in the year 2021, out of the militants killed in Jammu and Kashmir, only 19 per cent were of Pakistani origin. This **declining trend has been there since 2018**. Before that the figure was much higher at 60 per cent.
- Experts believe that the dip in Pakistani terrorists operating in Jammu and Kashmir is because of a **policy shift by Pakistan**. Pakistan certainly **cannot afford to be seen as a sponsor of cross-border terrorism while the sword of Financial Action Task Force (FATF) is hanging over its head**.
- One more possible reason behind the policy shift might be its **preoccupation in Afghanistan**. Will the presence of foreign terrorists increase in Jammu and Kashmir after Taliban strengthens its control over the country is an elusive question for now, because it is not clear whether Taliban is willing to do Pakistan's bidding or not.

Hybrid Militancy: A New Challenge

- According to police officials in Jammu and Kashmir, hybrid militants are **"terrorists disguised as civilians"**. They are **not listed anywhere in police records**. They carry out attacks and go back to live their normal lives which makes it difficult for the police to apprehend them.

- This is a challenge not only because **they cannot be easily identified and apprehended**, but also because most of the ideologically oriented people will find it convenient as there are very less risks involved in operating as a hybrid militant.
- All the **difficulties that terrorists generally face as active members of terrorist organisations like adjusting to a military style, personal insecurity and disillusionment with group's ideology are not involved here**.
- The **members of minority community in Kashmir and non-local labourers were selectively targeted, which led to the migration of thousands of non-locals from the valley**. The manner in which the killings took place reflected a paradigm shift on ground.
- The worrying factor is that **most of the attacks on civilians and other soft targets were done by pistol-borne youths who are not registered as militants in the police records**. This is going to be a challenge for security agencies as it won't be possible to keep an eye on highly radicalised youths who remain deeply embedded in a society.
- The **ideological orientation needed for taking the risk of carrying out an attack is not possible in the safe and insulated environment of a family**. The terrorist organisations in general use different instruments to motivate individuals for specific actions. These include **ideological appeal, selective incentive and coercion**.

Road Ahead:

- The decline in terrorist incidents and reduction in infiltration from across the border is no doubt a positive development but this alone cannot guarantee peace in Jammu and Kashmir. The figures and data cited earlier should not in any way anesthetize the Jammu and Kashmir administration and concerned security officials into believing that everything is normal.

- Despite the decimation of the organisational structure of terrorist organisations by security forces, the Kashmiri local youths are still motivated to join the militant ranks, albeit in lesser number. The alienation of people within Jammu and Kashmir and their willingness to take up arms should be a concern.

- The past experiences suggest that the external intervention without indigenous mobilisation has failed to destabilise Jammu and Kashmir. It is high time to address alienation of people by starting a democratic process so that they are able to choose their representatives and voice their concerns in a democratic manner.

VACANT FOR MORE THAN A MONTH, THE CDS'S ROLE IN AN INDIA THAT IS NUCLEAR NEEDS A SERIOUS REJIG

India is temporarily back to the erstwhile system of a rotating chairman of the chiefs of staff committee (COSC) in which the senior most serving service chief tenanted the appointment. It's now well over a month since General Bipin Rawat's untimely demise in the saddle, but the new chief of defence staff (CDS) has not been appointed as yet.

Chief of Defence Staff

- The **Kargil Review Committee**, headed by Shri K Subrahmanyam in 1999 had recommended **comprehensive review of the National Security frame work for improved decision-making in defence matters**.
- The Committee also recommended that the mechanisms established between the Defence Ministry and the Service Headquarters and the interface between them, should be holistically studied and reorganised.
- Based on **Shri K Subrahmanyam Committee Report**, a Group of Ministers (GoM) in 2001 recommended creation of the post of the Chief of Defence Staff.
- The Cabinet Committee on Security on 24th December 2019 took the historic decision to create the post of the Chief of Defence Staff (CDS) to enhance the quality of Military Advice to Political Leadership through integration of Service inputs.
- This historic step aims to **develop and foster expertise in defence matters for better and more informed decision making. The Chief of Defence Staff is the Permanent Chairman of the Chiefs of Staff Committee and acts as the Principal Military Adviser to Raksha**

Mantri on all tri-services matters so as to provide impartial advice to the political leadership.

- The Cabinet Committee on Security, had also approved the creation of the Department of Military Affairs. The overarching principle of this arrangement is that work related to Military Affairs is to be done only by the 'Department of Military Affairs'.
- While the **Department of Defence will deal with issues related to the defence of the Country, including defence policy**. This positive change has been warmly welcomed by the Armed Forces, as well as the Strategic Community.
- The creation of the '**Department of Military Affairs' (DMA)** in the Ministry of Defence and the appointment of the **Chief of Defence Staff as the Permanent Chairman of the Chiefs of Staff Committee (COSC)** as well as the **Secretary of the Department of Military Affairs**, is the most significant and important reform in the Higher Defence Organisation. For smooth transition, 159 personnel from the '**Department of Defence**' were transferred to the newly created '**Department of Military Affairs**'.

Benefits of Transformation

- A concerted effort is being made to move forward from a **Single Service approach to integrated planning and execution**. Towards this, **three Joint Doctrines** have been formulated in the last one year, while four new

joint doctrines namely **Capstone, Space, Cyber and Intelligence Surveillance and Reconnaissance (ISR)** are at an advanced stage.

- Bring about **reforms in the functioning of the three Services** aimed at **augmenting combat capabilities** by **reducing wasteful expenditure**.
- **Promote use of indigenous equipment and usher self-reliance in the Defence Industrial Sector**. Ensure **optimal utilisation of Infrastructure and rationalise it** through Jointness among the Services.
- **Integrate and rationalise International Cooperation Plans** of the Services in coordination with Ministry of External Affairs.

- **Promote greater Jointness and Standardisation between the Services**. Formulate **Joint Promotion Policy for the Services**. Promulgate **Joint Staff Assignments for Career Progression and increase cross staffing**.

Way Forward

- The Department of Military Affairs (DMA), by virtue of being a truly integrated department, will achieve better results at all levels through effective coordination between the Armed Forces and the Civil Services.
- This will help facilitate inter-service integration and better civilian-military coordination in the Nation's Higher Defence Organisation. It will also strengthen the process of Joint Planning, Operations and Procurement, thereby making Armed Forces more effective and efficient.

UNION BUDGET WILL BE OF GREAT HELP IN IMPLEMENTING NATIONAL EDUCATION POLICY

Prime Minister Narendra Modi has said that the decision to set up a **National Digital University** will solve the problem of **shortage of seats in educational institutions** in India. Addressing a webinar on the positive impact of the Union Budget 2022-23, Mr Modi urged all stakeholders to ensure that the digital university start functioning as soon as possible.

National Digital University:

- Educational infrastructure such as **e-Vidya, One Class One Channel, Digital Labs and Digital University** are going to help students a lot.
- Emphasising that education in mother tongue is **related to the students' mental development**.
- Union Budget for 2022-23 will **greatly help implement the National Education Policy (NEP) on the ground**.
- The budget focuses on **five aspects** related to the education sector -
- **Universalisation of quality education.**
- **Skill development.**
- **Urban planning and design.**

- **Internationalisation**
- **AVGC (Animation Visual Effects Gaming Comic)**.
- To make available to the learner's community learning resources through a single-window, National Mission on Education through Information and Communication Technology (NMEICT) has sponsored the National Digital Library of India (NDLI) project and arranged funding through Ministry of Education.

What can be done to access Education Digitally?

- **Teachers need to be trained** for better delivery of digital tools.
- The **demographic dividend needs to be prepared quickly** in accordance with global talent demands and introduction of new job roles.
- The **academic and industry need to work together**.
- **e-content needs to be started in digital version** in regional languages via TV, internet, radio.

- The **curriculum for Indian sign language is being developed to help physically challenged people.**

Way Forward

- Innovation ensures inclusion and the country is moving towards integration. Modernity in budget includes such as Evidya, one class one channel, digital labs, digital universities, will help

UNION MINISTER FOR CULTURE, SHRI G. KISHAN REDDY WILL INAUGURATE ONE OF ITS KIND CONFERENCE ON INDIAN TEMPLE ARCHITECTURE 'DEVAYATANAM' AT HAMPI

Under the aegis of Azadi Ka Amrit Mahotsav, Archaeological Survey of India (ASI) of Ministry of Culture, Government of India is organizing an international conference 'Devayatanam – An odyssey of Indian temple architecture at Hampi, Karnataka.

Devayatanam

- The conference aims to deliberate upon the **philosophical, religious, social, economic, technical, scientific, art and architectural aspects of temple.**
- It also intends to initiate a dialogue on the **evolution and development of the various styles of temple architecture such as the Nagara, Vesara, Dravida, Kalinga and others.**
- The inaugural session will take place at **Pattabhirama Temple, Hampi** while the academic sessions will be held in Auditorium, Kannada University, Hampi.
- Various sessions of discussions include **Temple-From the Formless to Form, Temple-Evolution of Temple Architecture, Temple-Regional Development Forms and Styles, Temple-Epicentre of art, culture, education, administration and economy, Temple-Protector of environment, Temple- Culture diffusion in South east Asia.**
- The conference will be **beneficial for scholars, students of Indian history, archaeology, culture and architecture and general public.** The aim of the conference would be creating interest among scholars and students alike, to learn and respect our heritage.

youth and assist socio-economic setup while providing better education to poor, scheduled caste (SC) etc.

- It is a unique, unprecedented idea which will help solve seat problems in the country as unlimited seats for every subject will be available. This university will transform education world.

About Hampi

- It is referred to as the Group of Monuments at Hampi, is a **UNESCO World Heritage Site located in east-central Karnataka, India.** Hampi was the capital of the Vijayanagara Empire in the 14th century. It is a **fortified city.**
- Chronicles left by Persian and European travellers, particularly the Portuguese, say that **Hampi was a prosperous, wealthy and grand city near the Tungabhadra River, with numerous temples, farms and trading markets.**
- By 1500 CE, Hampi-Vijayanagara was the **world's second-largest medieval-era city after Beijing,** and probably **India's richest at that time,** attracting traders from Persia and Portugal. Hampi predates the Vijayanagara Empire, it is **mentioned in the Ramayana and the Puranas of Hinduism as Pampaa Devi Tirtha Kshetra.**
- Hampi continues to be an important religious centre, housing the **Virupaksha Temple, an active Adi Shankara-linked monastery and various monuments** belonging to the old city.
- The **Virupaksha temple** is the oldest shrine, the principal destination for pilgrims and tourists, and remains an active Hindu worship site. Parts of the Shiva, Pampa and Durga temples existed in the 11th-century; it was extended during the Vijayanagara era.
- The temple is a collection of smaller temples, a regularly repainted, 50-metre (160 ft) high gopuram, a **Hindu monastery dedicated to Vidyaranya of Advaita Vedanta tradition, a**

water tank (Manmatha), a community kitchen, other monuments and 750 metres (2,460 ft)-long ruined stone market with a **monolithic Nandi shrine on the east end.**

- The **temple faces eastwards, aligning the sanctums of the Shiva and Pampa Devi** temples to the sunrise; a large gopuram marks its entrance.
- The superstructure is a **pyramidal tower with pilastered storeys** on each of which is artwork including erotic sculptures.
- The **gopuram leads into a rectangular court** that ends in another, smaller gopuram dated to 1510 CE.
- The **Vitthala temple** and market complex is over 3 kilometres (1.9 mi) north-east of the Virupaksha temple **near the banks of the Tungabhadra River.** It is the most artistically sophisticated Hindu temple in Hampi, and is part of the sacred centre of Vijayanagara.
- The **Mahanavami platform, also called the "Great Platform", "Audience Hall", "Dasara" or "Mahanavami Dibba"** monument, is within a 7.5-hectare (19-acre) enclosure at one of the highest points inside the royal centre (urban core).
- It has ceremonial structures.
- It is mentioned in the memoirs of foreigners who visited Vijayanagara, some calling it the **"House of Victory"**.
- The **largest monument in this complex** has three ascending square stages leading to a large, square platform that likely had a wooden mandapa above it.
- This was burnt down during the destruction of Hampi.
- The **Pattabhirama temple complex** is in the southern suburban centre outside the sacred centre and the urban core, about 500 metres (550 yd) from the **ASI Hampi Museum.**
- It was at the **nucleus of economic and cultural activity** of this suburb, now located north-east of Kamalapura.

- The complex, also known as **Varadevi Ammana Pattana,** was likely built in the early 16th century and dedicated to Rama (Vishnu avatar).
- The Pattabhirama temple included a **100-pillared hall**—likely a feeding hall—attached to the southern wall of the enclosed compound.
- The pillars have reliefs **depicting Hindu themes which include gods, goddesses, a scene from a Hindu text, yoga and namaste.**

Vijayanagara School

- The rulers of the Vijayanagara Empire (1335-1565 AD) were great patrons of art and architecture with capital at Hampi (Karnataka). They **combined the features of Chola, Hoysalas, Pandyas, Chalukyas architectural styles.**
- Under them, the **architectural style began getting influenced by the Indo- Islamic style of Bijapur,** which in turn was reflected in the temples built during this period.

The features of the Vijayanagara temples

- The walls of the temples were **highly decorated with carvings and geometrical patterns.** The **concept of secular buildings** inside the temple premises was also introduced during this period.
- **Gopurams,** which were previously present on the front side, were now **built on all the sides.**
- **Monolithic rock pillars.** Generally, temple pillars had a **mythical creature Yali** engraved in them.
- The **enclosing walls were larger.** Temple complex was **enclosed by boundaries.**
- **More than one mandapas were built in each temple.** The central mandap came to be known as **kalyana mandapa** (dedicated to divine marriage).
- Examples: **Vittalaswami Temple Complex, Lotus Mahal, Virupaksha Temple and Raghunatha Temple at Hampi, etc.** Rock-cut

idol of Narasimha on Shesha (snake) at Hampi is a marvel in itself.

Way Forward

- Temple has always been an integral part of the Indian life and its ecosystem in its own ways. Temple construction was practiced as a pious act

WHY LAKHS OF INDIANS GO ABROAD TO STUDY

A recent report estimates that about 8 lakh students travel abroad for higher education every year and spend \$28 billion or 1 per cent of our GDP on this. Of this, about \$6 billion are fees that go to foreign universities.

Statistics

- CAG report stated that, the **eight new IITs started in the period 2008-2009 are not doing well at all**. The clutch of new private universities too has not managed to dent the exodus of students and wealth.
- There are **only about 10 lakh fresh jobs available each year**. This includes both public and private sector jobs.
- From the income tax department data of the last few years, we see that there are **about 3 crore taxpayers**. Taking two-thirds of these as the number of salaried people and assuming an average tax-paying life of 20 years.
- From the MHRD data, we see that **India graduated about 30 lakh students last year from about 45,000 colleges**.
- Given the recent employment data, there may be about **1 crore unemployed graduates seeking jobs**. This is 10 times the number of salaried jobs, 30 times the good jobs and 300 times the number of posh jobs available every year.

Problems in Indian Education System

- One of the major factors is the **lack of quality education** resulting in qualified but not employable category.
- One thing that the Indian Education System lacks is **market knowledge and functional aspect of literacy**.
- One of the factors why the capacity utilization is low in upcoming/new institutions/colleges is

not only in the subcontinent but the idea also travelled to the nearest neighbourhood such as south-east and East Asia; therefore, it becomes an interesting study as to how the art and technique of temple architecture spread from India to other regions and how this art was modified.

their **inability to provide necessary physical infrastructure to run the institutions**.

- The **infrastructure facilities** desirable to rank the institutions of better quality include real estate, state of the art class rooms, library, hostels, furniture, sports facilities, transport, commercial buildings, etc are lacking.
- Despite the large number of students studying in various streams, we have **not seen any major shift in the productivity as skills and talents** are deficient to support economic activities and, hence, there is a serious concern on employability of these educated persons.
- The **curriculum of some of the colleges/universities is more or less obsolete** and do not equip students with the necessary skills or impart latest knowledge.

Advantages of getting education abroad

- One of the biggest advantages is the **chance to become immersed in a totally different environment**.
- Studying abroad helps you to **learn new languages, appreciate other cultures, overcome challenges of living in another country** and gain a greater understanding of the world.
- Your exposure to many different types of people will not only **help you to develop your people skills**, but it will also give you a more in-depth knowledge of others, particularly those from different cultures.
- Moving abroad is the ultimate test in **self-reliance**.
- Another reason you might consider studying abroad is for the **chance to experience different styles of education**. By enrolling in a

study abroad program, you'll have the chance to see a side of your major that you may not have been exposed to at home.

What can be done to improve India's educational system?

- There is a **need for strengthening the vocational streams in schools/colleges**. It is urged to the universities/schools/colleges to regularly revisit their curriculum by involving experts from different fields so that the curriculum can lead to knowledge development.
- In order to **improve the skills and talent of our large populace**, there is a need for raising the quality and standards of our education system.
- There is need to **improve the student teacher ratio**. The attempt of Government authorities to increase the number of students by 2020 so as to **reach Gross Enrolment Ratio of 30 per cent**.
- The **collaborative efforts between universities/colleges and corporates would help in organizing joint research and development**, students getting exposure to industrial activities in terms of internships, corporate training during vacations and issuing of certificates by corporates for attending internship/training etc.

- It is useful to explore the **possibility of public private partnership (PPP) model in education**. This is not only going to reduce the burden of the Government in incurring high cost of providing basic infrastructure facilities but also lead to construction of state-of-the-art buildings, labs, libraries, hostels etc.

Road Ahead:

- The country is showing consistency in economic growth pattern, leading the world in terms of information and technology, modernization various economic activities and pushing for higher share of industries and services sectors of the economy but there is one area which needs reform is "education system". While it is true that some investments are taking place in the country's higher education system, we are yet to establish world class research facilities, recruiting profound academicians in universities/colleges/research institutions, etc. to sustain and forge lead in economic development.
- It is important to understand that countries like China, Singapore, South Korea, etc. are moving fast in investing in education system. Therefore, it is imperative that our educational institutions are equipped with the desired quality and standards which are essentials for transforming the younger workforce into productive ones.

REVISED CALENDAR FOR AUCTION OF GOVERNMENT OF INDIA TREASURY BILLS

After reviewing the cash position of the Central Government, the Government of India, in consultation with Reserve Bank of India, has decided to modify the amounts for the issuance of Treasury Bills.

- The Government of India in consultation with Reserve Bank of India will continue to have the flexibility to modify the notified amount and timing for auction of Treasury Bills depending upon the requirements of the Government of India, evolving market conditions and other relevant factors, after giving due notice to the market.

Treasury Bills

- These are **short term debt instruments issued by the government of India for a maturity of less than one year**.
- Treasury Bills are **zero coupon securities and pay no interest**. Instead, they are issued at a discount and redeemed at the face value at maturity.
- **Treasury Bills are traded in money market**.

Why does the Government issue Treasury Bills?

- A short-term treasury bill **helps the government raise funds** to meet its current obligations which are in excess of its annual revenue generation.

- Its issue is aimed at **reducing total fiscal deficit in an economy**, and also in regulating the total currency in circulation at any given point of time.
- The **RBI issues Treasury bills under its Open Market Operations (OMOs) strategy to regulate is inflation level** and spending/borrowing habits of individuals.
- It effectively **curbs the surging demand rates**, and in turn, high prices hurting the poorer section of the society.
- Its **disincentives individuals into channelling their resources**, thereby **boosting cash flows to the stock markets instead**, ensuring a boost in the productivity of most companies.

Types of Treasury Bills

- **14-day Treasury Bill**
- **91-day Treasury Bill**
- **182-day Treasury bill**
- **364-day Treasury Bill**

Features of Treasury Bill

- **Minimum investment** as regulated by RBI that the minimum of Rs. 25000 has to be invested by individuals.
- **Zero-coupon Securities** as they don't yield any interest on total deposits. Upon redemption, the entire par value of this bond is paid to investors, thereby allowing them to **realise substantial profits on total investment**.
- **Trading** forms an integral part of essential treasury bill details.

Advantages of Treasury Bills

- These are **risk free** as they are issued by RBI and backed by Central Government.

- Individuals look to generate **short term gains through secure investments** can choose to park their funds in such securities to **ensure liquidity**.
- They are **auctioned by the RBI every week through non-competitive bidding**, thereby allowing retail and small-scale investors to partake in such bids without having to quote the yield rate or price.

Limitations of Treasury Bills

- They are **known to generate relatively lower returns** when compared to standard stock market investment tools.
- **Total returns generated by such zero-coupon securities remain constant through the tenure of bond**, irrespective of economic conditions and business cycle fluctuations.
- It **comes in contrast to the stock market**, wherein market variations heavily influence returns generated by both equity and debt tools.

Road Ahead:

- A treasury bill is one of the most secure forms of investment available in the country. It is not only ideal for risk-averse individuals weary of stock market tools but is also popular for portfolio diversification in the case of experienced investors who allocate a portion of their funds into government securities to dilute the overall risk to their corpus. These sovereign bills play a crucial role in regulating the total money supply in an economy, which in turn, influences funds pooled into the capital market.



'MAKE IN INDIA' PROGRAMME GIVES BOOST TO INDIGENOUS PRODUCTION OF DEFENCE EQUIPMENT, SAYS CENTRAL GOVERNMENT

Defence Make in India Program is in the news?

Unfazed by the disruptions caused by Covid-19 pandemic, Micro, Small and Medium Enterprises (MSMEs) in the country have lined up to support the indigenisation programme of the Indian defence forces.

Indigenisation of Defence sector in needed?

- There will be **reduction in fiscal deficit**.
- **National Security** will be provided against its porous borders and hostile neighbours.
- **Employment** will be generated and helps India to become global power.
- **Fire of nationalism and patriotism** will be ignited with the **strong sense of integrity and sovereignty among the Indian forces**.
- It keeps intact the **technological advancement** and **expertise** and encourages spin-off technologies and **innovation** that often stem for it.

Impact of defence Make in India programme?

- It will **bolster exports** in long run.
- This will enable them to **leverage the domestic markets** as well as aim at global markets. Besides helping in building domestic capabilities.
- Favourable government policy promotes **self-reliance, indigenisation, and technology upgradation**.
- **India's extensive modernisation** plans with an increased focus on homeland security and

growing attractiveness as a defence sourcing hub.

What will be the opportunities for MSMEs through defence indigenisation?

- The government aims to **achieve the export target of 35,000 crore by 2024-25**. According to **Stockholm International Peace Research Institute 2020** report, India is in the list of top 25 countries in defence exports.
- Big defence platforms are assembled from numerous small parts and most of them are provided by the MSMEs.
- MSMEs create **value addition and bring innovation** as they are ready to take risk.
- They can be the best people to work with and in low cost.
- Outsourcing from MSMEs will not only help to **save cost and time** but also in **timely delivery of products**.

What are the challenges associated with MSMEs in defence sector?

- As the defence production targets vary on an annual basis, sourcing of components from MSMEs is **not a constant and sustained activity**.
- The **lack of state of art defence technology and poor production capabilities**.
- There is **lack of coordination** among big private organisations and MSMEs.

- Poor infrastructure, lack of awareness of available technologies.
- High R&D cost, unpredictable market, low volume and high-tech equipment, strict statutory requirements, high processing and monitoring cost of loans, licensing etc are the major issues faced by MSMEs.

Way forward

- MSMEs have the distinctive feature of producing diverse range of products and services to meet local as well as global markets. Indian government is welcoming the entire private and SMEs to participate in defence production. MSMEs have to find the solution to problems themselves to win.
- Ministry should come forward to help these SMEs by creating consortium where the small and medium and large players work together to develop niche technology.
- **Relaxation in loan repayment and interest, create facilities for testing of products, incentives to players on degree of indigenisation, encouraging exports and impose local offset on large players to involve small-medium players in manufacturing.**

Additional information:

Make in India:

- The Make in India initiative was launched by Prime Minister in **September 2014 as part of a wider set of nation-building initiatives.**

- It is being led by the Department of Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and industry.
- The primary objective of this initiative is to attract investments from across the globe and strengthen India's manufacturing sector.
- It was a powerful, galvanising call to action to India's citizens and business leaders, and an invitation to potential partners and investors around the world.
- Make in India is a major national programme of the Government of India designed to **facilitate investment, foster innovation, enhance skill development, protect intellectual property and build best in class manufacturing infrastructure** in the country.

MSMEs:

- MSME stands for Micro, Small, and Medium Enterprises. In accordance with the **Micro, Small, and Medium Enterprises Development (MSMED) Act in 2006**, the enterprises are classified into two divisions:
 - **Manufacturing enterprises** – engaged in the manufacturing or production of goods in any industry.
 - **Service enterprises** – engaged in providing or rendering services.

DELIMITATION COMMISSION AND ITS PROPOSALS

The Delimitation Commission has shared the second draft proposal with its members, & Kashmir and most of the regional parties have **rejected it outrightly.**

Delimitation:

- The Election Commission of India describes it as the **“act or process of fixing limits or boundaries of territorial constituencies** in a country or a province (state or Union Territory) having a legislative body.”
- The process may also entail a change in the number of Lok Sabha seats allotted to different

states, as well as in the number of Legislative Assembly seats for each state.

When was the Delimitation Commission set up?

- In March 2020, the government of India set up a Delimitation Commission, headed by retired Supreme Court judge Ranjana Prakash Desai, to complete the delimitation exercise within a year and later the deadline was extended till March 2022.

Where does the process stand now?

- The Delimitation Commission has changed the maps of all 90 assembly constituencies across the UT and renamed 28 new constituencies besides reconfiguring or deleting 19 existing constituencies from the list of the last delimitation conducted in 1995.
- The commission has reserved nine seats for STs –six in Jammu division and three in Kashmir Division and seven for SCs in the Jammu division.

What did the commission propose?

- The commission shared its first draft with associate members in the meeting held on December 20.
- It proposed six additional assembly constituencies in Jammu division and one in Kashmir.
- This tally took the total number of seats in Kashmir to 47 and in Jammu to 43.
- The commission also proposed nine seats for Scheduled Tribes (STs) and seven seats for Scheduled Castes (SCs).
- The regional parties, including NC and the People's Alliance for Gupkar Declaration, rejected the draft and decided to protest as well, which the J&K administration didn't allow.

Changes in Jammu

- In Jammu division, six new assembly seats have been created in Kathua, Samba, Rajouri, Doda, Udhampur and Kishtwar districts.
- The commission has also named one constituency as Shri Mata Vaishno Devi. It comprises areas of Katra and parts of Reasi.
- The boundaries of two parliamentary constituencies in Jammu – Jammu-Poonch and Udhampur Doda – have been redrawn.
- The entire Poonch district and parts of Rajouri, which falls in Jammu division, have been added to Anantnag parliamentary constituency, which otherwise fell entirely in Kashmir division.

Changes in Kashmir

- In Kashmir division, one assembly constituency, Trehgam, has been created in the frontier district of Kupwara.
- Besides, some assembly constituencies have been deleted like Amira Kadal and Habba Kadal in Srinagar district while nomenclature of the constituencies has been changed as well.
- The Lok Sabha seats in Kashmir will now be Anantnag-Rajouri in southern side and in central Kashmir, Srinagar Lok Sabha constituency will now include five districts instead of earlier three districts.
- The Lok Sabha constituency in northern Kashmir will include some parts of central Kashmir as well.

NC REJECTS DELIMITATION PANEL'S 2ND DRAFT PROPOSAL SUGGESTING NEW CONSTITUENCIES IN JAMMU & KASHMIR

The National Conference (NC) on February 5 rejected the second draft proposal of the Delimitation Commission which has suggested the creation of new constituencies and redrawing of others in Jammu and Kashmir.

Issue:

- The **J&K Delimitation Commission** has come out with a fresh interim report and the fresh proposal included redrawing of constituencies in the Union Territory as well as increasing the number of constituencies – **six in Jammu and one in Kashmir**.

- The panel has shared the report with its associate members, **three MPs of the National Conference (NC) and two of the BJP**.

What was the reason for rejection?

- NC lawmakers, rejected saying **none of their suggestions of the earlier draft proposal, was incorporated** in the fresh interim proposal and claimed the recommendations **“unconstitutional”**.

Was this rejection first time?

- No, earlier also, the party had rejected the first draft proposal by the panel which proposed to increase six Assembly seats in Jammu and one Assembly seat in Kashmir.
- The party had said its basic premise is that the exercise “**offends constitutional morality, constitutional propriety and the constitutional values**” in as much as it is required to make the exercise under The Reorganisation Act.

Delimitation Commission?

- Delimitation Commission under the Chairpersonship of Justice (Retd.) Mrs. Ranjana Prakash Desai, in the presence of Shri Sushil Chandra, Chief Election Commissioner has decided to visit the Union Territory of Jammu &

Kashmir from **6th July, 2021 (Tuesday) to 9th July, 2021 (Friday)**. During this period, the Commission will interact with political parties, public representatives and Union Territory administration officials including District Election Officers/ Deputy Commissioners of 20 districts of the Union Territory to gather first-hand information and input concerning the on-going process of **delimitation as mandated under the Jammu & Kashmir Reorganization Act, 2019.**

- The Delimitation Commission was constituted in March 2020 and its **term was extended by another year in March 2021 in view of the on-going pandemic.**

Kashmir-based parties like the NC, the PDP, the People’s Conference and the CPI (M) cite population to be taken as major parameter into consideration while redrawing the boundaries.

Pro-Jammu parties term area and **hilly terrain** should be taken as a **parameter** for the purpose. The **Jammu-based parties** questions the **2011 Census** and called the figures fudged to give an upper hand to Kashmir.

Criticism:

PDPs: Panel acting as frontal organisation of BJP

- The interim recommendations of the commission were clear that the sole objective of the body was to ensure back-door entry of the BJP and its shadow organisations to the legislative assembly of J&K.
- The entire exercise is to disempower people of Jammu and Kashmir by division of secular and majority votes.

Pro BJP:

- The commission has proposed the **redrawing of five of the eight Assembly segments in Srinagar.**
- **Example:** The **Habba Kadal** seat, which has **majority of Kashmiri Pandit** voters, has been **split into three.**

Congress: Expresses strong reservations.

- The **norms, criteria and ground realities** besides aspirations of the people seem to have been ignored in the delimitation draft.

- The **kind of divisions, clubbing of certain areas ignoring the ground realities** and will result in worst inconvenience in most areas.

Norms, procedures being defied in the process:

- Publication of the draft delimitation report in the official gazette along with the objections of the associate members in **pursuance meeting held in December 20, 2021 was a mandatory requirement as laid down in the relevant laws.**
- The commission was **authorised to accept or reject the objections** in terms of the provisions contained in the **Delimitation Act read with the J&K Reorganisation Act 2019.**
- The **submission of delimitation draft** to associate members in the Parliament **without publishing it in official gazette was in violation of Section 60 of the J&K Reorganisation Act and Section 9 of the Delimitation Act.**

- With the associate members having already conveyed their objections between December 20 and December 31, 2021, **in terms of the previous orders of the commission, it was legally inappropriate to once again seek suggestions from them without publishing the report** along with their previous objections.

Response from the Commission on the rejection by National conference and other parties:

- The officials said the associate members had been asked to submit their objections by February 14. The commission was headed by retired Supreme

Court judge Justice **Ranjana Desai**, was **constituted under the J&K Reorganisation Act and its second term ends on March 6.**

Road Ahead:

- The commission has to ensure complete fairness and transparency in its functioning without succumbing to the dictates of any political party. And time-bound completion of the delimitation process and immediate conduct of assembly elections so as to ensure installation of a “legitimate” elected government in J&K.

COLLABORATION, POLICY, REGULATORY CHANGES NEEDED TO FIGHT ANTIMICROBIAL RESISTANCE

Industry is assisting the development of a positive future outlook in the fight against Antimicrobial Resistance (AMR). But more cross-sector collaborations, as well as policy and regulatory changes, are required, according to the **third progress report of the AMR Industry Alliance** released February 1, 2022.

What is AMR?

- Antimicrobial resistance (AMR) is the **ability of microorganisms** to persist or grow in the presence of drugs designed to inhibit or kill them.
- These drugs, called **antimicrobials**, are used to **treat infectious diseases caused by microorganisms such as bacteria, fungi, viruses and protozoan parasites.**
- When microorganisms become resistant to antimicrobials, standard treatments are often ineffective, and in some cases, no drugs provide effective therapy. Consequently, treatments fail.
- **This increases illness and mortality in humans, animals and plants.**
- Moreover, AMR can spread among different hosts and the environment, and antimicrobial resistant microorganisms **can contaminate the food chain.**

What are the challenges associated with AMR?

- **Multiply resistant organisms render therapy more precarious and costly** and sometimes unsuccessful.

- Individuals may succumb to MDR infections because all available drugs have failed, especially in the developing world.
- **Rampant use of antibiotics in livestock and poultry animals.** Antibiotics used in animals to treat infections and for growth promotion are often passed on to humans who consume their meat.
- Contamination around pharmaceutical manufacturing sites where untreated waste releases large amounts of active antimicrobials into the environment.
- **Dumping of inadequately treated effluents** from the pharmaceutical industry.

What are the key findings of Third Progress report of AMR Industry Alliance?

- There is continued funding in AMR from Alliance members, but **investment levels are at risk.**
- Incentives **for research and development in antibiotics are critical** for future investment.
- An overwhelming majority of Alliance members are active in access and appropriate use activities.
- There is growing commitment and action on responsible manufacturing.
- The Alliance’s contributions to combating AMR are reflected in the report’s wide range of AMR activities, which include:

- **Research and science**
- **Access**
- **Appropriate use**
- **Manufacturing, and the environment.**

How AMR should be tackled?

- Our bodies are constantly exposed to millions of germs. **Regular hand washing** can help fight germs and prevent illness.
- **Not all infections need antibiotics.** Work with your healthcare professional to make sure you are getting the **right antibiotic, at the right dosage**, for the right amount of time.
- Food such as meat, fruits, and vegetables can be contaminated with bacteria. The Centers for Disease Control and Prevention (CDC) recommends four simple steps to prepare food safely at home: **Clean, separate, cook, and chill.**
- Health experts should **tell patients about the side effects and risks associated with the antibiotics** they are taking. Inform patients about antibiotic resistance and the dangers of misuse.
- In addition to developing new antimicrobials, infection-control measures can reduce antibiotic

use. It is critical to ensure that all those who need an antimicrobial have access to it.

- To track the spread of resistance in microbes, **surveillance measures** to identify these organisms need to expand beyond hospitals and encompass livestock, wastewater and farm run-offs.

Way forward

- Since microbes will inevitably continue to evolve and become resistant even to new antimicrobials, we need sustained investments and global coordination to detect and combat new resistant strains on an ongoing basis.
- Antibiotic resistance is not a problem that can be solved by any one country or even one region. Since, we live in a connected world, where people, animals and food travel and microbes travel with them, a global action is essential to make progress in the long run.
- Increasing public awareness and understanding is therefore the most crucial pillar towards tackling antimicrobial resistance. AMR is an increasingly serious threat to the global public health that requires action across all government sectors and societies.

BENGAL CM MAMATA BANERJEE BLOCKS GOVERNOR JAGDEEP DHANKHAR ON TWITTER

West Bengal Chief Minister Mamata Banerjee's outburst against Governor Jagdeep Dhan Khar on Jan 31 was not a first but it brought to the fore, yet again, the role of the Governor in relation with the elected government and legislature. **Mr. Dhan Khar** and his counterparts in Tamil Nadu (R.N. Ravi) and Maharashtra (Bhagat **Singh Koshyari**) appear to be testing the limits of their power and confronting the elected governments and legislatures in recent weeks.

Issues in different states:

West Bengal:

- Mr. Dhan Khar's constant tirade against Chief Minister Mamta Banerjee her on Twitter.
- **Summoning the Chief Secretary and the Director General of Police** on a regular basis,

and when they do not turn up, taking to Twitter and often tagging the Chief Minister.

- He has **withheld assent to the Howrah Municipal Corporation (Amendment) Bill 2021, delaying polls to the civic body.**

Maharashtra:

- In Maharashtra, Governor Bhagat Singh Koshyari has **stalled the election of Speaker** since the post felt vacant in February 2021.
- He has taken **umbrage** over the amendments in the legislative rules for holding the Speaker's election **through voice vote instead of secret ballot.** The Governor's view that the State Assembly **cannot decide its own rules** is

unacceptable to the ruling coalition, but is being cheered by the Opposition BJP.

- Mr. Koshiyari had in the past battled for the BJP, supporting its demand for a special session of the Assembly on women's safety and security. He had **refused to accept the recommendation of the Council of Ministers on the nomination of 12 members to the Legislative Council**, until the matter reached the High Court.

Tamil Nadu:

- In Tamil Nadu, Governor R.N. Ravi has **not acted upon the T.N. Admission to Undergraduate Medical Degree Courses Bill**, adopted by the Assembly in September 2021.
- The Governor is **required to either send it to the President** of India for approval or **return it for reconsideration** by the Assembly, but the indefinite delay in taking a decision amount to undermining the legislature, and is unjustifiable.
- The Bill relates to a question of **State-Centre relations**, as it **proposes to dispense with the National Eligibility cum Entrance Test (NEET) for medical graduate admissions in the State**. NEET has been criticised for curtailing State powers, and the Governor's delay in processing the Bill is only **aggravating the situation**.

Governor's powers vs Chief Ministers (state governments powers):

- In cases of delaying in taking actions with respect to West Bengals **Howrah Municipal Corporation (Amendment) Bill** and Tamil Nadu governments (T.N. **Admission to Undergraduate Medical Degree Courses Bill**), **he is guarded by:**
- **Article- 200:** The provision of this article says, when a Bill is passed by the state legislature and presented to the Governor, **He may assent, withhold his assent or reserve for President or return the Bill (if not a Money Bill) "as soon as possible"**.
- The term **"as soon as possible"** is vague this has paved the way for misuse.

- **Advantage for the Governor is there is no provision of impeachment for violation of Constitution as such for President.**
- Though **Art- 163:** says Governor to exercise his functions on the aid and advice of the Council of Ministers. **Art-163(2) on Governor's discretion shall not be questioned** in the court that he ought or ought not to have acted in his discretion, this guards him.

Judicial verdict:

Mr. C.K. Rama Murthy vs State Election Commission on 30 March, 2015: The High court of Karnataka stated "A democratic form of Government would survive only if there are elected representatives to rule. Any decision to postpone elections on unreasonable grounds is anathema to a democratic form of Government and it is subject to judicial review on traditionally accepted grounds. It is the duty of the State Election Commission to see that election is done in a free and fair manner to keep democratic form of Government vibrant and active.

In regard to issue of electing the Speaker in Maharashtra:

- **Article 178** for state Assemblies state that these Houses **"shall, as soon as may be"**, choose two of its members to be Speaker and Deputy Speaker.
- The Constitution **neither sets a time limit nor specifies the process** for these elections. **It leaves it to the legislatures** to decide how to hold these elections. In state legislatures, the **Governor sets a date** for the election of the **Speaker**, and it is the **Speaker who decides the date for the election of the Deputy Speaker**. The legislators of the respective Houses vote to elect one among themselves to these offices.
- **Except fixing the date** no other provision is given to the Governor, however the term **"as soon as may be"** is vague.

Measures to be remembered:

Constituent assembly debates: on nomination of the Governor

- A nominated Governor will not be working for the welfare of the state and would not be able to understand the special needs.
- An appointed Governor under the instructions of the Centre might like to run the government against the wishes of the cabinet.

And the reason why he is nominated than being elected:

- If the Governor were to be elected by direct vote, then he might consider himself superior to the chief Minister and may lead to friction and as we have adopted a Parliamentary system of Government prescribed by the Constitution, the Governor was to be a Constitutional head of the state, the real power being vested in the Ministry responsible to the legislature.

On Appointment and Removal of Governor:

- The "**Punchhi commission - 2010**" recommended that there should be a provision for the **impeachment of the governor by the state legislature.**
- The **state chief minister should have a say in the governor's appointment.**

On the Use of Article 356:

- The "**Punchhi commission - 2010**" recommended that **Articles 355 & 356 be amended.**
- The **Sarkaria Commission (1988)** recommended that **Article 356 should be used in very rare cases** when it becomes unavoidable to restore the breakdown of constitutional machinery in the State.
- **Recommendations** have also been given by the **Administrative Reforms Commission (1968), Rajamannar Committee (1971) and Justice V. Chelliah Commission (2002).**

On Dismissal of State Government under Article 356:

- **S.R. Bommai Judgment (1994):** The case put an end to the **arbitrary dismissal of State**

governments by a hostile Central government.

- The verdict ruled that the floor of the Assembly is the only forum that should test the majority of the government of the day, and not the subjective opinion of the Governor.

On Discretionary Powers:

- The Supreme Court in the **Nabam Rabia judgment (2016)** ruled that the exercise of **Governor's discretion Article 163 is limited** and his choice of action should not be arbitrary or fanciful.

Road Ahead:

- **Governor's Discretion Should Be Only Her Discretion:** For the smooth functioning of government, it is equally essential that the governor must act judiciously, impartially and efficiently while exercising his discretion and personal judgment.
- **Strengthening of Federalism:** In order to check misuse of the office of governor, there is a need to strengthen federal setup in India.
- In this regard, the Inter-State council and the role of Rajya Sabha as the chamber of federalism must be strengthened.
- **Reform the Method of Appointment of Governor:** The appointment can be made from a panel prepared by the state legislature and actual appointing authority should be the Inter-state Council, not the central government.
- **Code of Conduct for Governor:** This 'Code of Conduct' should lay down certain '**norms and principles**' which should guide the **exercise of the governor's 'discretion' and his powers** which he is entitled to use and exercise on his judgment.
- Some of these issues may require debate and discussion before resolution. But any imperial overtone of Governors can only do harm to the constitutional scheme of things.

'HC CAN STRIKE DOWN EXCEPTION TO MARITAL RAPE

Currently, the bench of Justices of the Delhi high court is hearing arguments on challenging Exception 2 to Section 375 of the Indian Penal Code (IPC).

- Exception 2 to S. 375 IPC states that sexual intercourse by a man with his own wife, the wife not being under 18 years of age, is not rape.
- The 2005-06 National Family Health Survey (NFHS) found that of the 80,000 women interviewed, 93% stated that they had been

sexually abused by their current or former husbands.

- Ten years later, 2015-16 NFHS showed no improvement, as the data estimated that 99.1% of sexual assault cases go unreported and that the average Indian woman is 17 times more likely to face sexual violence from her husband than from others.

DATA 4.0 – RETHINKING RULES FOR A DATA-DRIVEN ECONOMY

While much of **daily life and economic activities** came to a **grinding halt** at some point during the pandemic, the **digital, technological transformation did not stop**.

Data paradox?

- The world could generate more data in the next three years than over the past 30.
- The explosive **growth of data** like human population, owes **40%** of internet traffic that are being generated by machines, between machines.
- This trend will likely continue and accelerate as the number of **networked devices** in the world **projected to reach a staggering 125 billion by 2030**.
- We live in an information, not a knowledge society, A recent survey showed that **70%** of data decision makers are **gathering data faster than they can analyse and use it, yet 67% constantly need more data**.
- The massive opportunity brought about by data-driven decisions is being hampered by **capacity constraints** and **“defensive” narrative on data governance and policy**, which rightfully places paramount importance on **accountability, transparency, and privacy**.
- How can this demand-capacity mismatch adopt a more balanced **“offensive” strategy to maximize value from data** and ensuring **safety and compliance**?
- Answer is simple **-right people, institutions, and culture** to unlock and harness the data opportunity and more importantly,

companies **cannot do this alone**. No more, no less.

How to proceed and unlock the opportunity?

Firms need to institutionalize data strategy at a human level:

- A starting point would be to formalize a **Chief Data Officer (CDO)** role: a real data scientist and visionary with clearly defined responsibilities. The CDO, with a supporting cast, would be responsible for:
- **Designing, implementing, and overseeing** a holistic data strategy (from collection to analytics to monetization) that informs business decisions and units;
- Facilitating the **free-flowing of data, data-driven insights, and data-related managerial decisions** both **internally** and with **external partners and regulators**;
- **Supporting** (Human Resource) in recruiting or upskilling/reskilling employees.
- This centralized **CDO** role can also play the role of the **Chief Information Officer** or the **Chief Privacy Officer**, and the **Chief Economist and Strategy Officer** at present. The idea is utilizing the data for **business and regulatory purposes and reduce efficiency losses and information siloes** caused by **jurisdiction or capacity problems, while ensuring privacy compliance**.

Institutions need to rise to the challenge

- Data as a new strategic asset, so present and future economy should focus

on **smart and responsible generation** by **including**, institutions—**data-related rules, regulations, agreements, and governing bodies** within and across **national borders** and must be modernized.

Where there any initiatives on visualising Data as Strategic asset?

- Pioneer efforts such as the **Digital Economy Partnership Agreement (DEPA)** initiated by **Singapore, Chile, and New Zealand**.
- **EU's- General Data Protection Regulation (GDPR)**, and the **World Economic Forum's- Data for Common Purpose Initiative (DCPI)**
- The above have been exploring the **prospects and limits of next-generation data governance** and of **making data more widespread and open**.

How healthy can be this development?

- The global agreement on the **Ethics of Artificial Intelligence led by UNESCO** is among the most **promising global effort** to guide smart regulation towards healthy development of this field.
- **Nationally:** Governments should increase **data and broader digital readiness**. **Internationally:** Some sort of institution like **"IMF or WTO on data"** could be an asset, given the international nature of data flows for instance.

Could it help if data were to be recognized as a new economic sector?

- The **International Standard Industrial Classification of All Economic Activities (ISIC)** said handful of **data activities** were considered **subsectors of the economy within** the **"Information and Communication"** sector.

- Though be a **subsector** the depth of the **economic, political and social change** brought about by data in the last 14 years has to be seriously taken as ignoring these **can creates more harm**.

Need of the hour?

All stakeholders in the data ecosystems must embrace and promote a truly data-oriented culture:

- The gap in **digital connectivity, data science skills shortage, investment in Latin American and the Caribbean has to take care by private sector,** along with **governments and education institutions**, who can deliver that in 3-6 months as cannot wait for 3-4-year programmes.
- Transforming data from a raw material into a genuine factor of production and engine of innovation requires changes at the individual and organizational levels.
- The COVID-19, while being a tragedy in other sectors **has been a catalyst** for this cultural change.
- **For example**, effective data on cases and medical practices all over the world has been an effective area of **public-private collaboration** in pandemic response for containing the spread of the virus in several countries.

Way forward:

- As 5G, AI, and other technologies reinforce both data supply and demand, this is the time to update our approach to data in a more forward-looking way. With the **right people, institutions, and culture**, we can build the economies of the future and use data as a driver of change for good.

BATTERY SWAPPING POLICY WILL BOOST ADOPTION OF EVs

- The electric vehicle (EV) industry will get a big push, especially on the public transport front with the formulation of a Battery Swapping Policy
- Battery swapping allows consumers to replace their depleted batteries with fully-charged ones at dedicated stations.

- The shorter charging time with battery swapping also increases the up time for EVs bought for commercial use.

GATI SHAKTI WILL HELP TACKLE INFRA HURDLES: PM MODI

Prime Minister said the PM Gati Shakti Mission, an **inter-ministerial digital platform** for **coordinated implementation of connectivity projects**, presents a holistic approach to **solving India's infrastructure challenges**.

PM Gati Shakti Mission

- It is a **Rs 100 lakh crore mega project** that envisages bringing together on a **common digital platform**.
- The various **infrastructure activities** planned and executed by 16 Central ministries and departments – including **Railways, Roads and Highways, Power, Telecom, Shipping & Aviation**, among others.
- Gati Shakti is a state-of-the-art **digitally integrated platform** that uses technology to make infrastructure related information **available to all key stakeholders at various levels – central, state, urban civic bodies and even panchayats**.

- It will enable the implementation of countless projects to get **simplified, more efficient, and most importantly, make them tremendously speedier**.

Significance of PM Gati Shakti

- The Gati Shakti master plan is meant to introduce **multimodal connectivity to various economic zones**.
- It aims to **cut through inter-ministerial silos** and lay solid groundwork for **holistic infrastructure development** in the country.
- It targets **integrated planning and coordination** towards the implementation of seamless movement of people, goods and services.
- It will **reduce logistics costs**, which will benefit local industries.
- Its focus is to **strengthen small farmers and the rural economy**.

GOVT'S PROPOSALS TO POOL SOLAR TARIFFS, BUNDLE RENEWABLE ENERGY WITH THERMAL POWER

The Union power ministry is set to come out with rules to pool solar tariffs to accelerate the procurement of solar power by power distribution companies.

- The Centre is also looking to boost bundling of renewable energy in existing **thermal Power Purchase Agreements (PPAs)**.

What is pooling?

- The government is **planning to pool all solar power procurement** in a given period and ask that all buyers pay an average of all the tariffs that are contracted in a pooling period.
- Therefore, if one PPA is signed at an agreed tariff of Rs 2.5 (per unit) based on a discovered price by **Solar Energy Corporation of India (SECI)**,

and the discovered price in the next bid by SECI is Rs 2.4, then the tariffs will be averaged out with both the buyer under the new PPA and the earlier PPA paying the resultant average tariff.

What is renewable energy bundling?

- The Centre is encouraging bundling of renewable energy with thermal power under existing PPAs.
- The power ministry permitted thermal generation companies to supply power to customers from their renewable energy projects under the existing PPAs for coal-based electricity, with gains from the bundling of renewable energy to be shared between generators and discoms on a 50:50 basis.

- A move to bundle cheaper renewable energy in these PPAs will allow discoms to lower their average cost of power procurement.

Why pooling is required?

- A consistent fall in solar power tariffs due to the falling price of solar panels has led to discoms waiting for a further fall in tariffs rather than contracting PPAs at current prices.
- A move to pool tariffs could help **speed up procurement of solar power.**
- **Renewable Purchase Obligation (RPO)** mandates that all discoms meet a minimum specified quantity of their requirements from renewable energy sources.
- Aiming to **boost installed renewable energy capacity to 500 GW (Gigawatts) by 2030.**
- A move to pool tariffs could help speed up procurement of solar power by addressing concerns among discoms of losing out on lower solar tariffs in the future.

India's achievements in solar energy

- India lying in **tropical belt has an advantage of receiving peak solar radiation for 300 days, amounting 2300-3,000 hours of sunshine** equivalent to **above 5,000 trillion kWh.**
- Solar power in India is a fast-developing industry as part of the renewable energy in India. **The country's solar installed capacity was 44.3 GW as of 31 August 2021.**

- India has established nearly 42 solar parks to make land available to the promoters of solar plants.
- India's **Intended Nationally Determined Contributions (INDC's) commitment include 100 GW of solar power out of 175 GW renewable energy by 2022.**
- The sector also has immense potential to create new jobs; **1 GW of Solar manufacturing facility generates approximately 4000 direct and indirect jobs.**

Road Ahead:

- Advancements are underway for storage, which has the potential to revolutionise this sector globally, till then dependence on fossils can be reduced by gradually increasing the share of renewables.
- **India is expected to be 8% of global solar capacity by 2035.** With the **future potential capacity of 363 Gigawatts (GW)**, India can be a global leader in term of encashing energy sector advantages.
- India facing problems in fulfilling its energy demand, solar energy can play an important role in providing energy security. Debate of global warming and climate change is compelling the world to move from fossil-based energy towards clean and green energy. With its pollution free nature, virtually inexhaustible supply and global distribution, solar energy is very attractive energy resource.

RPF LAUNCHES NATIONWIDE OPERATION 'AAHT' TO CURB HUMAN TRAFFICKING

Railway Protection Force has launched a nationwide operation to **curb human trafficking**. As part of "Operation AAHT", special teams will be deployed on all long-distance trains/routes with focus on rescuing victims, particularly women and children, from the clutches of traffickers.

What is Human Trafficking?

- Human Trafficking, especially of women and children, for **sexual exploitation, forced marriage, domestic servitude, organ transplant, drug peddling** etc is an **organised**

crime and the most abominable **violation of human rights.**

- They are being **trafficked for slavery, illegal adoptions, organ transplants, working in circus, begging and entertainment industry.**

Operation AAHT?

- The operation will mainly focus on **rescuing women and children** from the traffickers.
- The operation is to be implemented in every train operated by the Indian Railways. The Indian Railways operates 21,000 trains in all.

- According to RPF, railways is the most reliable mode of transportation for the traffickers.

Measures to eliminate human trafficking

- There is need to **strengthen the intelligence machinery**.
- There is need of action plan to **identify, investigate, rescue and rehabilitate victims of the offence**.
- **Cyber cells** would start patrolling the web/social media to look for **digital footprints of Human Trafficking** and added that the focus should be more on trains originating from districts bordering **Nepal, Bangladesh and Myanmar**.

- **Educated children and their families** are much more **aware, alert and mature**, and they can comprehend the risks of child trafficking quite well.
- **Effective policymaking** is critical to reform.
 - Many cases have been filed under the recent **Protection of Children Against Sexual Offences Act (2012) and Immoral Traffic (Prevention) Act**, which have successfully translated in increased convictions, demonstrating how legislating can curb child trafficking.
- An ecosystem for child trafficking gets silent approval when demand for **child labour is commonly used in businesses like retail, hospitality, etc.**

FCRA REGISTRATION OF MoC, PHFI RESTORED

- The government has told Lok Sabha that it had **renewed** the Foreign Contribution Regulation Act (FCRA) **registration of two NGOs**.
- The NGOs whose revoked registration was renewed included **Public Health Foundation of India (PHFI)**, New Delhi and **Missionaries of Charity (MoC)**, Kolkata.
- The NGO aimed to strengthen training, research and policy development in public health and was launched in 2006 by former Prime Minister Manmohan Singh.
- Section 32 of the Foreign Contribution (Regulation) Act, 2010 provides for revision by the Central Government of any order passed in a proceeding against any association registered under the Act.
- The application for revision is considered and disposed of on merits under the above provision of the Act.

FCRA?

- The FCRA 2010, replaced an earlier Act passed in 1976, was brought in by Parliament.
- It aims to consolidate the laws aimed at regulating and prohibiting "the acceptance and utilization of foreign contribution or foreign

hospitality by certain individuals or associations or companies".

- It also aims to "prohibit acceptance and utilization of foreign contribution or foreign hospitality for any activities detrimental to national interest".
- The provisions of the Act apply to the territory of India, to citizens of India who may be outside India and to companies or their branches outside India that are registered or incorporated in India.
- The entities covered by the Act include an individual, a Hindu undivided family, an association, or a registered company.
- It says that any entity, or "person", can receive foreign funds as long as it has "a definite cultural, economic, educational, religious or social programme" and has obtained a nod under FCRA rules from the Centre, among other things.

Foreign contribution under FCRA?

- "Foreign contribution" under FCRA covers **any "donation, delivery or transfer made by any foreign source** of any article".
- Any currency, or security can fall under the ambit of the Act though it excludes any money received "by way of fee or towards cost in lieu of goods or services rendered by such person in the

ordinary course of his business, trade or commerce whether within India or outside India".

- Neither are donations made by Non-Resident Indians (NRIs) considered to be "foreign contribution" although a donation from a person of Indian origin who has assumed foreign nationality is treated as "foreign contribution".

Who cannot receive foreign contribution?

- A host of entities are barred from receiving foreign funds, including election candidates, those connected with a registered newspaper, judges, government servants or employees of any entity controlled or owned by the government and members of any legislature.
- Political parties and their office bearers, too, are prohibited from receiving foreign funds.

THE ORISSA HIGH COURT IS LEADING THE WAY IN DIGITISING THE JUDICIARY

The Orissa high court has set a new benchmark for record digitisation, a process critical to keeping courts running quickly and smoothly, creating a 'win-win' situation for not only the bar and bench, but also the public.

- Though work on the **digitisation of records** began in the high court in 2018, it gained significant momentum after **Justice S. Muralidhar** became its Chief Justice on January 4 last year.
- After Justice D.Y. Chandrachud, the chairperson of Supreme Court's e-Committee, inaugurated the high court's new, state-of-the-art Record Room Digitisation Centre (RRDC) near the Odisha Judicial Academy building in Cuttack.

Record Room Digitisation Centre (RRDC)?

- The transition to paperless courts would not have been possible without the establishment of the RRDC.
- It is equipped with a state-of-the-art fire-fighting system and surveillance-security measures.

- It provides facilities for the storage, digitisation, preservation and retrieval of disposed-of case records or legacy records, all under one roof.
- These records are now accessible for reference from the court room or any bench over a closed and secure network.

What is the e-Courts project?

- The e-Courts Integrated Mission Mode Project is one of the National e-Governance projects being implemented in District and Subordinate Courts of the Country since 2007.
- The project is aimed at providing the necessary hardware and software application to enable courts to deliver e-services, and the judiciary to be able to monitor and manage the functioning of courts.
- The objective of the e-Courts project is to provide designated services to litigants, lawyers and the judiciary by universal computerisation of district and subordinate courts in the country and enhancement of ICT enablement of the justice system.

SECTION 498A IPC - PROSECUTION OF HUSBAND'S RELATIVES BASED ON GENERAL & OMNIBUS ALLEGATIONS BY WIFE IS ABUSE OF PROCESS: SUPREME COURT

With friction rising in marriages, there is "increased tendency to employ provisions such as 498A IPC".

- It was aimed at preventing cruelty committed upon a woman by her husband and her in-laws by facilitating rapid state intervention, as instruments to settle personal scores against the husband and his relatives".

- It becomes pertinent to mention that incorporation of Section 498A of IPC was aimed at preventing cruelty committed upon a woman by her husband and her in-laws by facilitating rapid state intervention.
- It is equally true, that in recent times, matrimonial litigation in the country has also increased significantly and there is a greater

disaffection and friction surrounding the institution of marriage.

Section 498A of IPC?

- Husband or relative of husband of a woman subjecting her to cruelty.
- Whoever, being the husband or the relative of the husband of a woman, subjects such woman to cruelty shall be punished with imprisonment for a term which may extend to three years and shall also be liable to fine.

- Section 498-A is distinguishable from section 4 of the Dowry Prohibition Act because in the latter mere demand of dowry is punishable and existence of element of cruelty is not necessary, whereas section 498-A deals with aggravated form of the offence.
- It punishes such demands of property or valuable security from the wife or her relatives as are coupled with cruelty to her.

J&K BECOMES FIRST UT TO BE INTEGRATED WITH NATIONAL SINGLE-WINDOW SYSTEM

Recently, the Lt Governor Manoj Sinha has launched the **single-window portal for Jammu and Kashmir**, making it the **first Union territory** to be integrated with the national single-window system.

National Single-Window System?

- It is a national portal launched in 2021 by the Ministry of Commerce & Industry.
- It aims to **reduce the bureaucracy involved in establishing businesses**, through a centralised portal that enables investors to identify and obtain relevant permits, licenses and clearances.
- It is an important step in **addressing asymmetry and duplication** concerning information submitted to different platforms and authorities by investors.

- It also seeks to **integrate central and state-level clearances** to improve the **ease of starting and doing business** in the country.

Significance of NSWS for Jammu & Kashmir

- The integration of J&K's single-window system with the NSWS is aligned with the central government's broader strategy to open up J&K to investors outside the union territory.
- It will effectively allow non-Kashmiris to own land and immovable property in the state.
- In April 2021, the UT government implemented a new industrial policy that included new subsidies, exemptions and loan subvention schemes to attract fresh investment.

MUSLIMS BARRED FROM FRIDAY PRAYER SITES IN INDIA'S GURGAON

- Rights and duties are conceptually linked to one another. There are no rights without duties.
- If a person has the right to something, it necessarily implies that someone else has a corresponding duty to ensure that it is not violated.

For example:

- **Freedom of speech:** If an individual has a **right to free speech**, then it is the **duty** of the state to prevent its infringement.
- The idea is regardless of groups, regardless of numbers or social power, while in one exercise his freedom the other have a duty that is not to infringe it (vice versa).

Mutual respect for the rights and duties of one another:

- Everyone should understand **that the number of rights one exercises is always trailed by as many duties**.
- If one has rights which impose duties on others, then others also have rights that enforce duties on him.
- Any individual who demands a right and expects others to allow or facilitate its exercise must also expect that she is equally **duty-bound to reciprocate**.

Simultaneous performance:

- It is abundantly clear that rights entail duties, so rights cannot be exercised without the **simultaneous performance** of duties.

Duties against rights

- Rights continue to entail duties, but in deeply **hierarchical, inegalitarian societies, only a few people have rights**, while the **many have duties** to ensure the proper exercise of the rights of these few.
- **Patriarchal family system:** Father alone has the right to take decisions. This puts all other members under a duty to abide by his decision.

Caste-ridden societies:

- A hierarchical caste system distributes rights and duties unequally.
- Few have the most important rights and this right has to be served without hindrance.
- **Example: Any infringement** on the rights of the upper caste, especially the Brahmin, brings heavy penalties to the violator, **sometimes even death.**

Religious codes endangering the gender:

- In many **Islamic societies**, rights and duties are **gender-specific**, and **unequal**. It is the **right of men to have their testimony** in the court weigh twice as much as that of **women who are duty-bound** to comply.

Method of government:

- In **absolute monarchies:** The **King has unrestricted rights and all others have corresponding duties.**

Duties beyond rights:

Duty of inner conscience and not of any rule

Surgeon A	Surgeon B
A surgeon performs an operation. He does his job efficiently and believes that once done, he is under no obligation to be present in the hospital or talk to the family of the patient.	Now, consider another surgeon who after performing the operation feels to interact with the patient, placate the anxieties of his family and brings warmth to his interaction. The act flows from duties that are integral to his character , to his personal virtues , to

- **In democratic administration:** **Duties increase** as we go down the ladder of political hierarchy(i.e.) those at the bottom have the **maximum number of duties** owing to maximum number of people, ranked higher to them.

Duties outweigh the rights in inegalitarian societies:

- In hierarchical, inegalitarian societies, where power is **unevenly distributed**, duties are **often seen in opposition to rights.**
- **The egalitarian nature of rights and duties has its root in social and political power:**
- Those in **power have rights**; those **without it have duties.**
- A transformation from a hierarchical to an egalitarian order does not produce a **power-free order**. Instead, at least in principle, such change generates a **democratic distribution of power.**

Need egalitarian polities to bring egalitarian social order:

- Equality of power ensures a system of equal rights and duties. Indeed, in egalitarian polities, **more power means more duties.**
- The powerless have rights, the powerful have duties.
- **For example:** Duty of the state to ensure that there is no poverty, disease or unemployment.
- In this context, any move to shift focus from rights to duties, to complain of undue emphasis on rights breeds the suspicion that democracy is being undermined and hierarchy reintroduced through the backdoor.

his **commitment to warm social relationships, and does not flow from any right of the patient.**

Road Ahead:

- We need a virtue-based, solidarity-infused duties in order to build a tolerant society, or to remain vigilant against potential wrongs of our elected rulers.
- These duties are not antagonistic to rights; they are moral, non-justiciable.

- To preserve composite culture, not destroy natural environment, develop scientific temper, safeguard public property, protect India's sovereignty and integrity. None of them are legally enforceable but they impose an obligation on all citizens, especially on those who occupy public office, to go beyond the call of rights-based duties.

ODISHA HC ISSUES NOTICE TO CHILIKA AUTHORITY OVER ILLEGAL MOTORBOATS IN SENSITIVE PART OF LAKE

The Orissa High Court **issued a notice** to the state government and the **Chilika Development Authority (CDA)** in connection with a PIL which sought the court's intervention against the **unchecked and illegal operation of motorboats** in the **Mangaljodi part of Chilika lake.**

- The petition sought a ban on the movement of motorboats in the **eco-sensitive area** and declare the **Mangaljodi bird sanctuary** as a silent zone.
- The PIL stated that illegal motorboats are operating for fishing purposes on the Mangaljodi wetland part of Chilika lagoon which was declared an **Important Bird Area (IBA).**

Chilika Lake?

- Chilika Lake is a **brackish water lake** and a **shallow lagoon with estuarine character** spread across the districts of Puri, Khurda and Ganjam in the state of Odisha in eastern India.
- It is connected to the Bay of Bengal by a 32 km long and 1.5 km wide channel that mostly runs parallel to the Bay separated by a narrow spit whose width varies between 100 m to several kilometres.

- A number of islands are present in the lagoon, prominent among which are Krushnaprasad, Nalaban, Kalijai, Somolo and Birds Islands.
- Chilika Lake is the largest brackish water lake with estuarine character that sprawls along the east coast of India.
- It is considered to be the **largest lagoon in India** and counted amongst the largest lagoons in the world.
- It is the largest wintering ground for migratory waterfowl found anywhere on the Indian sub-continent.
- It is one of the hotspots of biodiversity in the country, and some rare, vulnerable and endangered species listed in the IUCN Red List of threatened Animals inhabit the Lake area for atleast part of their life cycle.
- Chilika lake was designated as a "**Ramsar Site**", i.e. a **wetland of International Importance.** The Nalaban Island within the lake is notified as a Bird Sanctuary under Wildlife (Protection) Act, 1972.

GOVERNOR'S POWERS, FRICTION WITH STATES, AND WHY THIS HAPPENS OFTEN

Recently, West Bengal Chief Minister Mamata Banerjee blocked Governor Jagdeep Dhankhar on Twitter.

- Earlier, the Tamil Nadu government had taken exception to Governor R N Ravi's Republic Day

speech articulating the benefits of NEET, the medical entrance exam.

Law on Governor-state relations?

- Although envisaged as an apolitical head who must act on the advice of the council of ministers, the Governor enjoys certain powers granted under the Constitution, which includes:
 - giving or withholding assent to a Bill passed by the state legislature, or
 - determining the time needed for a party to prove its majority, or
 - that which party must be called first do so, generally after a hung verdict in an election.
- No provisions laid down for the manner in which the Governor and the state must engage publicly when there is a difference of opinion.

What reforms have been suggested to address Governor v/s state?

- From the **Administrative Reforms Commission of 1968 to Sarkaria Commission of 1988**, several panels have recommended reforms, such as **selection of the Governor through a panel comprising the PM, Home Minister, Lok Sabha Speaker and the CM, apart from fixing his tenure for five years.**
- The recommendations have also been made for a provision to **impeach the Governor by the Assembly.**

TRS MPs MOVE PRIVILEGE MOTION AGAINST PM MODI OVER REMARKS ON PASSAGE OF TELANGANA FORMATION BILL

Recently, the Telangana Rashtra Samithi (TRS) MPs gave a notice in Rajya Sabha for moving a privilege motion against Prime Minister Narendra Modi over his remarks on the passage of the Andhra Pradesh bifurcation bill in 2014 that led to the formation of Telangana.

- The statement attempts to show the **Parliament Houses in the worst and contemptuous manner**, denigrating and demeaning the procedures and proceedings of the House and its functioning.
- The **Andhra Pradesh Reorganisation Act, 2014**, bifurcated the state of Andhra Pradesh into Telangana and Andhra Pradesh following the Telangana movement.
- The bill was passed in the Lok Sabha on February 18, 2014 and in the Rajya Sabha two days later. **The Telangana state was officially formed on June 2, 2014.**

Privilege Motion:

- All Members of Parliament (MPs) **enjoy rights and immunities, individually and collectively**, so that they can discharge their duties and functions effectively.
- Any instance when these rights and immunities are disregarded by any member of Lok Sabha or Rajya Sabha is an offence, called '**breach of**

privilege', which is punishable under the Laws of Parliament.

- Any member from either house can move a notice in the form of a **motion against the member who he/she thinks is guilty of the breach of privilege.**
- **Both Houses of the Parliament reserve the right to punish** any action of contempt (not necessarily breach of privilege) which is against its authority and dignity, as per the laws.

Rules governing Privilege Motion:

- The rules governing the privilege are mentioned in the **Rule No 222 in Chapter 20 of the Lok Sabha Rule Book and Rule 187 in Chapter 16 of the Rajya Sabha rulebook.**
- The rules explain that any member of the House may, with the **consent of the Speaker or the Chairperson**, raise a question involving an incident that he or she considers a breach of privilege either of a member or of the House or of a committee.
- The notice has to be about a **recent incident and should need the intervention of the House.**
- These notices have to be submitted before 10 am to the Speaker or the Chairperson of the House.

Role of the Lok Sabha Speaker and Rajya Sabha Chairperson?

- The speaker of Lok Sabha and the Chairperson of Rajya Sabha are the first level of scrutiny of a privilege motion in the two Houses of Parliament.
- They can either take a decision on the privilege motion or can also refer it to the privileges committee of Parliament.
- Once the Speaker or the House Chairperson gives consent under Rule 222, the concerned member is allowed to explain himself or herself.

Privileges Committee?

- The Speaker of Lok Sabha nominates a committee of privileges consisting of 15 members of parliament from each party.
- The report prepared by the committee is submitted to the House for its consideration.
- The Speaker may also allow a half-hour debate on the report by the committee before passing orders or directing that the report be tabled before the House.

AN EXPERT EXPLAINS: POLITICS AND HISTORY IN GOA

Recently, the Prime Minister has raked up a six-decade-old debate on decisions taken by Jawaharlal Nehru in the final years of Portuguese rule to accuse the Congress of apathy towards Goa and Goans.

Freedom Movement in Goa

- Goa became a Portuguese colony in 1510, when Admiral Afonso de Albuquerque defeated the forces of the sultan of Bjiapur, Yusuf Adil Shah.
- The next four and a half centuries saw one of Asia's longest colonial encounters.
- Goa found itself at the intersection of competing regional and global powers and religious and cultural ferment that would lead eventually to the germination of a distinct Goan identity.
- By the turn of the twentieth century, Goa had started to witness an upsurge of nationalist sentiment opposed to Portugal's colonial rule, in sync with the anti-British nationalist movement in the rest of India.
- Stalwarts such Tristão de Bragança Cunha, celebrated as the father of Goan nationalism, founded the Goa National Congress at the Calcutta session of the Indian National Congress in 1928.
- In 1946, the socialist leader Ram Manohar Lohia led a historic rally in Goa that gave a call for civil liberties and freedom, and eventual integration with India, which became a watershed moment in Goa's freedom struggle.

- Prabhakar Sinari was a co-founder of the Azad Gomantak Dal (AGD) which was of the view that civil liberties could not be won by peaceful methods, and a more aggressive armed struggle was needed.
- The trauma of Partition and the massive rupture that followed, coupled with the war with Pakistan, kept the Government of India from opening another front in which the international community could get involved.

Dilemma in front of Jawaharlal Nehru

- It was apparent that Nehru was prepared for the long haul in Goa, perhaps trying to exhaust all options available to him given the circumstances that India was emerging from, and where he was headed in shaping India's position in the comity of nations.
- Portugal had changed its constitution in 1951 to claim Goa not as a colonial possession, but as an overseas province.
- The move was apparently aimed at making Goa a part of the newly formed North Atlantic Treaty Organisation (NATO) military alliance.
- Nehru saw it prudent to pursue bilateral diplomatic measures with Portugal to negotiate a peaceful transfer while, at the same time, a more 'overt' indigenous push for liberation.

UNIFORM CIVIL CODE NEED OF HOUR: GIRIRAJ

Amid the row over wearing hijab in schools and colleges, Union Minister and BJP leader Giriraj Singh has said the Uniform Civil Code is the “need of the hour” and it should be discussed both in Parliament and in society.

Uniform Civil Code:

- The Uniform Civil Code (UCC) calls for the **formulation of one law for India**, which would be **applicable to all religious communities** in matters such as marriage, divorce, inheritance, adoption.
- The code comes under **Article 44 of the Constitution**, which lays down that the state shall endeavour to secure a **Uniform Civil Code for the citizens** throughout the territory of India.

Why is Article 44 important?

- The objective of **Article 44 of the Directive Principles** in the Indian Constitution was to address the **discrimination against vulnerable groups** and harmonise diverse cultural groups across the country.
- **Dr. B R Ambedkar**, while formulating the Constitution had said that a UCC is desirable but for the moment it should remain voluntary, and thus the Article 35 of the draft Constitution was added as a part of the Directive Principles of the

State Policy in part IV of the Constitution of India as Article 44.

- It was incorporated in the Constitution as an aspect that would be fulfilled when the nation would be ready to accept it and the social acceptance to the UCC could be made.

Origin of Uniform Civil Code

- The origin of the UCC dates back to colonial India when the British government submitted its report in 1835 stressing the need for uniformity in the codification of Indian law relating to crimes, evidence, and contracts, specifically recommending that personal laws of Hindus and Muslims be kept outside such codification.
- Increase in legislations dealing with personal issues in the far end of the British rule forced the government to form the B N Rau Committee to codify Hindu law in 1941.
- The task of the Hindu Law Committee was to examine the question of the necessity of common Hindu laws.
- The committee, in accordance with scriptures, recommended a codified Hindu law, which would give equal rights to women.
- The 1937 Act was reviewed and the committee recommended a civil code of marriage and succession for Hindus.

WHAT IS THE DOCTRINE OF ESSENTIALITY - SUPREME COURT'S?

Shirur Mutt' case in 1954: Invented doctrine of **essentiality**. The court held that the term “religion” will cover all rituals and practices “integral” to a religion, and **took upon itself (in the hands of judiciary)** the responsibility of determining the **essential and non-essential practices of a religion**.

The essentiality/integrity doctrine has tended to lead the court into an **area that is beyond its competence**, and

given **judges the power** to decide purely religious questions.

Why is the issue of the essential practice test in news?

- A pre-university college in Karnataka **refused entry to Muslim girl students wearing hijabs, or head-scarves**.

Communal colour a threat to integrity

While the girls have been protesting against being denied access to education .	There is a counter-protests by a section of Hindu students wearing saffron shawls and turbans have led to a tense situation outside some campuses.
--	---

Judicial response

- The action of the college **is now being questioned in the Karnataka High Court**.
- The court, has directed that student **should not wear** attire linked to **“any religion”** until it resolves the legal questions arising from the issue.

What are the issues?

Article 25: Freedom of conscience and free profession, practice and propagation of religion. Subject to public order, morality and health and to the other provisions of this Part, all persons are equally entitled to freedom of conscience and the right freely to profess, practise and propagate religion.	Whether students can be kept out of educational institutions merely because they are wearing a piece of clothing indicating their religion . Is the denial of entry a violation of their freedom of conscience and freedom to practise their religion?
--	--

Government’s stand:

Compelling a student to remove the head-scarf is **not a violation of Article 25**.

- **Subject to public order:**
- The wearing of head-scarves will have an adverse impact on law and order by pitting two communities against one another, and thereby, enable the Government to prohibit religious attire in the interest of public order – **one of the grounds on which a right under Article 25 can be curbed**.
- **Subject to public morality and health:** The educational institutions can bar religious attire as part of their power to prescribe uniforms for students is **within the power to restrict freedom of religion in the interest of public order, health and morality**.

- **Denial of entry into schools amounts to violation of the students’ right to education under Article 21A**
- The state shall provide free and compulsory education to all the children in the age of **6 to 14** years in such a manner as the state may, by law determine.
- **State of Tamil Nadu vs K Shyam sunder (2011):** There cannot be discrimination on the ground of child’s economic, social **and cultural backgrounds**.
- **Muslim students’ point of view:** They have a **fundamental right to wear a hijab** as part of their right to practise their religion.
- The right asserted in contrast to the general rule, as well as arguments advanced in court on their behalf, the **issue may boil down to a finding on whether the wearing of hijab is essential to the practice of their faith**.

What is the constitutional position?

Bijoe Emmanuel vs. State of Kerala (1986): In this case three children belonging to the Jehovah’s Witnesses sect refusing to sing the national anthem during the morning assembly were expelled .	The Supreme Court ruled holding that their expulsion violated: Article 19(1)(a): Their freedom of expression . Article 25(1): Their right to freely practise and profess their faith.
--	--

Article 25: The freedom of conscience and to profess, practise and propagate religion
This freedom is **subject to 'public order, morality and health.**

It also makes **it clear that there can be a law** regulating any economic, financial, political or **other secular activity** which may be associated with religious practice or to provide for social welfare and reform, **including throwing open Hindu religious institutions of a public character to all classes and sections of Hindus.**

RELIGIOUS BELIEF OR PRACTICE APPEALS TO OUR REASON OR SENTIMENT (VS) WHETHER THE BELIEF IS GENUINELY AND CONSCIENTIOUSLY HELD AS PART OF THE PROFESSION OR PRACTICE

- **Justice O. Chinnappa Reddy:** Observed that “The question is not whether a particular religious belief or practice **appeals to our reason** or sentiment but **whether the belief is genuinely and conscientiously held as part of the profession or practice of religion.**
- Our **personal views and reactions are irrelevant.**
- **Article-25:** Ensures protection “if the belief is genuinely and conscientiously held”, but subject of course, to the inhibitions contained therein.”

The test in this approach is to find out

- Whether a student who asserts religious freedom for a course of action that the **authorities find objectionable genuinely and conscientiously holds that belief or not.**
- Whether such a belief is **constitutionally protected.**

Basis on which students support the issue

- **Wearing a hijab is an essential part of Islam:** Kerala High Court judgment that had in 2016 allowed two Muslim students to take the All-India Pre-Medical Test while wearing a hijab, after holding that it was an essential part of Islam.
- **Madras High Court order:** The court ruled that there is **unanimity among Muslim scholars that the purdah is not essential, but covering the head by a scarf was obligatory.**

Different views on test of essential practice and decision are based on majority and not unanimous

- **Sardar Syedna Taher Saifuddin Saheb vs. Bombay (1962):**

Essential practice' doctrine: Shirur Mutt' case

- The '**essential practice' doctrine** can be traced to a **1954 decision** of the Supreme Court in Commissioner, Hindu Religious and Charitable Endowments, Madras vs. Sri Lakshmana Tirtha Swamiar of Sri Shirur Mutt, commonly known as the '**Shirur Mutt' case.**
- This litigation involved action sought to be taken by the Madras government against a mutt over some disputes over the **handling of financial affairs.**
- The **madathipathi's** contention was that the **Government could not interfere in the mutt's right to manage its own affairs under Article 26.**
- **Article 26:** It protected the right “**to manage its own affairs in matters of religion**”.
- This led to the Bench noting that the presence of this clause indicates that there could be affairs that were not matters of religion.

How does one draw the line between matters of religion and matters other than religion?

- The court said: What constitutes the **essential part of a religion** is primarily to be ascertained with reference to the **doctrines of that religion itself.**
- In 1983, the Supreme Court upheld the police decision to disallow '**Tandava**', a ritual dance performed with a skull and a knife, in public places as part of a procession by **Ananda Margis**, holding that the '**Tandava' was not an essential religious practice among those in the sect.**

<p>The Supreme Court struck down a law that prohibited the head of the Dawoodi Bohra community from excommunicating members.</p> <p>The majority ruled that the power of excommunication exercised by the religious head on religious grounds was part of the management of affairs on religious matters, and the Act infringed on the community's rights.</p>	<p>However, in a dissenting judgment, Chief Justice B. P. Sinha said the law was valid because it sought to uphold the freedom of conscience of individual members as well as their civil rights.</p>
--	---

• **Sabarimala case (2018):**

<p>The majority ruled that the bar on entry of women in the age-group of 10 to 50 was not an essential or integral part of the religion, and also denied the status of a separate religious denomination of devotees of Lord Ayyappa.</p>	<p>However, in a dissenting judgment, Justice Indu Malhotra, said they constituted a distinct denomination and that the restriction on women of a particular age group is an essential part of their faith and is constitutionally protected.</p>
--	--

Criticism against the essential practice test

- **Continuing emphasis** on applying the essential practice test to determine the **constitutionality of state action** against any religious practice that claims protection **despite being either discriminatory or exclusionary**.
- It was **never intended to be a test to find out if a particular practice is essential to the practice of the religion**, but was only made to distinguish a matter of religion from a matter other than religion.
- The doctrine of essentiality appears to **allow courts to go deeply into the scriptures and**

tenets of a religion or a religious denomination to find out if the practice or norm that is at the heart of the issue is essential.

- This is seen as a **theological or ecclesiastical exercise**, which courts are forced to wade into.

Way forward:

- A more reasonable approach will be to apply the **test of constitutional morality and legitimacy to the issue at hand**. Applying the **principles of equality, dignity and civil rights** to a particular practice may be better to decide the constitutionality of a practice than a theological enquiry.

POWER SECRETARY: 'PREPAID METERING SOLUTION FOR BANE OF BILLING AND COLLECTION ... GOOD FOR DISCOMS, CONSUMERS'

Prepaid smart meters can play an important role in addressing the issue of billing and collection in power distribution, said Power Secretary Alok Kumar.

- He also said the ministries of power, coal and railways were actively working towards boosting coal supply, and that power generation companies, or gencos, were unlikely to face the issue of low coal inventory post monsoon in 2022.

Smart Metering?

- A smart meter provides the **objective tracking of utility energy consumption** that occurs on the system or outlet it is attached to.

- For example, a smart meter connected to a natural gas line tracks the number of terms consumed by the facility.
- The "smart" feature of the meter **lets it control the flow of the resource being used**, such as natural gas, water or electricity.
- The smart aspect also **allows the meter to be controlled remotely**.

Significance of smart metering

- It will keep track of how much energy they're using so they can **adjust their usage** if necessary.

- Smart meters **record a variety of data points on consumption**, including when a resource is being used, how much is being used at a time and where it's being directed.
- Through an internet or wireless connection, **the data is relayed to a console**, where you can see a breakdown of the data.
- It is an efficient method of **tracking usage across their customer bases to better determine costs and infrastructure needs**.
- It provides comfort to **enhance learning conditions and improve environmental literacy**.

Risks associated with smart metering

- They present some **cybersecurity risks**.
- The **management of the physical meters** is, in itself, not a small undertaking and a **supply chain application needs to be utilized**.
- **Consumers need to feel that they are being treated uniquely**, which is difficult to do within such huge programs.

- **Improper resource optimisation**, for example, during initial investigations when engineers arrive at a site and suggest that a different skill-set may be required to complete the work.

Road Ahead:

- Smart metering is improved by new and better connectivity innovations, especially IoT. With meters tied to the mechanisms that control the resources they're measuring; we can turn some of our decisions over to automation backed by machine learning.
- An IBM blog suggests that a smart meter tied to a thermostat can help it determine times to change the heat based on fluctuating energy costs. Smart meters can be applied to numerous devices and machinery, allowing businesses to manage their power usage per machine.
- Another potential application is for devices that use up consumable resources that need to be refilled. Smart meters that detect that a resource is about to run out can prompt an IoT device to automatically order a refill.

INSTITUTES THAT COMPLETE ONE YEAR CAN SEEK PROVISIONAL NAAC ACCREDITATION

Under a new set of guidelines developed by the **National Assessment and Accreditation Council (NAAC)**, colleges and universities that have completed **even one academic year will be eligible to apply** for provisional accreditation.

- Until now, only those higher education institutions that are **at least six years old**, or from where at least **two batches of students have graduated**, could apply for NAAC accreditation.
- These criteria, and the fact that not many institutions actually apply for review, had led to a situation where very few of the 51,000 colleges, universities and standalone institutions in the country possess NAAC grading.
- According to official data, as on October 26, 2021, the NAAC has issued 13,971 accreditations, which remain valid for five years. There are only 12 universities and 64 colleges that have been

reviewed by the NAAC four times, with a gap of five years between each grading.

- Under the new guidelines, **provisional accreditation for colleges (PAC)** is essentially geared to ascertain the readiness of institutions for the final NAAC accreditation.
- Institutions that apply for the PAC process will get feedback regarding the areas they need to work on to reach **“the threshold level of quality”**, according to the manual.
- The PAC will be valid for two years, and institutions cannot get it more than two times.
- The National Education Policy (NEP) 2020 lays major emphasis on accreditation. It envisages a “meta-accrediting body” called the National Accreditation Council.
- According to the NEP, “Through a suitable system of graded accreditation and graded autonomy, and in a phased manner over a period of 15 years, all Higher Education Institutes in

India will aim to become independent self-governing institutions pursuing innovation and excellence.”

National Assessment and Accreditation Council (NAAC):

- It was established in 1994 as an **autonomous institution of the University Grants Commission (UGC)** with its Head Quarter in **Bengaluru**.
- The mandate of NAAC as reflected in its vision statement is in making quality assurance an integral part of the functioning of Higher Education Institutions (HEIs).
- It conducts assessment and accreditation of Higher Educational Institutions (HEI) such as colleges, universities or other recognised institutions to derive an understanding of the 'Quality Status' of the institution.

- It evaluates the institutions for its conformance to the standards of quality in terms of its performance related to the educational processes and outcomes, curriculum coverage, teaching-learning processes, faculty, research, infrastructure, learning resources, organisation, governance, financial wellbeing and student services.
- It functions through its General Council (GC) and Executive Committee (EC) comprising educational administrators, policymakers and senior academicians from a cross-section of Indian higher education system.
- The Chairperson of the UGC is the President of the GC of the NAAC, the Chairperson of the EC is an eminent academician nominated by the President of GC (NAAC).

ANTILYNCHING BILLS PASSED BY FOUR STATES HANGING FIRE

Bills passed against mob lynching in the past four years by at least three States ruled by BJP rivals and one governed by the party itself have not been implemented with the Union government taking a view that lynching is not defined as a crime under the Indian Penal Code (IPC).

- The Union Home Ministry informed Parliament in 2019 that there was **“no separate”** definition for **lynching under the IPC**, adding that lynching incidents could be dealt with under **Sections 300 and 302 of the IPC**, pertaining to murder.
- In 2017, the National Crime Records Bureau (NCRB) collected data on mob lynching, hate crimes and cow vigilantism but it was not published and discontinued as these crimes are not defined and the data were found to be unreliable.
- On December 22, the Jharkhand Assembly passed the Prevention of Mob Violence and Mob Lynching Bill, 2021, providing for punishment from three years to life imprisonment. The Bill awaits the Governor's nod.

- On August 5, 2019, the Rajasthan Assembly passed the Rajasthan Protection from Lynching Bill, 2019, providing for life imprisonment and a fine from ₹1 lakh to 5 lakh to those convicted in cases of mob lynching leading to the victim's death.
- On August 30, 2019, the West Bengal Assembly passed a legislation- the West Bengal (Prevention of Lynching) Bill, 2019 that proposes a jail term from three years to life for those involved in assaulting and injuring a person and also defines terms such as “lynching” and “mob.” The government also proposed the West Bengal Lynching Compensation Scheme.

President's consideration

- In 2019, the MHA informed the Lok Sabha that it had received the bills passed by the State legislatures of Manipur and Rajasthan that have been reserved by the Governor for consideration of the President.
- The President has to go with the advice given by the Council of Ministers, in the case of such legislations, represented by the MHA.

- In 2018, the Supreme Court asked Parliament to make lynching a separate offence. Union Home Minister Amit Shah had informed Parliament that the government has decided to overhaul the IPC framed in 1860 and the Code of Criminal

Procedure (CrPC) and mob-lynching would also be examined by the committee.

- The suggestions received by the Committee for Reforms in Criminal Laws would be examined by the Ministry before the changes are adopted.

QUESTIONING THE BAN ON ONLINE GAMING PLATFORMS

Earlier this week, a division bench of the Karnataka High Court comprising of Chief Justice Ritu Raj Awasthi and Justice Krishna S. Dixit delivered a judgment striking down major portions of the Karnataka Police (Amendment) Act, 2021.

- It is a new law that was introduced by the State government to ban online gambling and skill-based gaming platforms like rummy, poker and fantasy sports that involved any wagering or risking of money on an uncertain event.

Why are States resorting to banning online gaming?

- Many social activists, government officials and those in law enforcement believe that online games like rummy and poker are **addictive in nature**; and when played with monetary stakes leads to depression, mounting debts and suicides.
- Reportedly, there have been a few instances where youngsters, faced with mounting debts due to losses in online games have committed other crimes like theft and murder.
- Some experts also believe that online games are susceptible to manipulation by the websites operating such games.
- There is a possibility that users are not playing such games against other players, but against automatic machines or 'bots', wherein there is no fair opportunity for an ordinary user to win the game.

Is regulation of online gaming a better solution?

- An outright ban may not entirely curtail the playing of such online games, with or without stakes.
- Telangana, which was the first State to ban online games for stakes in 2017 has seen a spurt of illegal or underground online gambling apps, most of which originate from China or other foreign countries, and except payments from

players through dummy companies or hawala channels.

- Both the Enforcement Directorate (ED) and local cybercrime authorities have tried to crack down on such apps but with limited success.
- Shifting of users to grey or illegal offshore online gaming apps not only results in loss of tax revenue for the State and job opportunities for locals, but results in users being unable to avail remedies for any unfair behaviour or refusal to pay out winnings.
- Experts believe that instead of a complete ban, one could look at licensing and regulating the industry with various checks and balances such as diligent KYC and antimoney laundering processes, barring minors from accessing real money games, placing weekly or monthly limits on the money that can be staked or time that can be spent, counselling for addictive players and allowing self-exclusion of such players etc.

What is next for online gaming companies?

- The Tamil Nadu government has filed an appeal in the Supreme Court against the August 2021 order of the Madras High Court striking down its online gaming law.
- Presently, it is unclear whether the Karnataka government is also planning to file an appeal to the Supreme Court.
- However, at least Tamil Nadu government's appeal is expected to be listed before the apex court in the coming weeks.
- It is expected that the Supreme Court will give its conclusive verdict on the issue of whether online real money games can be outrightly banned and whether the State or Central government has the power to enact legislation on the subject.

- For now, online gaming companies will continue to offer different formats and variations of online real money games, with the distinction between

A CASE FOR A MORE FEDERAL JUDICIARY

Nearly 150 years ago, A.V. Dicey, the foremost constitutional lawyer of his day, wrote, "The essential characteristic of federalism is the distribution of limited executive, legislative and judicial authority among bodies which are coordinate with and independent of each other".

- We now examine the Indian judiciary and the need to strengthen the federal nature of our judiciary. India is a union of States. The Supreme Court of India has held that the federalist nature of our country is part and parcel of the basic structure of the Constitution.

Federalism

- The idea which lies at the bottom of federalism is that each of the separate States should have approximately equal political rights and thereby be able to maintain their non-dependent (for want of a better word) characteristics within the larger union.
- An integral requirement of a federal state is that there be a robust federal judicial system which interprets this constitution, and therefore adjudicates upon the rights of the federal units and the central unit, and between the citizen and these units.

Why there is imbalance in the federal structure of the judiciary?

- First, the Supreme Court has the **power to appoint judges and chief justices to the High Courts and the Supreme Court**. This Collegium also has the power to transfer judges and chief justices from one High Court to another.
- Second, **successive governments have passed laws that create parallel judicial systems of courts and tribunals** which provide for direct appeals to the Supreme Court, bypassing the High Courts.

skill based and chance-based games at times **becoming blurry and debatable**.

- Third, the **Supreme Court has been liberal** in entertaining cases pertaining to trifling matters.

Centralisation of Judiciary and its effects

- **Judicial review by a centralised judiciary tends toward unitarism**. For example, in the United States, the Supreme Court is far more likely to strike down a state statute as unconstitutional than a federal statute.
- **An aggressively interventionist Supreme Court leads many to approach it directly as a panacea for all ills befalling the nation.**
 - In 2018, a direct petition filed in the Supreme Court to curtail Deepavali celebrations. The Court promptly issued directions to celebrate Deepavali for only one or two hours in the evening. This led to an uproar because people in South India celebrate Deepavali in the morning.
- Every time the **Supreme Court entertains an appeal against a High Court decision**, it second guesses the High Court. It sends out the message to the litigant: **'It does not matter that the High Court ruled against you, you can take one more chance with this appeal.'**
- **Creation of parallel hierarchies of courts and tribunals, whether it be the Competition Commission, or the company law tribunals, or the consumer courts, all bypassed High Courts**. Whether it be the weakening of the authority of the High Courts or the possibility of a tendency towards subservience or apathy of the judges of the High Courts.

Road Ahead:

- In the decades immediately preceding the French Revolution there was a gradual erosion in the powers of the nobles living in the rural parts of France, and a gradual aggrandisement of powers in the hands of the aristocracy in Paris.
- The conclusion arrives at is that all central units have a natural tendency to aggrandise power to

themselves from the state units, believing that centralisation enables them to discharge their duties more effectively in relation to the entire state. But in reality, the weakening of the state units sets off a weakening of the entire body of the state, which gradually ossifies into irreversible decay.

- We conclude by hoping that the Supreme Court itself recognises the importance of self-abnegation and restores the federal balance by re-empowering the High Courts. This will be in the best interest of the nation.

WITHDRAWN 274 RECOVERY NOTICES AGAINST ANTI-CAA PROTESTORS: UP GOVT TO SC

After the Supreme Court pulled up the UP government to follow **Due Process of Law**, for acting on 274 recovery notices issued to alleged anti-CAA protestors in December, 2019, the state informed the Court that the notices and the consequent proceedings have been duly withdrawn.

- The Supreme Court had reprimanded the state government for affecting recoveries in violation of its judgments in *Kodungallur Film Society (2018)*.

Due Process of Law

- Due process requires that **legal matters be resolved according to established rules and principles and that individuals be treated fairly.**
- The origin of due process is often attributed to the Magna Carta, a 13th-century document that outlined the **relationship between the English monarchy, the Church, and feudal barons.**
- In the U.S. due process is **outlined in both the Fifth and Fourteenth Amendments.**
- The **Sixth Amendment** adds due process protections **to criminal defendants.**
- One example of due process is the **use of eminent domain.**

Due Process of Law in India

- Due process of law doctrine not only checks if there is a law to deprive the life and personal liberty of a person but also see if the **law made is fair, just and not arbitrary.**
- **If SC finds that any law as not fair, it will declare it as null and void.** This doctrine provides for more fair treatment of individual rights.

- Under due process, it is the **legal requirement that the state must respect all of the legal rights that are owed to a person and laws that states enact must conform to the laws of the land like – fairness, fundamental rights, liberty etc.** It also gives the judiciary to access fundamental **fairness, justice, and liberty of any legislation.**
- In India, a liberal interpretation is made by the judiciary after 1978 and it has tried to make the term 'Procedure established by law' as synonymous with 'Due process' when it comes to protecting individual rights.
- In *Maneka Gandhi vs Union of India case (1978)* SC held that – '**procedure established by law' within the meaning of Article 21 must be 'right and just and fair' and 'not arbitrary, fanciful or oppressive'** otherwise, it would be no procedure at all and the requirement of Article 21 would not be satisfied. Thus, the 'procedure established by law' has acquired the same significance in India as the 'due process of law' clause in America.

Procedure Established by Law

- It means that a **law that is duly enacted by the legislature or the concerned body is valid if it has followed the correct procedure.** Following this doctrine means that, a person can be deprived of his life or personal liberty according to the procedure established by law.
- So, if Parliament passes a law, then the **life or personal liberty of a person can be taken off according to the provisions and procedures of that law.**

- This doctrine has a major flaw. It **does not seek whether the laws made by Parliament is fair, just and not arbitrary.**
- “Procedure established by law” means a **law duly enacted is valid even if it’s contrary to principles of justice and equity.**

- **The strict following of the procedure established by law may raise the risk of compromise to life and personal liberty of individuals due to unjust laws made by the law-making authorities.** It is to avoid this situation; SC stressed the importance of the due process of law.

INDIA BELIEVES IN 'SECURITY AND GROWTH FOR ALL IN THE REGION' TO FOCUS ON COOPERATIVE MEASURES FOR SUSTAINABLE USE OF OCEANS: PRESIDENT KOVIND

India believes in ‘**Security and Growth for All in the Region**’ to focus on cooperative measures for sustainable use of oceans, said the President of India, Shri Ram Nath Kovind. He was speaking on the occasion of **Presidential Fleet Review-2022 at Visakhapatnam, Andhra Pradesh.**

- The President said that a large part of global trade flows through the Indian Ocean Region. A significant portion of our **trade and energy needs are met through the oceans.** Safety of the seas and of the maritime commons, therefore, remains a critical requirement. The Indian Navy’s constant vigil, prompt response to incidents and untiring efforts have been highly successful in this regard.

Security and Growth for all in the Region

- SAGAR is India’s policy or **doctrine of maritime cooperation in the Indian Ocean region.** The policy was first announced by Prime Minister Narendra Modi on March 12, 2015.
- SAGAR initiative is a part of his **greater proactive foreign policy.** A highly strategic move to **guard India’s national interests.**
- India **enhancing its relations and bilateral ties with the IOR littoral states** is a great step towards achieving **maritime peace and cooperation.**
- The ambition to become a **prime decision-maker of the area compels India to develop friendly ties with its marine neighbours.**
- As an integral **part of its Neighbourhood First Policy,** SAGAR policy works through the **channels of regional organizations like BIMSTEC, ASEAN, IORA.**

Vision for the SAGAR initiative

- **“Our vision for the Indian Ocean Region is rooted in advancing cooperation in our region and to use our capabilities for the benefit of all in our common maritime home”.**
- Based on this vision of the SAGAR initiative can be defined under the following terms:
- **Security:** Enhancement of coastal security so that land and maritime territories can be safeguarded with relative ease.
- **Capacity Building:** Deepening economic and security cooperation for smooth facilitation of economic trade and maritime security.
- **Collective Action:** Promoting collective action to deal with natural disasters and maritime threats like piracy, terrorism and emergent non-state actors.
- **Sustainable Development:** Working towards sustainable regional development through enhanced collaboration
- **Maritime Engagement:** Engaging with countries beyond our shores with the aim of building greater trust and promoting respect for maritime rules, norms and peaceful resolution of disputes.

Importance of SAGAR

- India can leverage on the **Blue economy** through this initiative. A Blue economy presents an opportunity to meet its national socio-economic challenges. In addition, **connectivity with its neighbours can be enhanced.**

- **Regional issue such as disasters, piracy can be tackled.** Further an integrated approach and cooperative future will become possible through the implementation of the SAGAR initiative.
- Through the 21st Century Maritime Silk Route, China has been exerting its influence in the Indian Ocean region. This is a **double-edged sword as they have commercial and military implications in the form of the String of Pearls strategy.** Keeping this context in mind, the SAGAR vision is important in countering such issues.

Advantage of SAGAR Policy

- India's greatest strength in the SAGAR initiative is its **central location in the Indian Ocean providing unrestricted access to the Indian Ocean Region.**
- Along with this, it has immense capabilities which it can share with its maritime neighbours – **strong and capable maritime security forces, shipyards capable of constructing aircraft carriers and submarines, vast industrial complexes, financial institutions, space assets to name a few.**
- It was long understood by the political leadership that **India's best defences lie in strengthening its maritime domain.**
- There India has focused on **issues that are of priority to the smaller nations – security of natural resources, sustainable development, protection from natural disasters, and**

controlling the ill-effects of marine pollution and climate change.

Challenges faced by SAGAR Policy

- The weakness of the SAGAR initiative is **due to its capacity and execution.** Although India has the capability to offer the maritime assets it has limited capacity to execute it.
- The limitation of capacity, coupled with a **lack of international coordination,** will fail in living up to the expectations of its maritime neighbours.
- It can also be argued that **India has still not adequately harnessed its capability in military diplomacy** since it is careful in committing more assets and manpower, and due to its internal governance mechanisms.
- The **capacity of the private sector has not been guided** along with the SAGAR initiative.

Road Ahead:

- India is a natural, prime actor in the Indian Ocean due to its geostrategic placement. India has the capability to emerge as a major regional power in the Indian Ocean Region and influence the future trajectory of maritime stability in the region.
- It has the potential to create a free trade movement in the region with the support of other littoral states which will eventually help small states to access larger markets. It has an advantage in providing humanitarian relief to the region and encouraging the active involvement of the Indian Navy in disaster management operations.

VICE PRESIDENT UNDERLINED THE IMPORTANCE OF SAFE DRINKING WATER AND SANITATION FOR GOOD HEALTH AND WELL-BEING

Addressing the **National WASH Conclave-2022**, the Vice President said that children should grow up in an environment that is healthy physically and emotionally.

- For this, he wanted preventive healthcare measures such as safe water, sanitation and hygienic practices to begin from anganwadi and primary schools.
- The **virtual Conclave on Water, Sanitation and Hygiene (WASH)** is being organised by

the **National Institute of Rural Development and Panchayati Raj (NIRDPR)**, in association with the **Ministry of Jal Shakti, Ministry of Panchayati Raj, UNICEF** and other development partners. The Conclave is **focusing on 'advancing water, sanitation and hygiene at Panchayats'**.

About WASH

- The WASH (Water, Sanitation and Hygiene) initiative has been taken by various countries in order to **provide safe drinking water, proper sanitation facilities and a hygienic environment and livelihood to its people.**
- This is a **World Health Organisation (WHO) initiative considering the health and hygiene of people across the world.**
- **WHO's 13th General Programme of Work 2019–2023** brings forth two indicators which would accelerate the Organization's work to increase access to safely managed drinking water, sanitation and hygiene in households.
- It is estimated that **if the conditions do not improve, by 2025, half of the world's population will be living in water-stressed areas.**
- The WHO WASH Strategy has been developed in response to **Member State Resolution WHA64.4 and the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs).**
- It takes on board the need for the progressive realisation of the human rights to safe drinking water and sanitation, adopted by the UN General Assembly in July 2010.

Objectives of WASH

- **Improving the quality of drinking water to reduce the risk of human health.** Improving the safety of sanitation and wastewater management
- **Monitor healthcare facilities** is another important aim of WASH
- **Monitor the data presented by the Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS)**
- **Coordinate with multi-sectoral partners,** lead or engage with global and regional platforms, and advocate for WASH.
- **Integration of WASH with health and other programmes** such as AMR, cholera, climate change, emergencies, IPC, NTDs, nutrition, UHC, water security to increase synergies and impacts.

Why WASH is important?

- A WHO study conducted in 2018 noted that **good sanitation can save more than one lakh lives on an annual basis** – year after year.
- Another study has revealed that groundwater sources in villages with poor sanitation practice are, on average, 11 times more likely to be contaminated.
- **Taking forward WASH agenda to Gram Panchayats is critical as they are at the core of rural water supply** which is needed to **ensure institutional strengthening** of the Panchayats for effective service delivery to the last mile.
- There is need to **ensure that every household gets all the basic facilities – the most essential of them being WASH related.**
- It holds the key to **fast-tracking all-round development.** Children should grow up in an environment that is **healthy – physically and emotionally.** Preventive health care measures must begin from anganwadis and primary schools.
- There is need to learn from **Scandinavian countries where local governments follow hub-and-spokes models to meet the requirement of skilled manpower** to attend to any breakdown and maintenance work.
- The progress making in this sector has a cascading impact on many other development indicators. **SDG-6 on Water and Sanitation is closely related to SDG-3, which is about Good Health and Well-being.**

Steps taken by India

- Under **Swachh Bharat Abhiyan** toilet construction has been initiated to provide open defecation country.
- The government launched **Mission Indradhanush in 2015** to rapidly increase immunisation coverage. It is also investing significant resources towards ending open defecation by 2019 through the Swachh Bharat programme.
- Under **Har Ghar Nal se Jal Scheme** piped and quality water supply is being stressed by 2024.

- The **National Health Policy 2017** clearly articulates the government's commitment to reforming the health sector and achieving

universal health coverage, not least by proposing an increase in the health budget to 2.5% of GDP.

'ENACTMENT OF LAW IS SOVEREIGN FUNCTION': DELHI HIGH COURT DISMISSES PLEA FOR IMPLEMENTATION OF WHISTLE BLOWER'S PROTECTION ACT, 2014

The Delhi High Court today refused to entertain a Public Interest Litigation seeking a direction upon the Parliament to bring into force the Whistle Blowers Protection Act, 2014.

- At the outset, the Division Bench comprising Chief Justice DN Patel and Justice Jyoti Singh observed that enactment of law and bringing it into force are sovereign functions to be performed by the Parliament or the State Legislature under the Constitution, as the case may be.

Whistle-blower

- A whistle-blower is **anyone who has and reports insider knowledge of illegal activities occurring in an organization.**
- Whistle-blowers can be **employees, suppliers, contractors, clients, or any individual who becomes aware of illegal business activities.**
- The **Law Commission of India in 2001**, had recommended that, in order to **eliminate corruption**, a law to protect whistle-blowers was necessary. It had drafted a bill as well to address this issue.
- **In 2004, the Supreme Court of India directed the Central government that, 'administrative machinery be put in place for acting on complaints from whistle-blowers till a law is enacted.'**
- The government, in response, notified a resolution in 2004 named, '**Public Interest Disclosure and Protection of Informers Resolution (PIDPIR)**'. This resolution gave the **Central Vigilance Commission (CVC)** the power to act on complaints from whistle-blowers.
- In 2007, the report of the **Second Administrative Reforms Commission** also

recommended that a specific law needs to be enacted to protect whistle-blowers.

- To conform with regulations, in **2011 Whistle-blowers Protection Bill** was proposed which **finally became a law in 2014.**

Whistle blower Protection Act, 2014

- The act establishes a **mechanism to receive complaints related to disclosure of allegations of corruption or wilful misuse of power or discretion, against any public servant, and to inquire or cause an inquiry into such disclosure.**
- The act also provides **adequate safeguards against victimization of the person making such complaints.**
- The law **does not allow anonymous complaints to be made and clearly states that no action will be taken by a competent authority** if the complainant does not establish his/her identity. The **maximum time period for making a complaint is seven years.**
- Any person aggrieved by any order of the **Competent Authority can make an appeal to the concerned High Court within a period of sixty days** from the date of the order.
- The act is **not applicable to the Special Protection Group (SPG) personnel and officers, constituted under the Special Protection Group Act, 1988.**
- **Any person who negligently or mala-fidely reveals the identity of a complainant will be punishable with imprisonment for a term extending up to 3 years and a fine which may extend up to Rs 50,000.**

Provisions of Whistle Blowers Protection (Amendment) Bill, 2015?

- The bill makes it illegal to submit a **corruption-related disclosure** if it fits into one of ten categories.
- These categories include: (i) **economic, scientific, and national security interests of India**; (ii) **Cabinet proceedings**; (iii) **intellectual property**; (iv) **information obtained in a fiduciary position, and so on**.
- The **Official Secrets Act (OSA), enacted in 1923, prohibits certain disclosures**. The Bill changes this, making it illegal to make disclosures that are covered by the OSA.
- **If any public interest disclosure received by a Competent Authority falls into one of the ten forbidden categories**, it will be reported to a government-authorized authority. This authority will make a final decision that will be legally binding.

Problems faced by whistle-blowers?

- whistle-blowers' are **disliked by the government, corporations, and even society** to some level, with **some countries, even referring to them as "traitors."**
- whistle-blowers **face legal action, criminal accusations, social disgrace, and the possibility of being fired from any position, office, or job**.
- **Character assassination, official reprimand, and difficult legal processes** are all examples of vindictive strategies used to make an individual's work more difficult and/or insignificant.
- whistle blowers are nonetheless in a precarious position in a, despite the **high fines, because whistle-blowers cases generally contain a**

complex combination of facts and job history.

What are some ways to robust the system?

- **Information on the meaning and concept of the whistle blowers Protection Act** should be widely disseminated.
- **Seminars should be held** in both government and private businesses to educate employees and employers about the whistle blowers Protection Act's value. **Employees must be informed** about the various methods for making disclosures.
- The **definition and meaning of "competent authority"** should be changed to **broaden the scope of the phrase** and include several agencies/organizations that are currently excluded, such as the lower judiciary.
- The **Act should establish a Protection Agency** that would not only protect existing whistle-blowers but also encourage future ones to come forward and help them in making proper public disclosures.
- The state should devise a strategy for dealing with frivolous complaints, maybe by building an **effective screening system**. Taking away the option to file a complaint anonymously complicates the process of whistleblowing and discourages people from filing concerns.

Conclusion

- Appropriate legislation must be enacted to safeguard whistle-blowers, and the intended weakening of the act must be abandoned. Strengthening the whistle-blowers protection process will aid in safeguarding, preserving, and upholding democracy's integrity.

WRIT PETITION UNDER ARTICLE 32 TO QUASH FIR/CRIMINAL PROCEEDINGS CANNOT BE ENTERTAINED

The Supreme Court observed that a **writ petition under Article 32** of the Constitution of India to **quash FIR/criminal proceedings cannot be entertained**. It is not expected that the relief which can be considered by the **High Court under Section 482 Cr.P.C.** to be considered by this Court in exercise of powers under

Article 32 of the Constitution of India, the Court observed while dismissing a writ petition.

Writ Petition

- Writ Petition is an **order by a higher court to a lower court or courts**, directing them to do something or stop them from doing something.

- Writ is a **form of written command** in the name of the court. It directs you to act in a specific way.
- In the Indian legal system, you can file or draft a writ petition **under Article 226 in the High Court and under Article 32 of the Indian Constitution in the Supreme Court.**
- You can also file a **criminal or civil writ petition in the High Court or the Supreme Court**, depending on the case matter.
- In case the High Court doesn't give a suitable judgment, you can then submit the petition of the writ in the Supreme Court.

Type of Writs in the Constitution of India

Habeas Corpus Writ Petition

- The literal meaning of the term Habeas Corpus means, '**you may have the body of.**' You can file this type of writ petition **when a person is illegally detained.** Meaning, if the court finds out that the person is illegally detained, then it can order for the release of that person.
- When one files writ petitions of Habeas Corpus in nature, then the **court orders the authority to produce the detained person before him to examine whether he/she has been examined legally or illegally.**

The features of the writ petition are as follows:

- **Court has the authority to ask questions regarding the causes of detention of the detained person**
- **The court can issue a summon for the production of the detained person in the court**
- **If it is concluded that the detention of the person is illegal, it can order for the release of the person**

One can file the writ petition of Habeas Corpus in any of the courts, be it High Court or the Supreme Court. Also, one can issue it under the following circumstances where:

- The person has been detained but has not been produced before the magistrate within 24 hours of arrest.

- The arrest has been made without any violation of law done by the person.
- The arrest has been made for an unconstitutional law i.e., a law against the provisions of the Indian Constitution.
- Detention is done with **malafide intent, or with the intent to harm the persons.**

Writ of Mandamus

- Mandamus is a Latin word meaning '**we command**'. Mandamus is a court writ whereby the **higher courts order the lower court, tribunal, forum or any other public authority to do any act** which otherwise also falls under the purview of their duty.

The court laid down the following requirements of the writ of mandamus:

- There should be a legal right in existence.
- The legal right should be enforceable by the court.
- Enforcement of such a right must impose a responsibility of per on a person, public authority, corporation or government.
- Such duty is of public nature.

Writ of mandamus can be issued against the following:

- An individual or a private body.
- If the duty which is the subject matter is discretionary and not mandatory.
- It can be issued against the president or the governor of the state.
- Against an acting chief justice.
- To enforce a private contract.

Writ of Prohibition

- As the name suggests, the writ of prohibition is a court petition **issued either by the Supreme Court or High Court to prohibit.**
- When the **lower courts including the tribunals, forums or any public authority do something which exceeds their jurisdiction, the Supreme Court or High Court prohibits them by issuing the writ of prohibition.**
- Prohibition writ for the court is **issued to stop or put a stay on the power exercised by the**

authority and is commonly known as stay order. In India, a writ petition is issued against the proceedings going on in lower courts and in such proceeding, the lower court is exceeding its powers.

- Once the **writ of prohibition is allowed either by the Supreme Court or in High Court the proceedings of the lower court come to an end.**

The Supreme Court in the case of GOVIND MENON vs. UOI laid down the conditions in which one can issue the writ of prohibition. The conditions by the court are:

- When there is an excess of jurisdiction, or when there is an absence of jurisdiction.

Writ of Certiorari

- In the literal sense, the word certiorari means, '**to be certified**'. One can issue the writ of certiorari **by the Apex court for transfer of the matter to it or any superior authority for proper consideration.** You can issue the writ of certiorari against the inferior court or tribunal.

In simple terms, one can issue the writ of certiorari when the subordinate courts or the quasi-judicial bodies act in:

- **The absence of their jurisdiction, (or);**
- **Exceeds their jurisdiction (or);**
- **Fails to make use of their jurisdiction.**

The Essential Condition for Writ of Certiorari:

- There should be **court, tribunal or an officer having the legal authority to determine the question with a duty to act judicially.**
- Such a **court, tribunal or officer must have passed an order acting without jurisdiction.** Or in excess of the judicial

authority vested by law in such court, tribunal or officer.

- The order could also be **against the principles of natural justice.** Or the order could contain an error of judgment in appreciating the facts of the case.

Writ of Quo-Warranto

- Writ of quo warranto means a writ that you can be **issued to restrain a person from acting in the capacity of public office to which he/she does not have the entitlement.** Here, the term Quo-Warranto means, '**by what authority**' or, '**on whose authority is one holding a public office**'.

The supreme court in the case of UNIVERSITY OF MYSORE vs. GOVIND RAO laid down the requirements of the petition of quo-warranto which are as follows:

- A disputed post must be the public post.
- The post should be held by the person without any legal authority.
- The office must be a substantive one and not merely the function or employment of a servant at the will and during the pleasure of another.

Conclusion

- The power to grant writs is one of the most important powers granted to the High Courts and the Supreme court. Writs protect the rights of the citizens by providing a faster remedy, thereby upholding the principles of democracy by providing quick justice. The importance of writs cannot be underestimated, and the courts must necessarily use this power judiciously as they have been given a very wide ambit to practice this power.

OMBUDSPERSON APP IS A STEP TOWARDS E-GOVERNANCE, THIS WILL MAKE MGNREGA MORE TRANSPARENT

Recently, the Union Minister for Rural Development and Panchayati Raj launched **Ombudsperson App** for Mahatma Gandhi NREGA.

- The Minister said that the Ombudsperson App is a step towards e-governance, this will be helpful in ensuring transparency and accountability.

Why Ombudsperson is necessary?

- Development of an Ombudsperson App for **smooth reporting and categorization of grievances by Ombudsperson based on complaints he received** from various sources viz. physical, digital and mass media, related to the implementation of the Mahatma Gandhi NREG Scheme in the States/UTs.
- The app will enable **easy tracking and timely passing of awards** by Ombudsperson on each case as per the guidelines.
- Ombudsperson can also **easily upload the quarterly and annual reports on the website through the app.**
- The app will help the ombudsperson to a greater extent in discharging her/his duty towards **transparency and accountability.**
- Also, **smooth disposal of the grievances in a time-bound manner with minimal support of further human resources** will be possible through the app.
- This will **strengthen Ombudsperson in the discharge of her/his duty in a hassle-free manner.**

About MGNREGA

- The National Rural Employment Act (NREGA), later renamed as Mahatma Gandhi Rural Employment Act (MGNREGA), is regarded as the **Indian labour law and social security measure** that targets to **guarantee people of India the 'right to work.'**
- MGNREGA was **enacted in September 2005.** According to MGNREGA, the Act **"aims to enhance livelihood security in rural areas by providing at least 100 days of wage employment in a financial year to every household whose adult members volunteer to do unskilled manual work"**.
- Generally, **Gram Panchayats (GPs) implement the programmes under MGNREGA.** The engagement of contractors/middlemen is strictly prohibited in the programme.
- The **principles and agencies for execution, list of allowed works, financing pattern,**

monitoring and evaluation and quintessentially the detailed measures to ensure transparency and accountability are elaborately described in the act.

Objectives of MGNREGA

- To **enrich livelihood security in rural areas by giving at least 100 days of guaranteed wage employment in a financial year** to all the households whose **members aged above 18 years volunteer to do unskilled manual work.**
- To **flourish durable assets like roads, canals, ponds and wells.**
- It is required to **provide employment within 5 km of an applicant's home and to pay minimum wage.** If the applicant does not get any work within 15 days of applying, **an unemployment allowance will be given to them.** Hence, it is a **legal entitlement** to be employed under MGNREGA.

Implementation of MGNREGA

- NREGA not only **provides economic security and rural assets** but also **helps in protecting the environment, empowering rural women, reducing rural-urban migration, fostering social equity etc.**
- **Women empowerment** is one of the greatest aspects in MGNREGA programme. In the programme, **one-third of all employment is reserved for the women** and there is a provision of equal wage between the men and women.
- It is also a very **good opportunity for the youths of our country.** Another merit of MGNREGA is that it **develops the bargaining power of labour who often suffers due to exploitative market conditions.**
- Despite several controversies, MGNREGA can be termed as the best scheme for rural people of India. Thousands of **rural people survive their day-to-day life because of this scheme.**
- One of the major impacts of this scheme is the **reduction of migration from rural sector**

to the urban sector for causal work. MGNREGA not only creates job opportunity but also sustains it.

SARFAESI ACT HAS OVERRIDING EFFECT ON CENTRAL EXCISE ACT; DUES OF SECURED CREDITOR HAS PRIORITY OVER DUES OF CENTRAL EXCISE DEPT.: SUPREME COURT

Recently, the Supreme Court has observed that the SARFAESI Act will have an overriding effect on the provisions of the Central Excise Act.

- The bench comprising Justices L. Nageswara Rao and Vineet Saran observed that the dues of the secured creditor will have priority over the dues of the Central Excise Department.

What is SARFAESI Act?

- The SARFAESI Act is 'an act to regulate securitization and reconstruction of financial assets and enforcement of security interest and to provide for a central database of security interests created on property rights, and for matters connected therewith or incidental thereto'.
- Banks in India have been provided with the right to possess the security provided by the defaulting borrower against the loan and sell it to recover losses, without any intervention by any court of law under the SARFAESI Act, 2002 (SARFAESI Act, 2002), which provides them with a mechanism to significantly reduce their NPAs.

SARFAESI Act: Applicability

- **Registration and regulation of Asset Reconstruction Companies (ARCs) by the Reserve Bank of India.** Entrusting the Asset Reconstruction Companies to raise funds by issue of security receipts to qualified buyers.
- **Promotion of seamless transferability of financial assets by the ARC** to acquire financial assets of banks and financial institutions through the issuance of debentures or bonds or any other security as a debenture.
- **Presentation of any securitization company or asset reconstruction company** registered with the Reserve Bank of India as a public financial institution.

- **Defining 'security interest' to be any type of security including mortgage and charge on immovable properties** given for due repayment of any financial assistance given by any bank or financial institution.
- **Classification of the borrower's account as a non-performing asset** in accordance with the directions given or under guidelines issued by the Reserve Bank of India from time to time.
- **The Central Government may set up or cause to be set up a Central Registry** for the purpose of registration of transactions relating to securitization, asset reconstruction and creation of the security interest.

Objectives of SARFAESI Act

- The Act details the procedures for NPAs transfer to the asset reconstruction companies for the purpose of asset reconstruction.
- The Act confers powers to the financial institutions to take custody of the immovable property, which is charged or hypothecated, for debt recovery.
- The Act imposes the security interest without any intervention from the court.

SARFAESI Act: Process to Recover Non-Performing Assets

Security Enforcement without court's intervention:

- As per the Act, the financial institutions are entitled to issue notice to the defaulting loan takers as well as guarantors, asking them to clear the sum in arrears within 60 days from the date of issuing notice. If the defaulter fails to act in accordance with the notice, the bank is entitled to enforce security interest.

Securitisation:

- It refers to the process of drawing and converting of loans and other financial assets into marketable securities worth selling to the investors. In other words, it involves repackaging of less liquid assets into saleable securities.

Asset Reconstruction:

- It means acquisition by an ARC of any right or interest of any bank or financial institution in

any debt/loan/advance for the purpose of realisation/recovery of such debt.

Road Ahead:

- The provisions have enabled banks and financial institutions to improve recovery by exercising powers to take possession of securities, sell them and reduce NPAs by adopting measures for recovery and reconstruction.



BIG FINANCIAL PUSH FOR DEEP OCEAN MISSION IN UNION BUDGET

The Ministry of Earth Sciences (MoES) has bagged an **additional budget allocation of 12 per cent** in the Union Budget. For the upcoming financial year, the MoES will receive a **total of Rs 2,653.51 crore**, with a hike in budgets mainly for the India Meteorological Department (IMD) and the multi-crore and ambitious **Deep Ocean Mission**.

Deep Ocean Mission:

- The mission covers development of technologies for deep sea mining, **a manned submersible, development of ocean climate change advisory services, development of technology for exploration, conservation of deep-sea biodiversity and deep ocean survey and setting up of a marine station for ocean biology.**
- It will be a **mission mode project to support the Blue Economy Initiatives** of the Government of India.
- The technology and expertise needed in such missions is now available with only five countries - US, Russia, France, Japan and

China. **India will now be the sixth country to have it.**

- The exploration studies of minerals will pave the way for commercial exploitation in the near future, as and when commercial exploitation code is evolved by the **International Seabed Authority, an United Nations (UN) organisation.**

Significances of Deep Ocean Mission?

- Oceans, which **cover 70% of the globe**, remain a key part of our life. **About 95% of the Deep Ocean remains unexplored.**
- **Three sides of India are surrounded by the oceans** and around 30% of the country's population living in coastal areas, the ocean is a major **economic factor supporting fisheries and aquaculture, tourism, livelihoods and blue trade.**
- Oceans are also a **storehouse of food, energy, minerals, medicines, modulator of weather and climate and underpin life on Earth.**
- The exploration studies of minerals will pave the way for commercial exploitation in the near

future, as and when commercial exploitation code is evolved by the ISA.

- It is envisaged that **10 per cent of recovery of that large reserve can meet the energy requirement of India for the next 100 years.**

Challenges associated with Deep Ocean Mission?

- **Disruption for ecological balance.** The deep ocean is home to unique species that have adapted themselves to conditions such as less oxygen, poor or no sunlight, high pressure and extremely low temperatures.
- **Threats of oil and chemical spills** from the vessels operating at the site and also the water, sound and light pollution hampering the natural life of the deep-sea fauna.
- Since the biodiversity of the deep sea remains partially or completely unknown and very less

understood, it is **difficult to carry out the Environmental Impact Assessment (EIA)** and frame appropriate guidelines.

- There have been concerns regarding the **sediment plumes** that will be generated as the **suspended particles** can rise to the surface harming the filter feeders in the upper ocean layers.

Road Ahead

Ocean is a **major economic factor** supporting **fisheries and aquaculture, tourism, livelihoods and blue trade.** Oceans are also storehouse of food, energy, minerals, medicines, modulator of weather and climate and underpin life on Earth. Considering importance of the oceans on sustainability, the United Nations (UN) has declared the decade, 2021-2030 as the Decade of Ocean Science for Sustainable Development.

NOVEL FAST-SPREADING HIV-1 VARIANT FOUND CIRCULATING IN THE NETHERLANDS

A new, highly virulent strain of the Human Immunodeficiency Virus (HIV) has been discovered in the Netherlands.

- Its origin has been traced as far back as to the 1990s using genetic sequence analysis.
- This is the main group of HIV-1 that triggered the HIV pandemic worldwide in 1981. The virus itself first emerged in 1920 in Kinshasa (then Leopoldville), Belgian Congo.
- The strain's high virulence is calculated based on viral load and CD4 counts – “the concentration of **CD4+ T cells** in peripheral blood, which tracks immune system damage by the virus”.

What is HIV?

- HIV (human immunodeficiency virus) is a virus that attacks the body's immune system. If HIV is not treated, it can lead to AIDS (Acquired Immunodeficiency Syndrome).
- There is currently no effective cure. Once people get HIV, they have it for life.
- But with proper medical care, HIV can be controlled. People with HIV who get effective HIV treatment can live long, healthy lives and protect their partners.

- HIV infection in humans came from a type of chimpanzee in Central Africa.
- When people with HIV don't get treatment, they typically progress through three stages.
 - **Stage 1:** Acute HIV Infection. People have a large amount of HIV in their blood. They are very contagious.
 - **Stage 2:** Chronic HIV Infection also called asymptomatic HIV infection or clinical latency.
 - **Stage 3:** Acquired Immunodeficiency Syndrome (AIDS), the most severe phase of HIV infection.

Risk factors associated with HIV?

- If having unprotected sex;
- If having another sexually transmitted infection (STI) such as syphilis, herpes, chlamydia, gonorrhoea and bacterial vaginosis;
- If sharing contaminated needles, syringes and other injecting equipment and drug solutions when injecting drugs;
- If receiving unsafe injections, blood transfusions and tissue transplantation, and medical procedures that involve unsterile cutting or piercing; and

- If experiencing accidental needle stick injuries, including among health workers.

How to cure HIV?

- To reduce your risk of HIV, use condoms correctly every time you have sex.
- Do not inject drugs. If you do, use only sterile injection equipment and water, and never share your equipment with others.
- If you do not have HIV but are at risk of getting HIV, talk to your health care provider about pre-

exposure prophylaxis (PrEP). PrEP involves taking a specific HIV medicine every day to reduce the risk of getting HIV through sex or injection drug use.

- There should be awareness campaign so that people support the people suffering with HIV.
- Inclusive government policies must be implemented to address the issue related to stigma attached to sex workers.

ISRO TARGETS AN AUGUST LAUNCH FOR CHANDRAYAAN 3

The Indian Space Research Organisation (ISRO) will target the launch of its **third lunar mission, Chandrayaan-3**, for August this year.

Chandrayaan-3 mission?

- Chandrayaan 3 spacecraft is the **3rd lunar exploration expedition**, outlined by the Indian Space Research Organisation (ISRO) after its lander rover failed to soft-land on the surface of the moon in 2019.
- The third mission will **carry only a modified lander and rover** and will use the orbiter of the Chandrayaan 2 mission to communicate with the earth.
- This exploration will **not limit to the surface** but **aim to study the sub-surface and exosphere**.

Objectives of Chandrayaan-1 and Chandrayaan-2:

Chandrayaan-1:

- It aimed to **prepare a three-dimensional atlas** (with high spatial and altitude resolution) of **both near and far side of the moon**.
- It aimed at **conducting chemical and mineralogical mapping** of the entire lunar surface for distribution of mineral and chemical elements such as Magnesium, Aluminium, Silicon, Calcium, Iron and Titanium as well as high atomic number elements such as Radon, Uranium & Thorium with high spatial resolution.

Chandrayaan-2:

- It aims to enhance our understanding of the Moon, stimulate the advancement of technology,

promote global alliances and inspire a future generation of explorers and scientists.

- It aimed to develop and demonstrate the key technologies for end-to-end lunar mission capability, including soft-landing and roving on the lunar surface.
- It was launched to expand the lunar scientific knowledge through detailed **study of topography, mineralogy, surface chemical composition, thermo-physical characteristics** and tenuous lunar atmosphere leading to a better understanding of the origin and evolution of the Moon.
- It was aimed at studying not just one area of the Moon but all the areas combining the exosphere, the surface as well as the sub-surface of the Moon in a single mission.

Features of GSLV MK-3?

- It is a three-stage heavy lift launch vehicle **developed by ISRO**.
- It is designed to **carry 4-ton class of satellites into Geosynchronous Transfer Orbit (GTO) or about 10 tons to Low Earth Orbit (LEO)**, which is about twice the capability of the GSLV Mk II.
- The vehicle has two solid strap-on, a core liquid booster and a cryogenic upper stage.
- The launch of GSLV Mark III will enhance India's capability to be a competitive player in the multimillion-dollar commercial launch market. It will help in earning huge foreign exchange.

NUCLEAR POWER IN INDIA

Among all the developing nations, **India is the only one to have generated electricity using indigenously developed, demonstrated, and deployed nuclear reactors.**

Status of Nuclear Energy in India:

- India ranks **third in terms of electricity production** worldwide by producing 1207 TWh of electricity.
- Nuclear energy is the **fifth-largest source of electricity for India.**
- India stands at **seventh position in terms of the number of nuclear reactors**, with over 23 nuclear reactors in 7 power plants across the country which produces 6780 MW of nuclear power.
- With an aim to increase its **atomic power contribution from 3.2% to 5% by 2031**, this surge in the nuclear energy contribution in India will help the country lead towards a **more sustainable and economic future.**

Benefits of nuclear energy:

- Nuclear energy is considered beneficial, because of its **smaller land footprint** and the amount of waste it produces.
- Nuclear energy uses **360 times less amount of land** as compared to wind farms and 75 times less land as compared to solar photovoltaic plants.
- Nuclear fuel is **energy-dense** as a 1-inch-tall Uranium pallet is equivalent to 120 gallons of oil and about 17,000 cubic feet of natural gas.
- Nuclear fuel is comparatively **inexpensive** and can be **transported easily.**
- The nuclear power grid alone helps India to provide **low-cost power** and assist in **Grid balancing.**

Challenges posed by nuclear energy in India?

- A nuclear power plant requires **large capital cost** and is **time consuming** as well, around 15-20 years are taken to develop a single plan.
- The fission reactions **produce wastes containing unstable elements** that are **highly radioactive for long time**, proving dangerous to environment and human health.
- Commercial nuclear power is sometimes viewed by the general public as a **dangerous or unstable process.** This perception is often based on **three global nuclear accidents e.g. Chernobyl Disaster of 1986 in Ukraine.**
- **Licensing and regulation approvals**, coupled with **long lead times** and **construction delays**, have also **deterred public interest.**
- **Developing adequate human resource** ready for safety supervision of nuclear and radiation programme is also one of the challenges.

Small Modular Reactors:

- Small modular reactors (SMRs) are **nuclear fission reactors** that are smaller than conventional nuclear reactors and typically have an **electrical power output of less than 300 MWe** or a thermal power output of less than 1000 MW.
- They are designed to be manufactured at a plant and transported to a site to be installed.

Significances of Small Modular Reactor?

- Small modular reactors offer a **lower initial capital investment.**
- Its **greater scalability, and siting flexibility** for locations unable to accommodate more traditional larger reactors.
- They have the **potential for enhanced safety and security** compared to earlier designs.
- Deployment of advanced SMRs can help drive **economic growth.**
- SMRs have **reduced fuel requirements.** Power plants based on SMRs may require less frequent

refuelling, every 3 to 7 years, in comparison to between 1 and 2 years for conventional plants.

Road Ahead:

- The main objective of India's nuclear energy program was the utilization and development of **atomic energy for peaceful purposes**.
- India wanted to develop a cheap and efficient power source and use nuclear energy for various other research purposes **like basic sciences**,

astronomy, astrophysics, cancer research and education.

- India's nuclear power could provide a reliable solution to India's power demand as against **wind and solar that is not available round the clock**.
- This in turn is going to assist the country in **meeting zero energy targets along with other clean energy sources**.

IN THE SEARCH FOR EARTH-LIKE PLANETS, UNIVERSITY OF ROCHESTER SCIENTIST MIKI NAKAJIMA TURNS TO COMPUTER SIMULATIONS OF MOON FORMATIONS

- Because the moon is so important to life on Earth, scientists' conjecture that a moon may be a potentially beneficial feature in harbouring life on other planets.
- Most planets have moons, but Earth's moon is distinct in that it is large compared to the size of Earth; the moon's radius is larger than a quarter of Earth's radius, a much larger ratio than most moons to their planets.

Moon Evolve:

- Many scientists have historically believed Earth's large moon was generated by a **collision between proto-Earth**.
- Earth at its early stages of development -- and a large, Mars-sized impactor, **approximately 4.5 billion years ago**.
- The collision resulted in the formation of a **partially vaporized disk** around Earth, which eventually formed into the moon.
- After an impact that results in a vaporized disk, over time, the **disk cools and liquid moonlets, a moon's building blocks emerge**.

How moon helps in making planets habitable?

- It **controls the length of the day and ocean tides**, which affect the biological cycles of lifeforms on our planet.
- It **contributes to Earth's climate by stabilising its spin axis**, offering an ideal environment for life to thrive.

- The **tilt angle of the Earth's spin axis is favourable to life**, and that the mass of the large Moon is important in stabilizing that spin axis.

Earth's Moon is different from another planet's moon?

- Rocky planets larger than six times the mass of Earth (6M) and icy planets larger than one Earth mass (1M) produce fully, rather than partially - vaporized disks, and these fully-vaporized disks are not capable of forming fractionally large moons.
- If the planet is too massive, these impacts produce completely vapor disks because impacts between massive planets are generally more energetic than those between small planets.
- In a **fully-vaporized disk**, the growing moonlets in the **disk experience strong gas drag from vapor**, falling onto the planet very quickly. In contrast, if the disk is only partially vaporized, moonlets do not feel such strong gas drag.
- A completely vapor disk is not capable of forming fractionally large moons whereas planetary masses need to be smaller than those thresholds we identified in order to produce such moons.

Additional information

Chandrayaan 1:

- **India's first mission to Moon**, was launched successfully on October 22, 2008.
- The spacecraft was orbiting around the Moon at a height of 100 km from the lunar surface for

chemical, mineralogical and photo-geologic mapping of the Moon.

- Data from the Mineralogy Mapper (M3), one of the instruments on Chandrayaan-1, indicates the **presence of hematite** at the lunar poles.
- The sign of this finding is that even though the surface of the moon is known to have **iron-rich rocks**, it is not known for the **presence of water and oxygen**, which are the two elements needed to interact with iron to create rust.

Chandrayaan-2:

- On 22 July 2019, India launched Chandrayaan-2, its second lunar exploration mission after Chandrayaan-1 from Satish Dhawan Space Centre, Sriharikota.

E-FASTING CAN MINIMISE E-WASTE

Turning off notifications, turning our phone off while working and setting limits for the amount of time we spend on technology on a daily basis can not only be helpful for us but also minimise e-waste.

E-waste?

- The **discarded and end of life electronic products** ranging from computers, equipments used in **Information and Communication Technology (ICT), home appliances, audio and video products** and all of their peripherals are popularly known as **e-waste**.

What are the causes of increasing E-waste?

- Obsolete devices are replaced by new devices due to the advent of new technologies.
- Changes in the lifestyle.
- End of intended usage.
- Very little investment by large-scale industrial infrastructure for recovery and recycling.

What is the impact of E-waste on various sectors?

Human health:

- Open burning of printed wiring boards increases the **concentration of dioxins** in the surrounding areas cause an increased **risk of cancer** if inhaled by workers and local residents.
- Recovering **resalable copper** by burning insulated wires causes **neurological disorders**

- It is a **Lunar orbiter, lander, rover** type mission. It is expected to do soft-landing on the Moon on 7 September, 2019.
- Chandrayaan-2 is ISRO's first attempt to **land on any extra-terrestrial surface**.
- Study topography, seismography, composition of lunar surface and the lunar atmosphere.
- The study of ancient rocks and craters can offer indications of origin and evolution of the Moon.
- The **South Pole region of the Moon also contains clues to the fossil records** of early solar system. Thus, it will improve our understanding of the early solar system as well.

- Acute exposure to **cadmium**, found in semiconductors and chip resistors, can **damage the kidneys and liver and bone loss**.
- Long-term exposure to **lead** on printed circuit boards and computer and television screens can **damage the central and peripheral nervous system and kidneys**.

Environment:

- The emission of fumes, gases, and particulate matter into the air, the discharge of liquid waste into water and drainage systems, and the disposal of hazardous wastes contribute to **environmental degradation**.
- Burning to recover metal from wires and cables leads to **emissions of brominated and chlorinated dioxins**, causing **air pollution**.
- The **toxic industrial effluent** is **poured into underground aquifers** and seriously **affects the local groundwater quality**, thereby making the water unfit for human consumption or for agricultural purposes.
- **Soils become toxic** when substances such as **lead, mercury, cadmium, arsenic, and polychlorinated biphenyls (PCBs)** are **deposited in landfills**.

Security:

- It can lead to **data theft**.

Statistics related to E-waste

- India is the '**fifth-largest electronic waste producer in the world**'. Approximately 1.2 million tonnes of e-waste is generated annually in India according to the Central Pollution Control Board (CPCB).
- Annually, **computer devices account for nearly 70 per cent of e-waste**; 12 per cent comes from the telecom sector, eight per cent from medical equipment and seven per cent from electric equipment.
- The **government, public sector companies and private sector companies, generate nearly 75 per cent of electronic waste**, with the contribution of individual households being only 16 per cent.

Steps taken by Government of India to eliminate E-waste

- Initiatives such as **Extended Producer Responsibility; Design for Environment; (3Rs) Reduce, Reuse, Recycle technology** aim to encourage consumers to correctly dispose of the e-waste.
- The Indian Government has introduced a point-based reward system of **E-waste Recycling Credits (ERCs) for formal organizations** to incentivize them to channel their e-waste through government-approved recycling centers.
- The government's move is part of the concept of '**waste to wealth**'.
- The government passed the **first law on e-waste management in 2011**, based on Extended Producer Responsibility (EPR), which put the **onus on the producer for the management of the final stages of the life of its product, in an eco-friendly way**.
- **Central Pollution Control Board (CPCB)** shall conduct random sampling of electrical and electronic equipment placed on the market to monitor and verify the compliance of RoHS

provisions and the cost for sample and testing shall be borne by the producer.

Way forward

- E-waste is already a major catastrophe due to its harmful and hazardous effects. It will continue to create more problems if not handled or processed properly. Electronics waste contains hazardous but also simultaneously valuable and scarce materials which can be extracted.
- Classification of e-waste from normal waste and estimation of the amount of e-waste generated are the first few steps in the proper processing and disposal of e-waste. But the most important step would perhaps be **raising awareness** among every individual about the cause and effects of e-waste and request cooperation in the disposal of the same. Manufacturers are equally suggested to produce **greener electronics**.

Additional information

Digital fasting/ E-fasting:

- A digital fasting or e-fasting is usually referred to as **reducing technology use** – such as turning off notifications, turning our phone off while working and setting limits for the amount of time we spend on technology on a daily basis can not only be helpful for us but also minimise e-waste.

Extended Producer Responsibility:

- Extended Producer Responsibility (EPR) is the responsibility of every producer of electrical and electronic equipment (EEE) for **channelisation of e-waste to an authorised dismantler / recycler** to ensure environmentally sound management of such waste.
- Extended producer responsibility legislation is a driving force behind the adoption of remanufacturing initiatives because it focuses on the end-of-use treatment of consumer products and has the primary aim to increase the amount and degree of product recovery and to minimize the environmental impact of waste materials.

WHY MODI'S 'GENE CARD' SCHEME WON'T SOLVE INDIA'S SICKLE-CELL ANAEMIA PROBLEM

On the birth anniversary of freedom fighter Birsa Munda, Prime Minister Narendra Modi launched "gene cards" in Madhya Pradesh.

Gene Cards?

- Gene Card is a **searchable, integrative database** that provides comprehensive, user-friendly information on all annotated and predicted human genes.
- The **knowledgebase automatically integrates gene-centric data from ~150 web sources, including genomic, transcriptomic, proteomic, genetic, clinical and functional information.**
- These cards indicate a couple's chance of having offspring with **sickle-cell anaemia**, calculated based on a couple's genetic composition, which is marked on their individual cards.

Sickle-cell anaemia?

- Sickle cell anaemia is one of a **group of disorders** known as **sickle cell disease**. Sickle cell anaemia is an **inherited red blood cell disorder** in which there **aren't enough**

healthy red blood cells to carry oxygen throughout your body.

- Normally, the flexible, round red blood cells move easily through blood vessels. In sickle cell anaemia, the **red blood cells are shaped like sickles or crescent moons**. These rigid, sticky cells can get stuck in small blood vessels, which can slow or block blood flow and oxygen to parts of the body.
- There's **no cure** for most people with sickle cell anaemia. But treatments can relieve pain and help prevent complications associated with the disease.
- Sickle cell anaemia is **caused by a mutation in the gene that tells your body to make the iron-rich compound that makes blood red and enables red blood cells to carry oxygen from your lungs throughout your body (haemoglobin)**. In sickle cell anaemia, the **abnormal haemoglobin causes red blood cells to become rigid, sticky and misshapen**.
- In India, sickle-cell anaemia is **largely found among tribal, Dalit and a few OBC communities**, and to a lesser extent among people of other communities.

SCIENTISTS FIND WHITE-CHEEKED MACAQUE IN ARUNACHAL PRADESH

Recently, the scientists from the **Zoological Survey of India (ZSI)** have found a new mammal species in the country i.e., the **White Cheeked Macaque**.

- While the Macaque was **first discovered in China in 2015**, its existence was not known in India before this.

White Cheeked Macaque

- The White-cheeked Macaque (*Macaca leucogenys*) is a newly discovered species of macaque from the Modog (Médog County), in Southeastern Tibet in China.
- The species was distinguished from all potential sympatric macaques (species in the same geographic area) viz. *Macaca mulatta*, *Macaca thibetana*, *Macaca assamensis* and *Macaca*

munzala by several characteristics including pelage (coat of a mammal).

- They have relatively **uniform dorsal hair pattern, hairy ventral pelage**, hairless short tail, prominent pale to white side- and chin-whiskers creating a white cheek and round facial appearance, dark facial skin on the muzzle, long and thick hair on its neck, and round rather than arrow-shaped male genitalia.
- The White Cheeked Macaque has distinct white cheeks, long and thick hair on the neck and a longer tail than other Macaque species.
- It is the last mammal to have been discovered in Southeast Asia.

- Both the Arunachal macaque as well as the White Cheeked Macaque exist in the same biodiversity hotspot in the eastern Himalayas.

SERB CALLS FOR APPLICATIONS UNDER 'ACCELERATE VIGYAN' SCHEME

Recently, the **Science and Engineering Research Board (SERB)** has invited applications under 'ABHYAAS', a program of 'Accelerate Vigyan' scheme, for summer season.

Accelerate Vigyan Scheme:

- "Accelerate Vigyan" (AV) strives to **provide a big push to high-end scientific research** and prepare scientific workforce, which can venture into research careers and a knowledge-based economy.
- It will initiate and strengthen mechanisms of identifying research potential, mentoring, training and hands-on workshops, on a broad-based national scale.
- Its aim is to expand the research base in the country, with three broad goals - consolidation / aggregation of all scientific training programs, initiating High end Orientation Workshops and creating opportunities for Research Internships.
- It aims to focus on young potential researchers with an aim to give an opportunity to them to spend quality time in the pre-identified premier institution, labs/organizations and empower them through best practices and environment.

What is ABHYAAS?

- Mission 'ABHYAAS' is an attempt to **boost Research and Development in the country** by enabling and grooming potential PG / PhD level students by developing dedicated research skills in selected areas / disciplines / fields through high-end workshops and research internships.
- This is especially important for those researchers who have limited opportunities to access such learning capacities / facilities / infrastructure.
- This Mission will be achieved through two of its subcomponents / programs, namely 'KARYASHALA' (High End Workshops) and 'VRITIKA' (Research Internships).
- 'KARYASHALA' is an effort to **improve research productivity of promising PG and PhD students** from universities and colleges through high-end workshops on specific themes.
- 'KARYASHALA' is **aimed to provide hands-on experience to the students** primarily from universities, colleges, private academic institutions and newly established institutes in handling / troubleshooting of high-end scientific instruments and such skill development on themes required for research work.

CASES OF FAIRBANK'S DISEASE AND ACROMEGALY IN INDIA

The latest Tweet by PIB India states, 'Cases of Fairbank's disease and Acromegaly in India Both the diseases' patients are getting treatment at various tertiary health facilities at free or subsidized rates besides in tertiary care private hospitals.

Fairbank's disease or Multi Epiphyseal Dysplasia

- It is a group of **disorders of cartilage and bone development**, primarily affecting the ends of the long bones in the arms and legs (epiphyses).
- It is a **rare genetic disorder** (dominant form: 1 in 10,000 births).

- There are **two types of MED**, which are distinguished by their patterns of inheritance – **autosomal dominant and autosomal recessive**.
- Signs and symptoms may include **joint pain in the hips and knees; early-onset arthritis; a waddling walk; and mild short stature as adults**.
- Recessive MED may also **cause malformations of the hands, feet, and knees; scoliosis; or other abnormalities**.

- Most people are **diagnosed during childhood**, but mild cases may not be diagnosed until adulthood.

About Acromegaly

- It is a **hormonal disorder** that develops **when your pituitary gland produces too much growth hormone during adulthood which leads to an increase in bone size.**
- **In childhood**, this leads to increased height and is called **gigantism**, but **in adulthood**, a **change in height doesn't occur.**
- It is **caused by excessive secretion of growth hormone**, most often from a tumour (non-cancerous) in the pituitary gland.
- **Middle-aged adults are most commonly affected.**
- In more than 95% of cases the **excess production is due to a benign tumour, known as a pituitary adenoma.**
- However, this condition is **not inherited from a person's parents.**
- Symptoms include **enlargement of the face, hands and feet, joint pain, thicker skin, deepening of the voice, headaches, and problems with vision.**
- Complications of the disease may include **type 2 diabetes, sleep apnoea, and high blood pressure.**

What are rare diseases?

- World Health Organisation (WHO) defines rare disease as often debilitating **lifelong disease or disorder with a prevalence of 1 or less, per 1000 population.** However, different countries have their own definitions to suit their specific requirements and in context of their own population, health care system and resources.

What are the challenges associated with rare disease?

- There is a **lack of awareness** about rare diseases in general public as well as in the medical fraternity. Many **doctors lack appropriate training and awareness** to be able to correctly and timely diagnose and treat these conditions.
- About 95% rare diseases have **no approved treatment** and less than 1 in 10 patients receive disease specific treatment.
- A fundamental challenge in **research and development for the majority of rare diseases** is that there is relatively little known about the pathophysiology or the natural history of these diseases.
- As the **number of persons suffering from individual rare diseases is small**, they do not constitute a significant market for drug manufacturers to develop and bring to market. Hence, they are also called '**orphan diseases**' and drugs to treat them are called "**orphan drugs**".
- Due to the **high cost** of most therapies, the government has not been able to provide these for free.

Way forward

- Rare diseases place a major economic burden on any country and especially in resource-constrained settings. In resource-constrained settings, it is pertinent to balance competing interests of public health for achieving optimal outcome for the resources allocated.
- Hence, any policy on rare diseases needs to be considered in the context of the available scarce resources and the need for their utmost judicious utilization for maximizing the overall health outcomes for the whole of society measured in terms of increase of healthy life years.

SCIENTISTS SET NEW RECORD IN CREATING ENERGY FROM NUCLEAR FUSION

Scientists in the United Kingdom said they have achieved a new milestone in producing nuclear fusion energy, or imitating the way energy is produced in the Sun.

- Energy by nuclear fusion is one of mankind's long-standing quests as it promises to be low carbon, safer than how nuclear energy is now

produced and, with an efficiency that can technically exceed a 100%.

- A team at the Joint European Torus (JET) facility near Oxford in central England generated 59 megajoules of sustained energy during an experiment in December, more than doubling a 1997 record.
- The UK Atomic Energy Authority has said that a kg of fusion fuel contains about 10 million times as much energy as a kg of coal, oil or gas.
- The energy was produced in a machine called a tokamak, a doughnut-shaped apparatus, and the JET site is the largest operational one of its kind in the world.
- Deuterium and tritium, which are isotopes of hydrogen, are heated to temperatures 10 times hotter than the centre of the sun to create plasma.
- The record and scientific data from these crucial experiments are a major boost for ITER, the larger and more advanced version of the JET.
- ITER is a fusion research mega-project supported by seven members – China, the European Union, India, Japan, South Korea, Russia and the USA – based in the south of France, to further demonstrate the scientific and technological feasibility of fusion energy.

What is Nuclear Fusion?

- Nuclear fusion occurs when atomic nuclei collide at extremely high temperatures, forming a new, heavier nucleus and releasing energy in the process.
- The most efficient fusion reaction for producing power for potential human use is between deuterium (D) and tritium (T), which yields a helium nucleus and energy.

- Fusion reactions can be self-sustaining because the energy released by fusing atoms supplies the energy necessary to fuse additionally available atoms, triggering a chain reaction.
- A nuclear reaction that combines low-mass, colliding nuclei into moderate-mass elements and liberates a great deal of energy in the process.

What is ITER?

- In southern France, 35 nations are collaborating to build the world's largest tokamak, a magnetic fusion device that has been designed to prove the feasibility of fusion as a large-scale and carbon-free source of energy based on the same principle that powers our Sun and stars.
- The experimental campaign that will be carried out at ITER is crucial to advancing fusion science and preparing the way for the fusion power plants of tomorrow.
- ITER will be the first fusion device to produce net energy. ITER will be the first fusion device to maintain fusion for long periods of time.
- ITER will be the first fusion device to test the integrated technologies, materials, and physics regimes necessary for the commercial production of fusion-based electricity.
- Thousands of engineers and scientists have contributed to the design of ITER since the idea for an international joint experiment in fusion was first launched in 1985.
- The ITER Members—China, the European Union, India, Japan, Korea, Russia and the United States—are now engaged in a 35-year collaboration to build and operate the ITER experimental device, and together bring fusion to the point where a demonstration fusion reactor can be designed.

SUCCESSFUL LAUNCH OF PSLV-C52 WITH EOS-04 SATELLITE

The launch of Polar Satellite Launch Vehicle, PSLV-C52 is scheduled on February 14, 2022 from the First Launch Pad of Satish Dhawan Space Centre, Sriharikota.

- **PSLV-C52** is designed to orbit an earth observation satellite (**EOS-04**), **weighing 1710**

kg into a sun synchronous polar orbit of 529 km. EOS-04

- PSLV-C52 mission will also carry two small satellites as co-passengers which includes **one student satellite (INSPIRESat-1)** from Indian Institute of Space Science & Technology (IIST) in

association with Laboratory of Atmospheric & Space Physics at University of Colorado, Boulder and a technology demonstrator satellite (**INS-2TD**) from ISRO, which is a precursor to India-Bhutan Joint Satellite (INS-2B).

- EOS-04 is a **Radar Imaging Satellite** designed to provide high quality images under all weather conditions for applications such as Agriculture, Forestry & Plantations, Soil Moisture & Hydrology and Flood mapping.

What is INSPIRESat-1?

- It is developed under the **International Satellite Program in Research and Education** (INSPIRE).
- It is a collaborative effort by the Laboratory for Atmospheric and Space Physics (LASP) at the University of Colorado Boulder in the U.S., the National Central University, Taiwan, and the Nanyang Technological University in Singapore, apart from the IIST.

INDIA'S FIRST mRNA COVID-19 VACCINE LIKELY TO BE ROLLED OUT BY APRIL

Data from human trials of India's first homegrown mRNA COVID-19 vaccine are likely to be presented to authorities for evaluation by the end of the month.

- The mRNA vaccine being developed by Pune-based **Genova Biopharmaceuticals** is currently in phase 2/3 trials to evaluate the safety, tolerability and immunogenicity of the candidate vaccine in healthy subjects. Around **4,000 volunteers** have been recruited for the trial.
- India has so far approved at least six vaccines that can be manufactured locally but only two – Covishield and Covaxin – have been administered to over 99% Indians.
- The mRNA vaccine, can also purportedly be tweaked to be **effective against newer variants**, but so far, all the vaccines developed –

including the prospective Gennova vaccine – have been customised to the original **SARS-CoV-2**.

What are mRNA Vaccines?

- Messenger RNA is a type of RNA that is necessary for protein production. In cells, mRNA uses the information in genes to create a blueprint for making proteins.
- Once cells finish making a protein, they quickly break down the mRNA. mRNA from vaccines does not enter the nucleus and does not alter DNA.
- mRNA vaccines work by introducing a piece of mRNA that corresponds to a viral protein, usually a small piece of a protein found on the virus's outer membrane.

GEOMAGNETIC STORM THAT KILLED STARLINK SATELLITES

Elon Musk's Starlink has lost dozens of satellites that were caught in a geomagnetic storm.

- The satellites were designed to burn up on reentry into the Earth's atmosphere, and did not create debris in space.

Solar storms/flares?

- Solar storms are **magnetic plasma ejected at great speed** from the solar surface.
- They occur during the release of magnetic energy associated with sunspots ('dark' regions on the Sun that are cooler than the surrounding

photosphere), and can last for a few minutes or hours.

Effect of Solar storms/flares on Earth

- Not all solar flares reach Earth, but solar flares/storms, solar energetic particles (SEPs), high-speed solar winds, and coronal mass ejections (CMEs) that come close can impact space weather in near-Earth space and the upper atmosphere.
- Solar storms can hit operations of space-dependent services like global positioning

systems (GPS), radio, and satellite communications.

- Geomagnetic storms interfere with high-frequency radio communications and GPS navigation systems.
- Aircraft flights, power grids, and space exploration programmes are vulnerable.

•

COVID-19: HOW IS EXPIRATION DATE OF VACCINES DETERMINED?

With no takers for the stockpiles of COVID-19 vaccines, India's private hospitals are looking at the central government for a bailout. A majority of these doses are set to expire by March-April, according to media reports.

- Private hospitals administered only 4-5 per cent of the 1.7 billion doses given in India since the vaccination drive began January 17, 2021, according to Economic Survey 2021-22.

How is the expiry date determined?

- As the vaccine is being developed, it is **stored at different temperatures for different periods of time**. It is then **physically characterised, based on various parameters**.
- Versions of the product, stored at varying temperatures for different durations, are injected into animals to see if it raises an adequate number of antibodies.
- Date of expiry for both Covaxin and Covishield was extended last year by the Central Drugs Standard Control Organization (CDSCO) from nine months to 12 months after manufacture, based on shelf life and stability.
- **A stability test is conducted to determine "acceptable quality, effectiveness and safety for a certain period of time under certain preservation conditions" of a vaccine**. This also provides data to help regulate the shelf life of a vaccine.

'stability' and 'shelf life' of a vaccine?

- **Vaccines are complex mixtures of proteins, carbohydrates, lipids, inactivated virus, or adjuvants**—which are substances that are intended to enhance immune response and

- CMEs, with ejectiles loaded with matter travelling at millions of miles an hour, can potentially create disturbances in the magnetosphere, the protective shield surrounding the Earth.
- Astronauts on spacewalks face health risks from possible exposure to solar radiation outside the Earth's protective atmosphere.

subsequent clinical efficacy of the vaccine. These together contribute to overall vaccine efficacy and safety.

- The shelf life of a vaccine is a reflection of **how long the vaccine retains its potency and stability at a given storage temperature and therefore its effectiveness**. The shelf life is used to establish the expiry date of each batch of the vaccine product.

Expiration of vaccine: A cause of concern

- **Wastage of vaccines at large.**
- Nigeria was forced to destroy a million doses of the AstraZeneca vaccine because they were past their expiry date. Indonesia witnessed a similar fate. Around 100 million doses were rejected in December 2021 because they were too close to their expiry date, according to UNICEF officials.
- **Increasing issue of generation of Bio-medical waste.**
- Surveys carried out by various agencies show that the health care establishments in India are **not giving due attention to their waste management**.

Conclusion

With time, especially with increasing temperature, the potency of vaccines goes down. However, that **does not mean it's unsafe to take an expired vaccine**. Expired vaccines are not particularly unsafe or dangerous if administered, but are more likely to be **associated with a poor immune response**.

Additional information

COVAXIN Vaccine:

- It is India's **only indigenous Covid-19 vaccine**.
- Developed by **Bharat Biotech**, Hyderabad in collaboration with the **Indian Council of Medical Research's National Institute of Virology**, Pune.
- It is an **inactivated vaccine** which is developed by **inactivating (killing) the live microorganisms** that cause the disease.
- This **destroys the ability of the pathogen to replicate**, but keeps it intact so that the immune system can still recognise it and produce an immune response.
- It is expected to **target more than just the spike protein**.
- It also aims to develop an immune response to the **nucleocapsid protein** (the shell of the virus that encloses its genetic material).

COVISHIELD:

- It is the name given to an **Oxford-AstraZeneca Covid-19 vaccine candidate** which is technically referred to as **AZD1222 or ChAdOx 1 nCoV19**.
- It is a version of the vaccine **developed by the University of Oxford in collaboration with Swedish-British drugmaker AstraZeneca**.
- **Serum Institute of India (SII)** is the manufacturing partner in India.
- It is based on a **weakened version of a common cold virus or the adenovirus that is found in chimpanzees**.
- This viral vector **contains the genetic material of the SARS-CoV-2 spike protein (protrusions)** present on the outer surface of the virus that help it bind with the human cell.
- The body's immune system is supposed to recognise this protein as a threat, and work on building antibodies against it.

INCOIS PREPARES COASTAL VULNERABILITY INDEX

Indian National Centre for Ocean Information Services (INCOIS) has carried out coastal vulnerability assessment for entire Indian coast at states level to bring out an Atlas comprising 156 maps on 1:1,00,000 scales to prepare a **Coastal Vulnerability Index (CVI)**.

Coastal Vulnerability Index

- The maps determine the **coastal risks due to future sea-level rise** based on the physical and geological parameters for the Indian coast.
- The CVI uses the relative risk that physical changes will occur as sea-level rises are quantified based on **parameters like**:
 - **tidal range;**
 - **wave height;**
 - **coastal slope;**
 - **coastal elevation;**
 - **shoreline change rate;**
 - **geomorphology; and**
 - **historical rate of relative sea-level change**
- From CVI, it can be delineated that **Gujarat's 124 coastal kilometres is going to get affected** or

5.36%, Maharashtra 11 km or 1.22% and then Karnataka & Goa 48 km or 9.54%, Odisha 37 km or 7.51%, West Bengal 49 km or 2.56%, Lakshadweep Islands 1 km or 0.81%, Andaman Islands 24 km or 0.96km and Nicobar Islands 8 km or 0.97%.

Significance of CVI?

- Coastal vulnerability assessments can be useful information **for coastal disaster management and building resilient coastal communities**.
- India has a coastline of 7516.6 Km i.e., 6100 km of mainland coastline plus coastline of 1197 Indian islands touching 13 States and Union Territories (UTs).

Coastal Multi-Hazard Vulnerability Mapping (MHVM)

- A coastal Multi-Hazard Vulnerability Mapping (MHVM) was also carried out using **parameters like**
 - **sea level change rate,**

- shoreline change rate,
- high-resolution coastal elevation,
- extreme water level from tide gauges and their return periods.

What is INCOIS?

- INCOIS is an **autonomous organisation** under the **Ministry of Earth Sciences (MoES)**.
- It is located in **Hyderabad** & was established in 1999.

- It is a **unit of the Earth System Science Organisation (ESSO)**, New Delhi.
- The ESSO operates as an **executive arm of the Ministry of Earth Sciences (MoES)** for its policies and programmes.
- It is **mandated to provide the best possible ocean information and advisory services to society, industry, government agencies and the scientific community** through sustained ocean observations and constant improvement through systematic and focused research.

INDIAN ASTRONOMERS CREATE AI-BASED TOOLS TO FIND 60 POTENTIAL HABITABLE PLANETS

Utilising an Artificial Intelligence-based algorithm, Indian Astronomers have devised a new approach for identifying potentially habitable planets with a high probability.

- The astronomers from the Indian Institute of Astrophysics, an autonomous institute of the Department of Science & Technology, Govt. Of India, along with astronomers from BITS Pilani, Goa campus have devised a new approach -- **an anomaly detection method**.

Multi-Stage Memetic Binary Tree Anomaly Identifier (MSMBTAI)

- The AI-based method, named Multi-Stage Memetic Binary Tree Anomaly Identifier (MSMBTAI), is based on a novel **multi-stage memetic algorithm (MSMA)**.
- MSMA uses the generic notion of a meme, which is an idea or knowledge that gets transferred from one person to another by imitation.
- A meme indicates **cross-cultural evolution in posterity** and, therefore, can induce new learning mechanisms as generations pass.
- The algorithm can act as a **quick screening tool for evaluating habitability** perspectives from observed properties.

Habitable zone?

- The definition of “habitable zone” is the distance from a star at which liquid water could exist on orbiting planets’ surfaces.
- **Habitable zones are also known as Goldilocks’ zones**, where conditions might be just right – neither too hot nor too cold – for life.

Why are we looking for life?

- Because our Sun has nurtured life on Earth for nearly 4 billion years, conventional wisdom would suggest that stars like it would be prime candidates in the search for other potentially habitable worlds.

Conclusion

- Even the discovery of life beyond Earth is beyond the point: much in the way seeing the skies of a foreign land can make us feel like citizens of the world, coming to know these distant planets will usher us in as citizens of the universe.

LUC MONTAGNIER, NOBEL-WINNING VIROLOGIST WHO DISCOVERED HIV, DIES AT 89

Nobel-winning virologist Luc Montagnier, who died in Paris, was a brilliant and controversial figure who often

challenged the core principles of science and scientific discourse.

- The 89-year-old won the Nobel Prize for Medicine in 2008 for the discovery of the **human immunodeficiency virus that causes AIDS**.

Early life of Luc Montagnier

- Montagnier was born on August 8, 1932, in central France.
- After completing school, Montagnier went on to earn degrees in science and medicine and earned a PhD in virology from the University of Paris.
- He joined the **Institute Pasteur in France** as a professor and headed their Viral Oncology Unit for over two decades until 2000.
- It was at the Pasteur Institute that Montagnier undertook the crucial research that earned him the Nobel.
- In 1993, Montagnier co-founded the World Foundation for AIDS Research and Prevention, before heading off to the US to work at the Queens College in New York.
- He has been awarded several medals, including the prestigious Légion d'Honneur, the Lasker Award and the Gairdner Award.

SPREADING AWARENESS ON ORGANIC FOOD

Government of India (GOI) has been promoting Organic farming in the country through dedicated schemes of Paramparagat Krishi Vikas Yojana (PKVY) and Mission Organic Value Chain Development in North East Region (MOVCDNER) since 2015.

- In addition, organic farming is also supported under Rastriya Krishi Vikas Yojana (RKVY), Mission for Integrated Development of Horticulture (MIDH) and National Project on Organic Farming (NPOF), Network Project on Organic Farming under Indian Council of Agricultural Research (ICAR).

What is organic food?

- Organic foods are **safe, healthy and free from chemical and pesticides**.
- Organic food, fresh or processed food produced by organic farming methods.
- Organic food is grown without the use of synthetic chemicals, such as human-made

The Nobel-winning discovery

- In 1983, Montagnier was roped in by Dr Willy Rozenbaum, a Parisien doctor, to look into a lymph node of an AIDS-infected man.
- The acquired immune deficiency syndrome was a mystery at this point, and the scientists were in the dark about its cause, methods of diagnosis and treatment.
- Montagnier and fellow scientist Françoise Barré-Sinoussi isolated the retrovirus from this sample and named it LAV (lymphadenopathy associated virus).
- A year later, US scientist Dr Robert Gallo published a series of articles confirming the link between a retrovirus (which he named HTLV-III) and AIDS.
- This led to confusion over whether HTLV-III and LAV are the same, leading to a public fallout between the researchers.

pesticides and fertilizers, and **does not contain genetically modified organisms (GMOs)**.

- Organic foods include fresh produce, meats, and dairy products as well as processed foods such as crackers, drinks, and frozen meals.

What are the advantages of organic food?

- No pesticides, antibiotics, or hormones make it more sustainable compared to conventional food.
- Since, it is more nutrient-rich, bring positive human health effects.
- Generally fresher in taste.
- Better for the environment. Less soil pollution and water pollution.
- Animals are treated better in organic farming.
- Avoidance of genetically modified organisms (GMOs) and hormonal treatments.

What are the disadvantages of organic food?

- May have a shorter shelf-life due to fewer preservation.

- Health risks if production chain is not optimized.
- Many different organic food labels may confuse customers.
- Limited choice of products leads to limited acceptance in the general public.
- Production of organic food implies plenty of work.
- Due to higher cost, it may not be suitable to feed billions of people as it may contribute to poverty.
- Quality of organic food greatly varies across producers.

Road Ahead:

- Organic food has become quite popular over the past decade and will continue to play an important role in the lives of many people.
- Organic foods have many important advantages. However, there are also some issues related to organic food products that our governments have to address in order to supply humanity with healthy food while solving the problems related to organic farming at the same time.
- To be an inspiring, trustworthy and innovative global leader in providing genuine organic products and solutions for Healthy Conscious Living. To be a vehicle of consciousness in the global market by creating a holistic, sustainable business model that inspires, promotes and supports true wellness.

Additional information

Paramparagat Krishi Vikas Yojana

- "Paramparagat Krishi Vikas Yojna (PKVY)" a **sub-component of Soil Health Management (SHM) scheme under National Mission of Sustainable Agriculture (NMSA)** aims at development of sustainable models of organic farming through a mix of traditional wisdom and modern science to ensure long term soil fertility build-up, resource conservation and helps in climate change adaptation and mitigation.
- It primarily aims to **increase soil fertility** and thereby **helps in production of healthy**

food through organic practices without the use of agro-chemicals.

- PKVY also aims at **empowering farmers through institutional development through clusters** approach not only in **farm practice management, input production, quality assurance** but also in **value addition and direct marketing through innovative means.**
- **Participatory Guarantee System** under PGS-India programme will be the key approach for quality assurances under the PKVY.
- The farmers will have **option to adopt any form of organic farming in compliance of PGS-India standards.** While adopting a system it must be ensured that the system adopted is **compatible to the area and crop and assures optimum yield and provides adequate measures to manage nutrients, pests and diseases.**

Mission Organic Value Chain Development in North East Region (MOVCDNER)

- Mission Organic Value Chain Development for North East Region (MOVCD-NER) is a **Central Sector Scheme, a sub-mission under National Mission for Sustainable Agriculture (NMSA), launched by the Ministry of Agriculture and Farmers Welfare for implementation in the states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura, during the 12th plan period.**
- The scheme aims to development of certified organic production in a value chain mode to **link growers with consumers and to support the development of entire value chain starting from inputs, seeds, certification, to the creation of facilities for collection, aggregation, processing, marketing and brand building initiative.**

EXPLAINED | WHO IS MANUFACTURING INDIA'S mRNA VACCINE?

The Pune-based Gennova Biopharmaceuticals is expected to roll out **India's first home-grown mRNA (messenger ribonucleic acid)** vaccine by April.

- The two of the first vaccines that emerged in late 2020, **Pfizer-BioNTech and Moderna, used this technology.**
- Now, an **Indian company is developing an mRNA vaccine from scratch**, signalling possibilities of the use of the molecule in a variety of diseases beyond COVID-19.

What is an mRNA vaccine?

- Like other vaccines, the mRNA vaccine **strives to activate the immune system** to produce antibodies that help counter an infection from a live virus.
- While the **traditional method** to do this involves **introducing a part or the whole virus** in a way that it **cannot replicate**, there is **always the risk** of an adverse reaction in the case of the **SARS-CoV-2 virus.**

We need a vaccinology to tease out an immune response that is effective and relatively safe

- The **less of a foreign body** injected, the **fewer the odds** of an adverse response.
- A common approach by vaccine makers during the pandemic was to **introduce a portion of the spike protein**, the **key part** of the coronavirus, as part of a vaccine.
- AstraZeneca or Sputnik V, **wrapped the gene that codes for the spike protein** into an **inactivated virus** that affects chimpanzees, called the chimpanzee adenovirus.
- The aim is to **have the body use its own machinery** to make spike proteins from the given genetic code.
- The immune system, when it registers the spike protein, will **create antibodies against it.**

What other vaccines do?

- Other vaccines **use a piece of DNA** to envelope the spike protein genes.
- In mRNA vaccine works in similar ways that it a **piece of genetic code inserted** into the body to stimulate an immune response.

How are these vaccines different?

DNA	mRNA
A piece of DNA must be converted into RNA for a cell to be able manufacture the spike protein.	While an mRNA vaccine might look like a more direct approach to getting the cell to produce the necessary proteins, mRNA is very fragile and will be shred apart at room temperature or by the body's enzymes when injected.
DNA is much more stable and can be more flexibly integrated into a vaccine-vector.	To preserve its integrity, the mRNA needs to be wrapped in a layer of oily lipids , or fat cells.
In terms of performance, both are expected to be as effective.	In terms of performance, both are expected to be as effective.

Challenge with mRNA vaccines

- It is that **they need to be frozen from (-90) degree Celsius to (-50) degree Celsius.**
- They can be stored for up to two weeks in commercial freezers, if for a week then it has to be **thawed at 2 degrees Celsius to 8**

degrees Celsius at which they can remain for a month.

Why mRNA vaccines never made it to India?

- It was the **stringent freezer conditions** that made them **expensive.**

Advantage of mRNA:

- A major advantage of mRNA vaccines is that they only need the genetic code, it is possible to **quickly update vaccines to emerging variants** and even **use them for a variety of diseases**.
- But **none of the vaccines has been updated** for the Delta or Omicron variant yet.

Is Genova's mRNA vaccine different?

- The prospective vaccine uses a **concoction of lipids and enzymes** that allows the vaccine to be **stored at 2°C to 8°C**.
- Indian mRNA vaccine **will be cheaper than their imported versions** but **probably costlier than Covishield or Covaxin**.

What is the progress on the vaccine candidate so far?

- The mRNA vaccine is currently in **phase 2/3 trial** to evaluate the **safety, tolerability and immunogenicity** of the candidate vaccine in healthy subjects.

- Around **4,000 volunteers have been recruited** for the trial. **Results from a phase-1 trial** are expected to be published soon.
- **Genova has got 125 crores** from the **Department of Biotechnology**.

Road Ahead:

- India has **now fully vaccinated more than half its population** and at least seven homegrown vaccines have been cleared by authorities. But there is a **wide gap between readying vaccines and supplying them** commercially because of the challenges of scaling up production.
- Covaxin, despite being approved in January 2021 and developed by Bharat Biotech, an experienced vaccine maker, **has only contributed to 14% of India's vaccination drive**. This has to be taken care off and should proceed in making vaccines affordable to India and third world countries.

RELIANCE INDUSTRIES SEEKS TO BE WORLD'S TOP BLUE HYDROGEN MAKER

Reliance Industries Ltd (RIL) aims to become one of the **largest producers of blue hydrogen globally**, with a target of producing the zero-emission fuel at costs that will be half the global average.

- In a presentation detailing the separation plan, RIL – the operator of the world's largest oil refining complex – said it will repurpose a Rs 30,000 crore plant that currently converts petroleum coke into synthesis gas to produce blue hydrogen for \$1.2-1.5 a kg.

About Hydrogen

- Hydrogen is the **cleanest form of known fuel**.
- Depending on **production methods**, hydrogen can be **grey, blue or green**.
- Clean hydrogen would be **useful in decarbonizing industrial heavy transportation** like trucking, big industrial boats, and planes.
- Grey hydrogen is the most common form and is generated from natural gas, or methane, through a process called '**steam reforming**'.

Blue Hydrogen

- Hydrogen is labelled blue whenever the **carbon generated from steam reforming is captured and stored**.
- Blue hydrogen is, therefore, sometimes referred to as **carbon neutral as the emissions are not dispersed in the atmosphere**.

What makes Hydrogen blue?

- According to the International Energy Agency, **96% of hydrogen produced worldwide is made using fossil fuels** – coal, oil and natural gas – in a process known as reforming.
- This involves combining fossil fuels with steam, and heating them to around 800°C. Eventually, **you get carbon dioxide (CO₂) and hydrogen**.
- These two gases are then separated.
- The CO₂ is often emitted to the atmosphere where it contributes to global heating, and the hydrogen is extracted and used in everything

from car engines to boilers, releasing water vapour.

Advantages of Blue Hydrogen

- **Low-carbon fuel for generating electricity and storing energy**, powering cars, trucks and trains and heating buildings.
- CO₂ that would ordinarily be released is **captured and stored underground**.
- **Carbon capture and storage** equipment provides for **low-carbon fuel** production at a lower cost than green hydrogen.
- It will help to **enhance India's National Hydrogen Mission**.
- If implemented in proper way, it will help to **achieve the targets of Paris Agreement**.

Disadvantages of Blue Hydrogen

- Carbon capture and storage equipment is **expensive, raising the price of the fuel**.
- The process of making blue hydrogen also **requires a lot of energy**.
- In others words, if the hydrogen is used to heat a building, you would need to use 25% more natural gas to make blue hydrogen than if it was used directly for heat.
- The **primary component of natural gas is Methane** and a by-product of using it to produce blue hydrogen – is a **much more potent global warming gas than CO₂ over shorter timescales**.
- **Lack of proper infrastructure and production ecosystem**.

Way forward

- The future is a transition from grey, through blue, to green hydrogen. One thing that is clear is

the important role hydrogen will play in energy transition. To meet the global energy demand, while achieving the national and global energy efficiency targets, the industry is looking at every potential technology.

- There is great potential in both the blue and green hydrogen and both will play an important role in energy transition. With our knowledge and capability, we are there to support this transition.

Additional information

Other forms of Hydrogen

- **Grey hydrogen** is made from natural gas reforming like blue hydrogen, but without any efforts to capture carbon dioxide by-products.
- **Pink hydrogen** is hydrogen made with electrolysis powered by nuclear energy, which does not produce any carbon dioxide emissions. (Although nuclear energy creates radioactive waste which must be stored safely for thousands of years.)
- **Yellow hydrogen** is hydrogen made with electrolysis from the energy grid. The carbon emissions vary greatly depending on the sources powering the grid.
- **Turquoise hydrogen** is hydrogen produced from methane pyrolysis, or splitting methane into hydrogen and solid carbon with heat in reactors or blast furnaces. Turquoise hydrogen is still in its nascent stages of being commercialized, and its climate-conscious value depends on powering the pyrolysis with clean energy and storing the physical carbon.

NASA's NEW SPACE TELESCOPE SEES 1ST STARLIGHT, TAKES SELFIE

NASA's new space telescope has captured its **first starlight** and even taken a selfie of its giant, gold mirror.

- All 18 segments of the primary mirror on the James Webb Space Telescope seem to be working properly 1 1/2 months into the mission.

- The telescope's first target was a **bright star 258 light-years away** in the constellation Ursa Major.
- The \$10 billion infrared observatory considered the successor to the aging Hubble Space Telescope will seek light from the first stars and

galaxies that formed in the universe nearly 14 billion years ago.

- It will also examine the **atmospheres of alien worlds** for any possible signs of life.

James Webb Space Telescope:

- It is a space telescope designed primarily to **conduct infrared astronomy**.
- The U.S. National Aeronautics and Space Administration (NASA) led development of the telescope in collaboration with the European Space Agency (ESA), and the Canadian Space Agency (CSA).

- The JWST was launched 25 December 2021 on an ESA Ariane 5 rocket from Kourou, French Guiana.
- It is intended to succeed the Hubble Space Telescope as NASA's flagship mission in astrophysics.
- The telescope is named after James E. Webb, who was the administrator of NASA from 1961 to 1968 during the Mercury, Gemini, and much of the Apollo programs.
- It provides improved infrared resolution and sensitivity over Hubble, viewing objects up to 100 times fainter than the faintest detectable by Hubble.

NOD TO AT LEAST ONE GLOBAL CHIPMAKER BY MARCH 31; 2024 TARGET FOR FIRST FABRICATION UNIT

The Ministry of Electronics and Information Technology (MeitY) is likely to target 2024 for the formal opening of the **country's first semiconductor fabrication unit**.

- The ministry plans to approve the application of at least **one big global semiconductor fabrication company** before March 31 and give the winning bidder 700-750 days to complete the construction of the new unit.
- In December 2021, the Cabinet had approved a **Rs 76,000-crore plan for semiconductor** and display manufacturing ecosystem in the country.
- As a part of the plan, the Centre has lined up incentive support for companies engaged in silicon semiconductor fabs, display fabs, compound semiconductors, silicon photonics, sensors fabs, semiconductor packaging and semiconductor design.
-

- As a part of the scheme, for setting up of silicon complementary metal oxide semiconductor, fabrication units that manufacture technology node of 28 nanometer (nm) or lower will get up to 50 per cent of the project cost as incentive, while for above 28 nm but up to 45 nm, the Centre will provide 40 per cent of the unit cost.
- The government's move to incentivise the setting up of semiconductor fabrication units assumes significance at a time when there is a global shortage of semiconductor products and large chipmakers like Intel, TSMC, Texas Instruments, etc. are looking to add capacity.
- As per government estimates, electronic chips worth Rs 1.1 lakh crore were consumed in the country during 2020.

DID MICROWAVE WEAPONS INDUCE HAVANA SYNDROME?

A new report on Havana syndrome — a mysterious illness that afflicted hundreds of United States diplomats and intelligence officials worldwide — has brought renewed attention to microwave weapons.

Microwaves may have led to some of the cases of the disease that caused vertigo, nausea, vision and hearing difficulties, memory loss and headaches, according to the

report by the United States Office of the Director of National Intelligence.

What is Havana Syndrome?

- 'Havana Syndrome' is a **colloquial name given to a set of symptoms such as dizziness, hearing loss, headaches, vertigo, nausea, memory loss and possible brain injuries** first

reported by 16 U.S. Embassy staff and their family members in Havana, Cuba, in 2016-17. There have been other instances of the phenomenon, which has mostly impacted U.S. officials.

- 'Havana Syndrome' cases could have been caused by **pulsed electromagnetic energy** in the radio frequency.
- The symptoms included nausea, severe headaches, fatigue, dizziness, sleep problems, and hearing loss, which have since come to be known as the Havana Syndrome.
- The more chronic problems suffered by Havana personnel included mainly vestibular processing and **cognitive problems** as well as **insomnia** and **headache**.
- While the symptoms have resolved for some of the affected employees, for others, the effects have lingered and posed a significant obstacle to their work and affected the normal functioning of lives.

What are microwave weapons?

- These are supposed to be a type of direct energy weapons, which aim highly focused energy in the form of sonic, laser, or microwaves, at a target.
- Microwave weapons release **electromagnetic radiations** which cause sensations in the human body.
- Major countries across the world are believed to possess these microwave weapons. Including China and the US themselves.
- These weapons are a cause of concern as they can affect both machines and human beings.
- These weapons can cause long-term damages without leaving a single mark on the human body.
- Microwaves can knock out electronic gadgets, wifi and even drones. Exposure to high levels of microwaves can cause a painful burn in humans.
- There's no evidence that a microwave weapon exists, despite more than five decades of research on microwave technology.

PERSON DIAGNOSED WITH LASSA FEVER DIES IN BEDFORDSHIRE

Recently, one of the three persons diagnosed with Lassa fever in the UK has died.

- The cases have been linked to travel to west African countries.
- The **Lassa virus is named after a town in Nigeria** where the first cases were discovered.
- The **death rate** associated with this disease is low, at **around one per cent**.
- But the **death rate is higher** for certain individuals, such as **pregnant women** in their third trimester.
- According to the European Centre for Disease Prevention and Control, about 80 per cent of the cases are asymptomatic and therefore remain undiagnosed.
- Some patients may need to be hospitalised and develop severe multi-system disease.
- Fifteen per cent of the hospitalised patients may die.

What is Lassa Fever?

- The Lassa fever-causing virus is found in West Africa and was first discovered in 1969 in Lassa, Nigeria, the Centers for Disease Control and Pollution (CDC) notes.
- The discovery of this disease was made after two nurses died in Nigeria.
- The fever is spread by rats and is primarily found in countries in West Africa including Sierra Leone, Liberia, Guinea, and Nigeria where it is endemic.
- A person can become infected if they come in contact with household items of food that is contaminated with the urine or feces of an infected rat.
- It can also be spread if a person comes in contact with a sick person's infected bodily fluids or through mucous membranes such as the eyes, nose or the mouth.

- Person-to-person transmission is more common in healthcare settings.

Symptoms of Lassa Fever

- Symptoms typically appear 1-3 weeks after exposure.
- Mild symptoms include slight fever, fatigue, weakness and headache and more serious symptoms include bleeding, difficulty breathing, vomiting, facial swelling, pain in the chest, back, and abdomen and shock.

- Death can occur from two weeks of the onset of symptoms, usually as a result of multi-organ failure.
- The CDC notes that the most common complication associated with the fever is deafness.
- Nearly one-third of those infected report various degrees of deafness. In many such cases, the hearing loss can be permanent.
- Significantly, deafness can occur in both mild as well as severe presentations of the fever.

ZOOMING IN ON THE POTENTIAL OF INDIA'S GEOSPATIAL SECTOR

The date, February 15, 2021 will be regarded as a watershed moment when new guidelines took effect to completely **de-regulate the geospatial sector** for Indians. As we celebrate the **first anniversary of Draft National Geospatial Policy**, it is time to look back and assess its impact and identify the bottlenecks so that the full potential of the geospatial sector can be realised.

Draft National Geospatial Policy

- Government of India hereby promulgates a comprehensive National Geospatial Policy to **nurture and develop the geospatial ecosystem of the country to encourage spatial thinking, generate geospatial knowledge, strengthen geospatial infrastructure, promote use of Geospatial Data, Products, Solutions and Services and boost geospatial entrepreneurship for socio-economic development of the nation.**
- The Policy seeks to **empower citizens and enterprises to create, access and use of geospatial data and information for addressing developmental needs** of the country while also safeguarding its security interests.
- It provides for augmenting the geospatial ecosystem in the country, as well as globally, by **encouraging geospatial knowledge generation, skill sets and expertise, strengthening of geospatial infrastructure, use of GDPSS and advancement of geospatial entrepreneurship for socio-economic**

development of the nation. In the process, the potential role of Geospatial Technology, Innovation and Information at every stage of Nation-building from education, skill development, incubation of ideas, investment and wealth creation would be unleashed.

Advantages of NGP

- The Policy will support wider **democratization of Geospatial data for enhanced commercialization with Value Added Services.**
- The vision of this Policy is to **increase the availability of high-quality, timely and reliable data and information to address the National priorities and UN-Sustainable Development Goals.**
- It is to **address economic, social and environmental factors which depend on location information** in a continually changing world and provide a basis and guide for developing, integrating, strengthening and maximizing geospatial information management and related resources.
- **Holistic approach to development of entire geospatial ecosystem from skill building to capacity development, igniting geospatial spark in young minds, encouraging Research & Development [R&D], nurturing enterprise, enabling and empowering policy regime and laying of interoperable**

standards would lead to spatial thinking for effective and efficient governance interventions, flourishing industry and socio-economic progress.

- Availability of real and near real time data and information, reduce duplication and wastage of efforts in producing Geospatial data Promote collaboration, including Public Private Partnerships, between various agencies in production and use of Geospatial data.

Issues related to NGP

- Absence of a sizeable geospatial market in India.
- There is no demand for geospatial services and products on a scale linked to India's potential and size due to the lack of awareness among potential users in government and private.
- Lack of skilled manpower across the entire pyramid.
- The unavailability of foundation data, especially at high-resolution, is also a constraint.
- The lack of clarity on data sharing and collaboration prevents co-creation and asset maximisation.

Steps to be taken

- Need to publish the entire policy document and make government and private users aware of things.
- The data available with government departments should be unlocked, and data sharing should be encouraged and facilitated through an open data sharing protocol.
- The Government needs to invest in developing standards and must mandate the adoption of standards.

- There is a need to establish a geo-portal to make all public-funded data accessible through data as a service model, with no or nominal charge.
- Most important is to inculcate the culture of data sharing, collaboration and co-creation.
- Local technology and solutions should be promoted, and competition should be encouraged for quality output.

Road Ahead:

- It is understood that these issues cannot be resolved overnight and that the formulation of guidelines alone is not enough. The inertia and the mindset due to decades of restrictions will be difficult to shrug off. However, India needs to be aggressive to make a leapfrog; therefore, special attention is required as far as this sector is concerned.
- Unlike the West, India lacks a strata of core professionals who understand geospatial end-to-end. India should start a bachelor's programme in geospatial also in the Indian Institutes of Technology and the National Institutes of Technology Besides these, there should be a dedicated geospatial university. Such programmes will propel research and development efforts which are crucial for the development of technologies and solutions locally.
- The geospatial sector in the country is rightly positioned for investment. However, clarity on the issues discussed and the creation of an enabling ecosystem are essential. By the time we celebrate the 10th anniversary, we should have achieved the projected market volume and have Indian entrepreneurs stand out internationally.

KATRIN EXPERIMENT CONSTRAINS THE MASS OF MYSTERIOUS NEUTRINO PARTICLES WITH UNPRECEDENTED PRECISION

Physicists have taken a step towards nailing down the mass of the neutrino, perhaps the most mysterious of all elementary particles. The team at the Karlsruhe Tritium

Neutrino (KATRIN) experiment in Germany reports that neutrinos have a maximum mass of 0.8 electron volts.

- Researchers have long had indirect evidence that the particles should be lighter than 1 eV, but this is the first time that this has been shown in a direct measurement. The results were reported on 14 February in Nature Physics.

Neutrino

- A neutrino is a subatomic particle that is very similar to an electron, but has **no electrical charge and a very small mass, which might even be zero.**
- Neutrinos are one of the **most abundant particles in the universe.**
- Because they have very little interaction with matter, however, they are incredibly **difficult to detect.**
- Neutrinos are **created by various radioactive decays; during a supernova**, by cosmic rays striking atoms etc.
- Nuclear forces treated electrons and neutrinos identically; neither participate in the strong nuclear force, but **both participate equally in the weak nuclear force. Particles with this property are termed leptons.**
- In addition to the electron (and the positron), the **charged leptons include the muon** (with a mass 200 times greater than that of the electron), **the tau** (with mass 3,500 times greater than that of the electron) and **their anti-particles.**
- To detect neutrinos, **very large and very sensitive detectors are required.** Typically, a **low-energy neutrino will travel through many light-years of normal matter before interacting with anything.** Consequently, all terrestrial neutrino experiments rely on measuring the tiny fraction of neutrinos that interact in reasonably sized detectors.

Features of neutrinos:

- Neutrinos **interact very weakly** with everything else – trillions of them pass through every human being every second without anyone noticing.
- A neutrino's **spin always points in the opposite direction** of its motion.

- It is now generally believed that the phenomenon of **neutrino oscillations requires neutrinos to have tiny masses.**

Applications of Neutrinos

- Neutrinos are **produced from radiation**, so it might be possible for the International Atomic Energy Agency to **use neutrino detectors to monitor** which countries are following the treaty on the **Non-Proliferation of nuclear weapons.**
- The way a beam of neutrinos is spinning after **passing through pockets of the Earth could reveal where mineral deposits are.**
- It would be **faster to send the message through Earth** rather than over it. It would also be an **easy way to communicate with submarines submerged far below the surface.**
- Scientists have theorized that a certain type of **neutrino might come from decaying dark matter.**
 - The **IceCube lab** has built a neutrino detector in Antarctica that has **detected extremely high-energy neutrinos.** The lab has paved the way for the new field of neutrino astronomy.
- Neutrinos interact very little with the matter around them, so they **travel long distances uninterrupted.** These undamaged messengers can **give us a clue about the origin of the universe and the early stages of the infant universe, soon after the Big Bang.**

Road Ahead:

- If the properties of neutrinos are understood better, they can be used in astronomy to discover what the universe is made up of. Apart from direct future uses of neutrinos, there are technological applications of the detectors that will be used to study them. For instance, **X-ray machines, PET scans, MRI scans, etc., all came out of research into particle detectors.**
- Hence, the Neutrino detectors may have **applications in medical imaging.** Hence, the future of neutrino is very bright. Complete

exploration is difficult for the time being but nothing is impossible. **Good things always take time to happen.**

SUNLIGHT HELPS CLEAN UP OIL SPILLS IN THE OCEAN

Sunlight may have helped **remove as much as 17 percent of the oil slicking** the surface of the Gulf of Mexico following the 2010 Deepwater Horizon spill. That means that **sunlight plays a bigger role in cleaning up such spills** than previously thought, researchers suggest February 16 in Science Advances.

Highlights of the Research

- When sunlight shines on spilled oil in the sea, it can **kick off a chain of chemical reactions, transforming the oil into new compounds.**
- Some of these reactions can increase how easily the oil dissolves in water, called **photo dissolution.** But there has been little data on how much of the oil becomes water-soluble.
- The most important factors in photo dissolution, the researchers found, were the **thickness of the slick and the wavelengths of light.**
- **Longer wavelengths (toward the red end of the spectrum) dissolved less oil,** possibly because they are more easily scattered by water, than shorter wavelengths.
- The researchers estimate **irradiation helped dissolve from 3 to 17 percent of surface oil from the Deepwater Horizon spill,** comparable to processes such as evaporation and stranding on coastlines.

Oil Spill

- Oil spill, **leakage of petroleum** onto the surface of a large body of water.
- Oceanic oil spills became a **major environmental problem in the 1960s,** chiefly as a result of **intensified petroleum exploration and production on continental shelves** and the use of supertankers capable of transporting more than 500,000 metric tons of oil.
- The **unintentional or negligent release of used gasoline solvents and crankcase lubricants** by industries and

individuals greatly aggravates the overall environmental problem.

- Combined with **natural seepage from the ocean floor,** these sources add oil to the world's waterways at the rate of 3.5 million to 6 million metric tons a year.

Impact of oil spill

- Oil on ocean surfaces is **harmful to many forms of aquatic life** because it prevents sufficient amounts of sunlight from penetrating the surface, and it also **reduces the level of dissolved oxygen.**
- Crude oil **ruins the insulating and waterproofing properties of feathers and fur,** and thus oil-coated birds and marine mammals may **die from hypothermia.**
- **Ingested oil can be toxic to affected animals, and damage to their habitat and reproductive rate** may slow the long-term recovery of animal populations from the short-term damage caused by the spill itself.
- Damage to plant life can be considerable as well; **saltwater marshes and mangroves** are two notable shore ecosystems that frequently suffer from oil spills.
- If beaches and populated shorelines are fouled, **tourism and commerce may be severely affected,** as may power plants and other utilities that either draw on or discharge into seawater at the shore.
- One of the **industries most affected by oil spills is fishing.** Major oil spills are frequently followed by the immediate suspension of commercial fishing, at the least to prevent damage to vessels and equipment but also to prevent the catch and sale of fish or shellfish that may be contaminated.

TYPES OF OIL SPILLS CLEAN-UP METHODS

Using Sorbents

- Sorbents are materials that soak up liquids by either absorption (pulling in through pores) or adsorption (forming a layer on the surface). Both these properties make the process of clean-up much easier. Materials commonly used as oil sorbents are hay, peat moss, straw or vermiculite.

Additional Information:

- The oil can be recovered, and this **prevents wastage and further pollution.**
- Sorbents, after absorption, become heavier (3 to 15 times their weight), and as a result, they **may sink, making them difficult to retrieve** and pose a risk to aquatic life in the sea bottom.
- They are **most effective in small spills** or to manage the leftover traces of a larger spill.

Burning In-situ

- In this method, the oil floating on the surface is ignited to burn it off. This in-situ burning of oil can effectively **remove up to 98% of an oil spill**, which is more than most other methods.
- According to Obi et al. (2008), “The **minimum concentration (thickness) of the slick on the water surface for any measurable effectiveness of in-situ burning is 3mm.** This is because it would be tough (and even nearly impossible) to ignite a layer that is not thick enough.

Additional Information:

- The toxic fumes released from the burning can cause significant **damage to the environment and marine life.**
- The procedure **works on relatively fresh spills** before the oil spreads to a larger area and decreases in thickness.

Bioremediation

- Bioremediation refers to the **use of specific microorganisms to remove any toxic or harmful substances.** For example, various **bacteria, fungi, archaea, and algae degrade petroleum products by metabolizing and breaking them into simpler and non-toxic molecules** (mostly fatty acids and carbon dioxide). Sometimes, reagents and fertilizers may be added to the area.

- These **phosphorus-based and nitrogen-based fertilizers** provide adequate nutrients for the microbes to grow and multiply quickly.
- This process is generally not used when the spill has happened in the deep seas and is gradually implemented once the oil approaches the shoreline.

Additional Information:

- It is a **time taking procedure** and may even take years, so quicker solutions like using booms and skimmers or sorbents may be used if any urgent action is required.
- The fertilizers have an equally **high chance of aiding the growth of unwanted algae**, which consume much of the available oxygen and cut off sunlight from going to the deeper water levels. This can negatively impact marine life and prove to be counter-productive.

Natural Recovery

- The simplest method of dealing with the oil spill clean-up operation is to **use the vagaries of nature like the sun, the wind, the weather, tides, or naturally occurring microbes.** It is used in certain cases when the shoreline is too remote or inaccessible, or the environmental impact of cleaning up a spill could potentially far outweigh the benefits.
- Due to the constancy of these elements, the oil generally evaporates or is broken down into simpler components.

Additional Information:

- It is one of the **most cost-effective methods.**
- It is a highly **time consuming and unreliable process** and thus needs constant and close monitoring. It should not be confused with ‘sitting down and doing nothing.’
- A pivotal factor in cleaning up an oil spill is the location where it has happened. Most oil spills take place far out in the sea, so they are generally left to decompose in the environment naturally. However, as they get closer to the shores, we gradually begin to treat them.
- **The treatments follow a general rule:** (All distances measured from the shoreline)

- 200 nautical miles and beyond – No treatment is used unless the case is very severe.
- Between 20 and 200 nautical miles, booms and skimmers may be used.

- Between 20 and 10 nautical miles, dispersants are used.
- For areas very close to the shoreline, biological agents are used.

HOW THE SALTWATER CROCODILE ONCE LORDED OVER VIETNAM'S WATERWAYS...AND THEN DIED OUT

Anthropogenic activities can force the extinction of even the most apex of predators in the animal kingdom. One such example is the Saltwater Crocodile (*Crocodylus porosus*). A new article published last month has shone a fresh spotlight on how this majestic animal used to be found in Vietnam and southern China but later became extinct in these areas due to human activity.

Saltwater Crocodile

- The saltwater is the **largest of the 23 species of 'extant' or living crocodilians**. This includes 'true crocodiles', alligators and caimans.
- The 'saltie' is today found in three locations in India – the **Sundarbans, Bhitarkanika National Park and the Andaman and Nicobar Islands**.
- It is one of the three crocodilians native to the Indian Subcontinent, along with the mugger crocodile (*Crocodylus palustris*) and the gharial (*Gavialis gangeticus*).
- It is also **found in Bangladesh, Malaysia, Indonesia, Brunei, the Philippines, Papua New Guinea, Australia and the Solomon Islands**.
- The estuarine crocodile is infamous globally as a known **maneater**.
- **Illegal hunting, habitat loss, and antipathy** toward the species because of its reputation as a man-eater continue to put pressure on the population.
- The saltie is also called the '**estuarine crocodile**' and as the name suggests, is typically **found in the brackish water of estuaries**. It can also **tolerate saltwater in the oceans** and can **travel long distances over the open ocean, making use of tidal currents**.
- **During antiquity the species' range extended from the Seychelles and Kerala,**

India in the west through to south-eastern China, Palau and Vanuatu in the east. Today, the species is extinct in many of these areas, as well as from most of mainland Southeast Asia.

Protection Status:

- **IUCN List of Threatened Species: Least Concern**
- **CITES: Appendix I (except the populations of Australia, Indonesia and Papua New Guinea, which are included in Appendix II).**
- **Wildlife Protection Act, 1972: Schedule I**

Other species of crocodile found in India

Mugger

- **Restricted to the Indian subcontinent**, Mugger or Marsh crocodiles are generally **found in freshwater habitats including lakes, marshes and rivers**. They may also be found in coastal saltwater lagoons and estuaries.
- They are an **egg-laying and hole-nesting species**.
- It **preys on fish, reptiles, birds and mammals**.
- The main cause of their vulnerable status is **habitat destruction, fragmentation, and transformation, fishing activities and use of crocodile parts for medicinal purposes**.
- This species of crocodile is already **extinct in Myanmar and Bhutan**.

Protection Status

- **IUCN Red List: Vulnerable**
- **CITES: Appendix I**
- **Wildlife Protection Act, 1972: Schedule I**

Gharial

- They have **long and thin snouts** which resemble an earthen pot and thus, are called gharial.
- It currently inhabits rivers in the plains of the **northern part of the Indian subcontinent**.
- The **Chambal River** in the northern slopes of the Vindhya mountains is known as the primary habitat of gharials.
- The main causes of decline in population include **illegal sand mining, poaching, habitat destruction, floods and massive scale fishing operations**.

Protection Status

- **IUCN Red List: Critically Endangered**
- **CITES: Appendix I**
- **Wildlife Protection Act, 1972: Schedule I**

Indian Crocodile Conservation Project

- The Crocodile Conservation Project was launched in **1975** in different States.

- The **Gharial and Saltwater crocodile conservation programme** was first implemented in Odisha in early 1975 and subsequently the Muggers conservation programme was initiated.
- As a result of the programme, the estimated **number of the saltwater crocodiles increased from 96 in 1976 to 1,640 in 2012 in India**.

Road Ahead:

- There is a need to utilise manpower, modern technology and funds to conduct a proper survey to find the real time status of the crocodile population in the country. It can be done through geo-tagging the animals so that their movements can be monitored to prevent human-crocodile conflicts. Protection of such species is very important for maintaining biodiversity and climate change reduction.

ANCIENT 'MEGAFLOODS' TILTED THE VERY DIRECTION OF EARTH'S CRUST, SCIENTISTS FIND

Earth's last major ice age locked up gargantuan amounts of water in vast glaciers. Once they melted, it was a spectacle to behold as tremendous floods gouged channels into the face of the planet.

- The remnants of one of the largest of these ancient deluges are still visible in eastern Washington, in an area now known as the Channelled Scablands. For a long time, geologists have been struggling to understand the dynamic properties of these floods, until a recent key insight was made.

Highlights of the study

- The ancient glaciers were **so large and heavy, they actually tilted Earth's crust beneath them – when weight was released due to melting, the land would have moved too, changing the course of the megaflood**.
- Using modeling of ancient megafloods, researchers decided to test whether glacial isostatic adjustment (GIA) – **deflections in the**

crust as heavy chunks of ice form and melt – would affect the routing flow and erosion in two prominent Scabland tracks. The researchers believe the **deformation of Earth's crust due to the expanding and contacting of the ice sheets** would have altered the elevation of the landscape by hundreds of meters over this period.

- Up until now, reconstructions of ancient megaflood routing had investigated how other variables would affect them – things like **erosion and the movement of sediment, the three-dimensional mechanics of the environment, or how ice dams break**, for example. But they would also base these reconstructions on present-day topography, approximating how past landscapes may have looked.
- Geologists realized that the effects melting glaciers were having on Earth's crust were also likely playing a role in the routing and behavior

of these megafloods. **GIA caused crustal deformation in the Channelled Scabland with rates up to 10 millimetres per year, orders of magnitude above regional tectonic uplift rates** and, therefore, may have influenced flood routing.

- The course of ancient, **glacial outburst floods was likely influenced by glacial isostatic adjustment (GIA)**, and reconstructing these events informs our understanding of how floods shape landscapes on Earth and Mars.

About Megafloods

- Megafloods **caused by a large volume of water being released from behind some kind of stores.**
- Megafloods are **paleofloods (past floods)** that involved rates of water flow larger than those in the historical record.
- They are studied **through the sedimentary deposits and the erosional and constructional landforms** that individual megafloods have created.

- Floods that are known to us through historical descriptions are mostly related to **meteorological events, such as heavy rains, rapid melting of snowpacks, or combination of these.**
- In the case of outburst floods, such floods are typically linked to the collapse of a barrier which formed a lake. They fall in the **following classification according to the mechanism responsible:**
 - **Collapse of glacier dams that impound proglacial lakes** (Missoula Floods).
 - **Rapid erosion, melting of ice sheets** (jökulhlaups).
 - **Collapse of earthen barriers** (landslides or glacial moraines).
 - **Collapse of volcanic dams created by lava flows, lahars, or pyroclastic flows.**
 - **Overtopping of earthen or rock barriers.**

UNION MINISTER DR. MANSUKH MANDAVIYA LAYS FOUNDATION STONE FOR 'NANO UREA PROJECT' AND 'PHOSPHATE RICH ORGANIC MANURE (PROM)-SHEETALA' PROJECT AT THE RCF TROMBAY UNIT, MUMBAI

Union Minister laid the foundation stone for 'Nano Urea project' and 'Phosphate Rich Organic Manure (PROM)-SHEETALA' project at the Rashtriya Chemicals and Fertilizers Trombay Unit in Mumbai.

Nano Urea Project

- The capacity of the proposed plant at RCF is 1.5 Lakh bottles (500 ml) per day and will be able to meet the future demands of farmers.
- After the plant is functional, the nano-urea produced by RCF in an year will be able to replace 20 lakh metric tonnes of conventional urea.
- The Nano-Urea project **aims to keep the environment safe for future generations while securing food for all.** Nano Urea is a revolutionary product which will **help to protect the health of the soil by reducing the use of Urea by up to 50 percent for the same**

yield. The project is based on the technology developed by M/s IFFCO.

- Union Minister pitched for use of nano-fertilizer as a substitute for conventional fertilizers in the agriculture sector. He said **conventional urea has adverse effect on the soil and crops**, hence the farmers now-a-days prefer use of soil friendly nano-fertilizers.
- The Nano Urea, in liquid form, when sprayed on the leaves gets absorbed by plants more effectively thereby **avoiding losses due to leaching and/or run off to water bodies as in case of conventional Urea.**

PROM-SHEETALA Project

- The PROM fertilizer unit that will be established here will be **able to reduce the use of unsafe fertilizers.** The capacity of the proposed

Phosphate Rich Organic Manure (PROM) – SHEETALA plant is estimated to be 6,000 MTPA.

- SHEETALA PROM is **produced by co-composting of rock phosphate** and is an efficient way of adding phosphorus to soil as compared to chemical fertilizers.
- The product is a **suitable source of nutrient for organic farming** and improves the physical, chemical and biological properties of the soil and increases crop production.
- SHEETALA **enhances the activity of beneficial microorganisms in soil** and helps in humus formation.

What is nano urea?

- “Nano urea is like taking an intravenous injection rather than popping a capsule. The ultra-small particles are better absorbed directly from the leaf than through the soil. More than 70 per cent of the conventional urea applied in the soil remains unabsorbed by plants and it wasted.

Benefits of Nano Urea

- The nano urea liquid will **increase the production of crops with improved nutritional quality**. Due to the ultra-small size and surface properties, the nano urea liquid gets absorbed by plants more effectively when sprayed on their leaves.

- Upon penetration, these nanoparticles reach plant parts where nitrogen is required and release nutrients in a controlled manner, thereby **reducing usage while also reducing wastage into the environment**.
- The product is also expected to **reduce the environmental pollution** caused by the granular form, by reducing its excessive application that exacerbates soil, water and air pollution with climate change problems.
- **Lower usage and cost, increased productivity**. The new product will significantly bring down the cost of logistics and warehousing.
- The prime focus of the Government is **to reach out to the farmers through all possible medium and leverage the benefits of governance schemes** such as soil health card.

Road Ahead:

- IFFCO Nano Urea is a product of the 21st century and it is the need of the hour to keep the environment soil, air and water, safe for future generations while securing food for all. Nano urea liquid promises to radically transform farming in India and across the world by raising productivity while reducing environmental pollution and input cost.

METaverse: TECHNOLOGY THAT MERGES VIRTUAL, PHYSICAL WORLDS SOON TO BECOME A REALITY, META SAYS

Technology that merges the virtual and physical worlds could start to become a reality for consumers in a few years, Facebook owner Meta Platforms Inc has told advertising agencies, giving more details of its vision for the creation of the metaverse.

Mixed Reality

- Mixed reality is a **blend of physical and digital worlds, unlocking natural and intuitive 3D human, computer, and environmental interactions**. This new reality is based on advancements in computer vision, graphical processing, display technologies, input systems, and cloud computing.

- Mixed reality (MR) technology could **allow a person wearing an MR headset to use a real-world object to trigger a virtual world reaction**, like hitting a video game character with a real-world baseball bat, for instance.
- It is **one of three types of extended reality technologies often associated with the metaverse**. Augmented reality exists, with mobile games like Pokémon Go, but players cannot affect the digital world with a physical object. Virtual reality headsets, like Meta's Oculus, immerse users into a fully virtual world where they can interact with the environment.

- Mixed reality is the next wave in **computing following mainframes, PCs, and smartphones**. Mixed reality is **going mainstream for consumers and businesses**. It liberates us from screen-bound experiences by offering instinctual interactions with data in our living spaces and with our friends.
- **Mobile AR offers the most mainstream mixed reality solutions today on social media**. People may not even realize that the AR filters they use on Instagram are mixed reality experiences.
- Windows Mixed Reality takes all these user experiences to the next level with a **combination of truly stunning holographic representations of people and high-fidelity holographic 3D models and the real world around them**.

Application of mixed reality

- **Environmental understanding:** spatial mapping and anchors. Advancements in sensors and processing power are creating new computer perceptions of environments based on advanced input methods.
- **Human understanding:** hand-tracking, eye-tracking, and speech input.
- **Spatial sound.**
- **Locations and positioning in both physical and virtual spaces.**
- **Collaboration on 3D assets in mixed reality spaces.**

Metaverse

- **The metaverse is a concept of an online, 3D, virtual space connecting users in all aspects of their lives**. It would connect multiple platforms, similar to the internet containing different websites accessible through a single browser.
- **The concept was developed in the science-fiction novel Snow Crash by Neal**

Stephenson. However, while the idea of a metaverse was once fiction, it now looks like it could be a reality in the future.

- **The metaverse will be driven by augmented reality, with each user controlling a character or avatar**. For example, you might take a mixed reality meeting with an Oculus VR headset in your virtual office, finish work and relax in a blockchain-based game, and then manage your crypto portfolio and finances all inside the metaverse.

Augmented vs. virtual reality

- The experiences that **overlay graphics, video streams, or holograms in the physical world are called augmented reality**. The experiences that **occlude your view to present a fully immersive digital experience are virtual reality**.
- The experiences that can transition between augmented and virtual realities form mixed reality, where **you can place a digital object, such as a hologram, in the physical world as if it were physically present**. Be personally and digitally present in the physical world, in the form of an avatar, to asynchronously collaborate with others at different points in time.
- When a user is in virtual reality, the **physical obstacles in their immediate surroundings, such as walls and furniture, are represented digitally** within the experience so that the user can avoid colliding with those physical obstacles.

Road Ahead:

- The estimate of mixed reality being a few years away brings additional detail to the timeline of building the metaverse, the futuristic idea of a network of virtual worlds that can be accessed from different devices, which Meta has said could take a decade to build. Some mixed reality headsets are available, but are not yet geared toward general consumers.

BEYOND THE HYPE OF BLOCKCHAIN, A LOOK AT ITS REALITY

Blockchain is a fascinating data structure that generates great curiosity in computer science, the social and political sciences, and public policy. However, there is a lot of hype around the concept and its adoption in diverse fields seems to be faith-based, driven by unsubstantiated vendor and consultant claims.

- Subhashis Banerjee, Subodh Sharma writes: It is an elegant concept whose properties and potential require careful research, but treating it as a solution for all problems without thinking things through is techno-determinism.

Blockchain Technology

- Blockchain is a type of **shared database** that differs from a typical database in the way that it stores information; blockchains **store data in blocks that are then linked together via cryptography**.
- As new data comes in, it is entered into a fresh block. Once the block is filled with data, it is chained onto the previous block, which **makes the data chained together in chronological order**.
- Different types of information can be stored on a blockchain, but the most common use so far has been as a ledger for transactions.
- In Bitcoin's case, blockchain is **used in a decentralized way so that no single person or group has control—rather, all users collectively retain control**. Decentralized blockchains are immutable, which means that the data entered is irreversible. For Bitcoin, this means that transactions are permanently recorded and viewable to anyone.
- In essence, a **blockchain is a sequential append-only public bulletin board of transaction records with two main functional properties**.
- First, what can get added is reconciled by **multiple participating peers** following a **pre-decided consensus protocol**. This process cannot be gamed under the assumption that a majority of the unrestricted number of peers are honest.

- Second, the **bulletin board is immutable**; once a record is added, it is cryptographically ensured that it cannot be altered. Each participating peer normally has their own copy of the entire bulletin board, with identical content, and they can read and further copy at will.

Benefits of Blockchains

Accuracy of the Chain

- Transactions on the blockchain network are approved by a network of thousands of computers. This removes almost all human involvement in the verification process, resulting in less human error and an accurate record of information.

Cost Reductions

- Typically, consumers pay a bank to verify a transaction, a notary to sign a document, or a minister to perform a marriage. **Blockchain eliminates the need for third-party verification—and, with it, their associated costs**.

Decentralization

- Blockchain does not store any of its information in a central location. Instead, the **blockchain is copied and spread across a network of computers**.
- Whenever a new block is added to the blockchain, every computer on the network updates its blockchain to reflect the change. By spreading that information across a network, rather than storing it in one central database, blockchain becomes more difficult to tamper with.

Efficient and Transparent Transactions

- Transactions placed through a central authority can take up to a few days to settle. Whereas financial institutions operate during business hours, usually five days a week, **blockchain is working 24 hours a day, seven days a week, and 365 days a year**. This is particularly **useful for cross-border trades, which usually take much longer because of time zone issues** and the fact that all parties must confirm payment processing.

- Most blockchains are entirely **open-source software**. This means that anyone and everyone can view its code. This gives auditors the ability to review cryptocurrencies like Bitcoin for security.

Secure Transactions

- Once a transaction is recorded, its authenticity must be verified by the blockchain network. Thousands of computers on the blockchain rush to confirm that the details of the purchase are correct. After a computer has validated the transaction, it is added to the blockchain block.

Drawbacks of Blockchains

Technology Cost

- Although blockchain can save users money on transaction fees, the technology is far from free. Despite the costs of mining bitcoin, **users continue to drive up their electricity bills to validate transactions on the blockchain.**

Speed and Data Inefficiency

- Bitcoin is a perfect case study for the possible inefficiencies of blockchain. Bitcoin's PoW system takes about 10 minutes to add a new block to the blockchain.
- At that rate, it's estimated that the **blockchain network can only manage about seven transactions per second (TPS).**

Illegal Activity

- It also allows for illegal trading and activity on the blockchain network.
- The most cited example of blockchain being used for **illicit transactions is probably the Silk Road, an online dark web illegal-drug and money laundering marketplace.**
- The **dark web** allows users to buy and sell illegal goods without being tracked by using the **Tor**

Browser and make illegal purchases in Bitcoin or other cryptocurrencies.

Regulation

- Many in the crypto space have expressed **concerns about government regulation over cryptocurrencies.**
- While it is getting increasingly difficult and near impossible to end something like Bitcoin as its decentralized network grows, **governments could theoretically make it illegal to own cryptocurrencies or participate in their networks.**

Lack of Privacy

- The blockchain structure has **nothing to do with the highly-nuanced notion of privacy**, or even the limited secrecy aspect of it.

Road Ahead:

- Moreover, an asset becomes valuable when it is scarce and there is a demand. The scarcity of cryptocurrencies arises from the computational hardness of currency mining, of the process of solving a hash puzzle. And, there is clearly a perceived demand, not unlike gold.
- The total carbon footprint of cryptocurrencies is equivalent to that of a few megacities, and it does seem ungainly, energy-inefficient and unsustainable to mine assets this way. Surely, this requires regulation and taxation, especially for the potential environmental impacts.
- Blockchain is certainly an elegant concept whose properties and potential require careful research. The hype of treating them as solutions for everything with not-so-thoughtful use cases is perhaps techno-determinism at its worst.

SOIL DEGRADATION IN THE EUROPEAN MEDITERRANEAN REGION: PROCESSES, STATUS AND CONSEQUENCES

The Mediterranean is the most susceptible region in Europe to soil degradation and desertification. Multiple forms of physical, chemical and biological degradation affect the Mediterranean soils. Some Mediterranean soils are reaching critical limits for its ability to provide

ecosystem services. A continuous and harmonised soil assessment is required to evaluate trends in soil degradation.

Highlights

- In the European Union (EU), **60-70% of soils are degraded as a direct result of unsustainable management practices** and have lost significant capacity to provide ecological functions for various forms of life.
- In 2017, **25% of European land (411,000 km²), particularly in southern Europe**, was identified as being at high or very high risk of desertification, a 14% increase since 2008.
- In the EU, the **main soil threats are erosion, declining organic matter and biodiversity, contamination, sealing, compaction and salinisation.**
- The **Mediterranean region has been identified as particularly vulnerable to soil degradation.** It has the overall highest erosion rates within the EU, the lowest levels of soil organic matter and severe salinisation problems. It also has high **abundance of shallow soils, strong and increasing human pressures and high climate change vulnerability.**

The Mediterranean region

Socio-economic and land-use characteristics

- **Demographic changes** have led to considerable **variations in population density and significant land-use changes**, characterised by abandonment of rural areas, **decreasing area of agricultural land, expansion of forest and urban sprawl.**
- As a result, Mediterranean forests have undergone large-scale changes in their general extent and in terms of vegetation structure, composition and dynamics, leading to changes in fire regime. **Wildfires have increased** dramatically in frequency and extent in the European Mediterranean region since the 1960s, particularly in France, Greece, Italy, Spain and Portugal.
- To feed an increasing regional population, agricultural activities have increased in recent decades and **productive agricultural land is being used more intensively, exacerbating the risk of soil degradation.** The Mediterranean countries are the European

leaders for some crops (e.g., olives, fruit and vegetables).

Climate and water resources

- The Mediterranean region is located in a **transition zone between mid-latitude and sub-tropical atmospheric circulation regimes.** This results in **large spatial variability of atmospheric circulation** manifested in a wide variety of weather types and climate zones.
- The Mediterranean climate is typically **characterised by hot dry summers and humid mild winters.** About **65% of annual precipitation falls in winter months, although in mountainous areas the proportion can exceed 80%.**
- Since the 1950s, the **frequency and intensity of droughts have increased in the Mediterranean region**, particularly in the Iberian Peninsula (Portugal and Spain). The **Mediterranean region has also been identified as one of the most climate-vulnerable regions and a climate change "hotspot".**
- **Depletion of stored water reserves is affecting surface and subsurface reservoirs, driven by increasing abstraction and overexploitation of groundwater,** the main water resource in the region.

Reasons for Soil Degradation of Mediterranean Region

Soil sealing

- Soil sealing refers to permanently **covering the soil with impermeable artificial materials such as asphalt or concrete** (e.g., roads and buildings), and may involve physical soil removal to construct strong foundations in the subsoil.
- It is an **irreversible process** that results in loss of all soil services and functions such as, **production of food and biomass; infiltration and storage of water; generating surface runoff with associated flood hazard; local climate regulation; through reduced evapotranspiration by loss of vegetation and**

variations in albedo and higher surface temperatures associated with urban heat island effects.

Soil compaction

- Soil compaction involves **densification and distortion of soil under stresses exceeding its strength, exerted by machinery** (e.g., wheels, tracks, rollers) **and/or livestock**. Depending on the intensity and frequency of the stress, compaction can affect topsoil and/or subsoil at depths >30 cm.
- It **enhances erosion rates** and, in extreme precipitation events, may trigger landslides and flooding. **High water content and reduced aeration in compacted soils increase the risk of anaerobic conditions**, changing **biogeochemical cycles and enhancing greenhouse gas emissions** (e.g., nitrous oxide).

Soil erosion

- **Erosion rates in 24% of the EU exceed the rate of soil renewal** through weathering and pedogenesis.
- **Very high soil erosion rates occur widely from agricultural land in the Mediterranean countries**, the most affected area within the EU.
- **Topsoil loss reduces soil capacity to provide rooting space and store water, with 4% yield decline per 0.1 m of soil loss.**
- Soil erosion also leads to **loss of organic matter and nutrients**, and thus represents the greatest threat to soil fertility, long-term productivity and overall biodiversity.

Soil salinisation and sodification

- The extent of salt accumulation is still uncertain, but it is estimated that **Mediterranean countries contain only ~1% of affected land in Europe**, although the Mediterranean coastline stands out at European scale. Naturally saline soils occur in Spain, Greece, Serbia and Croatia.

- **25% of irrigated global Mediterranean cropland being affected by moderate to high salinisation.** The high annual rate of mineral fertilisation in some Mediterranean countries, such as France, Greece and Italy, is also an important driver of salinisation in agricultural soils.
- Accumulation of salts may also have **adverse consequences for soil structure, due to changes in the proportion of exchangeable cations attached to clay minerals affecting the bonds between soil particles, leading to collapse of soil aggregates.**

Biological degradation

- Risks for soil biodiversity are particularly high in large areas of Spain, and moderate to high in several areas of Greece and Italy, with no information available for several eastern European Mediterranean countries. There are no data available on changes in soil biodiversity.

Way Forward

- Mediterranean soils face multiple threats, with changes in soil properties driven by degradation increasing soil susceptibility to other degradation processes and hampering soil ecosystem services. Loss of ecosystem services through soil degradation will affect economic growth and ultimately societal health and sustainability.
- Overall, there is a general lack of regular systematic assessments of Mediterranean soils, and of a formal authority to compile and synthesize available information. Soil assessments within a harmonised, continuous monitoring system would provide comparable datasets and help reveal the spatial extent of soil degradation and its spatial and temporal trends.
- Bridging the gaps is essential for guiding policy and decision-making to improve soil management, protect this natural resource, and safeguard its long-lasting delivery of ecosystem services in this region.

NIAB DISCOVER POTENTIAL BIOMARKER FOR JAPANESE ENCEPHALITIS VIRUS

Researchers at the National Institute of Animal Biotechnology (NIAB), Hyderabad have developed Fluorine Doped Tin Oxide (FTO) electrode fabricated with reduced Graphene Oxide (rGO) to treat Japanese Encephalitis Virus (JEV).

- The electrochemical-based immunosensor can be used for the rapid, sensitive and specific detection of the Non-Structural 1 (NS1) secretory protein, which is a suitable biomarker for JEV found circulating in the blood and has been reported to elicit an immune response.

Japanese Encephalitis

- Japanese encephalitis virus (JEV) is a **flavivirus related to dengue, yellow fever and West Nile viruses, and is spread by mosquitoes.**
- JEV is the **main cause of viral encephalitis** in many countries of Asia with an estimated 68000 clinical cases every year.
- Although **symptomatic Japanese encephalitis (JE) is rare**, the case-fatality rate among those with encephalitis can be as high as 30%. **Permanent neurologic or psychiatric sequelae can occur in 30%–50% of those with encephalitis.**
- There is **no cure for the disease.** Treatment is focused on relieving severe clinical signs and supporting the patient to overcome the infection.
- **Safe and effective vaccines are available to prevent JE.** WHO recommends that JE vaccination be integrated into national immunization schedules in all areas where JE disease is recognized as a public health issue?

Challenges in diagnosis and treatment of the disease

- The conventional methods for JEV diagnosis are **expensive, more hazardous.**

- **Time-consuming** diagnostic techniques.
- Require an elaborate **laboratory set-up and trained expertise.**

What is Bio-markers?

- A biomarker (short for biological marker) is an objective measure that **captures what is happening in a cell or an organism at a given moment.** Biomarkers can **serve as early warning systems for your health.**
- Many biomarkers come from **simple measurements made during a routine doctor visit**, like blood pressure or body weight. Other biomarkers are **based on laboratory tests of blood, urine, or tissues.** Some capture **changes at the molecular and cellular level by looking at genes or proteins.**
- Biomarkers play an important role in **illuminating relationships among environmental exposures, human biology, and disease.** Scientists can use biomarkers to **better understand fundamental biological processes, advance exposure science, and turn research findings into practical medical and public health applications.**
- To really improve the success rate and **improve the efficiency of drug development**, we need a **whole new generation of biomarkers** that are more informative and that can tell developers earlier whether or not their **drug may have toxicity or it really may not work at all, and to get that early read on what's going to be successful.**

WHY DOES THE WORLD NEED A LIBRARY OF UNDERWATER SOUNDS? A SCIENTIST EXPLAINS

An international team of scientists have proposed a global library to document underwater biological sounds (GLUBS). The researchers discuss the benefits of the web-based platform in a study published in *Frontiers in Ecology and Evolution*.

Highlights of the study

- Study reports roughly 250,000 known marine species, scientists think all 126 mammals, at least 100 invertebrates and 1,000 of the world's 34,000 known fish species produce sounds.
- **Underwater creatures use sounds to communicate, make sense of their**

surroundings, find food and protect themselves.

- These sounds can help scientists study ocean life as **most species are nocturnal or hard to find**. It could help **identify new species and monitor how human activities impact the known aquatic species**.
- Helping them listen to marine life is **passive acoustic monitoring (PAM)**, a technology that uses **hydrophones to record sounds underwater**.

What is a sound library?

- Sound libraries are **similar to traditional public libraries**. The idea of creating them is not new. There have already been many sound repositories worldwide, but they are usually limited in scope.
- They **focus on a particular region or species group**, for instance. Some examples include FishSounds.net, Marine Mammals of Australia and Antarctica.
- These libraries **exist in isolation, limiting their ability to be applied to a wide variety of uses**.
- A global, **integrated library** would hopefully **garner greater funding appeal**.

How could sound help identify new species?

- In 2019, scientists described a **new species, Johnius taiwanensis**. Acoustic analysis showed that it produces a sound unique to the waters around coastal Taiwan.
- There is also a particular interest in **using sound to understand diversity in difficult to access locations like the deep sea**, though implementation has been limited so far.
- Biological sounds can be especially **helpful in describing the distribution of underwater species** that would be otherwise hard to find.

PARTICIPATION OF MINISTRY OF AYUSH IN VIGYAN SARVATRA PUJYATE EXPO

As part of the Azadi Ka Amrit Mahotsav, the Government of India is holding a week-long commemoration titled Vigyan Sarvatra Pujyate simultaneously at 75 locations across the country.

Vigyan Sarvatra Pujyate exhibition

- Sounds have been used to **track invasive species**, such as the **lionfish** (found in warm marine waters of the tropics) or **freshwater drum** (present in Canada, the United Kingdom and the United States).

Concerns related to human activities in sea

- The global library we propose will help support assessing human impacts on oceans. By **listening to underwater sounds at proposed mining sites**, we may tell whether **complex communities exist in a particular area and recommend alternative locations**.
- In addition to **destroying habitat, mining may create a lot of noise that could hurt marine animals directly or cause behavioural and physiological changes**. This could be further studied with passive acoustics.
- Compared to **recording sounds on land**, it can be much more challenging to identify what might be **producing a particular sound underwater due to reduced visibility or limited access**.
- More concernedly, many libraries have **difficulty finding and maintaining funding to ensure their long-term sustainability**.

Road Ahead:

- The ocean is also much larger than land and is more challenging to study in many respects because of size and accessibility. We know more about Mars, including what it sounds like (Mars playlist), than we do for many areas of our ocean.
- Additionally, it will require much greater effort to document the sound production of roughly 34,000 species and invertebrates. We hope that with more affordable technology and the creation of a global library, we will create opportunities for the public to contribute to research efforts through citizen science.

- The programme will be held from **Leh and Srinagar to Port Blair and Kavaratti Islands in Lakshadweep** from north to south and from **Ahmedabad and Daman to Itanagar**,

Kohima, and Aizawl from west to east, apart from the **national capital Delhi**.

- The event will display the **country's scientific legacy and technology prowess that has helped find solutions to defence, space, health, agriculture, astronomy, and other sectors**.
- The programme will be held in various **Indian languages, including Kashmiri, Dogri, Punjabi, Gujarati, Marathi, Kannada, Malayalam, Tamil, Telegu, Odia, Bengali, Assamese, Nepali, Maithili, and Manipur** and will include the screening of 75 films.

The programmes have been grouped under four themes

- **'From the annals of the history of S&T'** to acknowledge the contributions of founders of modern science and institutions. 75 films on 75 scientists and 75 lectures by eminent scientists and technocrats will be screened across the 75 locations.
- **'Milestones of Modern S&T'** to highlight critical discoveries, innovations, or inventions that made a mark in the global science or India's development story.

- **'Swadeshi Paramparik Inventions and Innovations'**, to showcase 75 inventions or technologies that led India towards self-reliance by drawing upon the reservoir of traditional knowledge systems, such as drugs from herbs.
- **'A Transforming India'**, to look at the road ahead for the next 25 years of Indian S&T.

Importance of Vigyan Sarvatra Pujyate exhibition

- The programme will not **only motivate the young children but also the common citizens**. It will apprise the people about the scientists who have played an **important role in making India self-reliant**.
- The most important aspect of the Vigyan Sarvatra Pujyate event is **to popularize science and increase scientific temper in the country**.
- It also aims to **inspire India's youth and help them navigate into building a progressive nation**; bring to the fore stories of people in science and their achievements.
- It **reinforces the commitment of the scientific community** towards the economic and social development of the country.
- It also highlights the **work being done by the R&D organizations** from across the country.

INDIA EVOLVING AS FRONTRUNNER IN HIGH POWER COMPUTING

India is fast evolving as a frontrunner in high power computing with the **National Super Computing Mission (NSM)** with Supercomputing infrastructure already **installed in 10 premier institutions like IITs, IISc, IISER Pune, JNCASR Bengaluru, various C-DACs, NABI Mohali, and benefitting researchers from several other institutions too**.

- As part of the National Supercomputing Mission (NSM), the **Indian Institute of Science (IISc) Bengaluru has installed Param Pravega**, one of the most powerful Indian supercomputers. Param Pravega having a **supercomputing power of 3.3 petaflops**, is the largest supercomputer that has been installed in an Indian academic institution.

- Going ahead, design and development of indigenous server nodes, interconnect switch, storage, and system software stack for next generation of High-Performance Computing (HPC) systems has been initiated with **85% indigenous manufacturing**. This includes **India's first indigenous server platform called 'Rudra'**, which can meet the HPC requirements of all governments and PSUs as well as the strategic needs of the country.

National Super Computing Mission (NSM)

- The Mission envisages **empowering our national academic and R&D institutions** spread over the country by **installing a vast supercomputing grid**

comprising of more than 70 high-performance computing facilities.

- These supercomputers will also be **networked on the National Supercomputing grid over the National Knowledge Network (NKN)**. The NKN is another programme of the government which connects academic institutions and R&D labs over a high-speed network.
- The Mission also includes **development of highly professional High-Performance Computing (HPC) aware human resource** for meeting challenges of development of the applications.
- The **Mission implementation would bring supercomputing** within the reach of the large Scientific & Technology community in the country and enable the country with a **capacity of solving multi-disciplinary grand challenge problems**.
- The Mission would be **implemented and steered jointly by the Department of Science and Technology (DST) and Department of Electronics and Information Technology (DeitY)** at an estimated cost of Rs.4500 crore over a period of seven years.

Objectives of NSM

- To **make India one of the world leaders in Supercomputing** and to enhance India's capability in **solving grand challenge problems of national and global relevance**.

- To **empower our scientists and researchers with state-of-the-art supercomputing facilities** and enable them to carry out cutting-edge research in their respective domains.
- To **minimize redundancies and duplication of efforts, and optimize investments** in supercomputing.
- To **attain global competitiveness and ensure self-reliance** in the strategic area of supercomputing technology.

Application areas of NSM

- This will help meet the increasing **computational demands of academia, researchers, MSMEs, and start-ups in areas like oil exploration and drug discovery** and also firm up **indigenous capability** of developing supercomputers.
- **Climate Modelling, Weather Prediction, Aerospace Engineering** including CFD, CSM, CEM.
- **Computational Biology, Molecular Dynamics, Atomic Energy Simulations**
- **National Security/ Defence Applications, Seismic Analysis, Disaster Simulations and Management**
- **Computational Chemistry, Computational Material Science and Nanomaterials, Discoveries beyond Earth (Astrophysics)**
- **Large Complex Systems Simulations and Cyber Physical Systems, Big Data Analytics, Finance, Information repositories/ Government Information System.**

HOW TECHNOLOGY CAN HELP SAVE INDIA'S GROUNDWATER

Groundwater has been a priceless resource for humanity for centuries. Today, technology, with local governance, offers the last chance of saving groundwater even as the world stands at a critical crossroads.

Groundwater in India

- **India is the world's largest user of groundwater.** The country's economy is tagged to groundwater development in many ways and its inadequacy will jeopardise progress.

- **Tube wells, bore wells, springs and open-dug wells remain the primary source of groundwater production and abuse in India.** Currently, there is a complete mismatch between available resources and the volumes of water withdrawn.
- **Drilling rigs and pumps registered an annual growth of 10-12 per cent.** An additional 10 million wells were energised with

submersible pumps in the last two decades. Centrifugal pumps in domestic, institutional, commercial and entertainment sectors remain unaccounted for.

- **Groundwater extraction has to be decoupled from wealth-generation** if the excessive demand for groundwater has to be moderated.

Use of technology

- **Automated decision-making** is one aspect that needs to be adopted as an integral part of groundwater extraction. We need to enable technologies to simulate appropriate human responses.
- All existing **tube well owners should be required to upgrade to the new technology**. All new wells should integrate **automation during construction**. Industries, farms, residential complexes, commercial establishments with multiple wells with bulk extraction should implement automation within six months of notification.
- Individual households, small farms, schools, public institutions **need to be incentivised to adopt automation and conform to water extraction norms**.
- **Smart pumps** should form part of automation at the basic well level. **Sensors and decision-making tools must be integrated with the pump design** to make them intelligent.
- Analysis of millions of wells' data in real-time needs to be supported by **big-data analytics, cloud computing and real-time modelling with forecasting tools**.

Automation advantages

- **Adopting artificial intelligence (AI)** will help make decisions and visualise emerging scenarios for pro-active governance.
- **Smart sensors in different appliances and Internet of Things shall** enable visibility of data of consequence.
- **Data from millions of nodes (wells) can be analysed simultaneously in a decentralised fashion**. Owners can be notified and decisions implemented simultaneously across India. Data

from all nodes shall aggregate at the cloud servers for advanced regional analysis.

- **Groundwater use through automation, be it for agriculture, industry, commerce, sports, entertainment and domestic use, will be forced to adhere to water footprint norms** on daily and annual consumption.
- **Zettabytes of data traffic flow** shall enable daily audit of water balance at the well, watershed, aquifer and river basin scale. **Big data analytics, combined with AI**, shall transform governance into a practice of national behaviour for protecting the common property resource under threat.

Measures to be taken:

- **Technology-guided decision-making** would help **distinguish groundwater abuse and promote efficient use**. Additionally, this would ensure the safekeeping of groundwater within aquifers for posterity.
- Make it mandatory for all energised pumping wells to **integrate sensors and decision-making tools to help curb wastage and contamination**.
- **Privately financed wells, pumps, conveyance pipes, storage reservoirs, drips, sprinklers as well as treatment plants** installed by millions of ordinary citizens and institutions have already built an **efficient decentralised supply chain**.
- The **onus now lies with the investors in safeguarding and protecting** such a resource from irrelevance.
- **Attaching additional technology** to the existing investment is the first step in reducing wastage, improving efficiency and self-governance.

Road Ahead:

- Appropriate policy interventions in regulating further constructions and ensuring retention of 50 per cent of the resource within the aquifers can only help in its sustenance. Groundwater remains the only natural resource that offers free access to all. For the poor, this has ensured

economic growth, combined with social mobility.
Groundwater cannot be allowed to fail.

NATIONAL STRATEGY FOR ADDITIVE MANUFACTURING

To cater next-generation **digital manufacturing and mitigate immediate disabilities of local industries**, Union Minister of Electronics & Information Technology, Communications & Railways and Minister of State for Electronics & Information Technology and Skill Development and Entrepreneurship will release “National Strategy on Additive Manufacturing”.

Additive Manufacturing

- Additive manufacturing (AM), also known as **3D printing**, is a **transformative approach to industrial production** that enables the creation of lighter, stronger parts and systems.
- Additive manufacturing **uses data computer-aided-design (CAD) software** or 3D object scanners to direct hardware to deposit material, layer upon layer, in precise geometric shapes.
- As its name implies, additive manufacturing **adds material to create an object**. By contrast, when you create an object by traditional means, it is often necessary to **remove material through milling, machining, carving, shaping or other means**.
- The term “additive manufacturing” references technologies that **grow three-dimensional objects one superfine layer at a time**. Each successive layer bonds to the preceding layer of melted or partially melted material.

Additive Manufacturing Technologies

- The first of which is **sintering** whereby the **material is heated without being liquified to create complex high-resolution objects**. Direct metal laser sintering uses metal powder whereas selective laser sintering uses a laser on thermoplastic powders so that the particles stick together.
- The second AM technology **fully melts the materials**, this includes **direct laser metal sintering** which uses a laser to melt layers of metal powder and **electron beam**

melting, which uses electron beams to melt the powders.

- The third broad type of technology is **stereolithography**, which uses a process called **photopolymerisation**, whereby an **ultraviolet laser is fired into a vat of photopolymer resin to create torque-resistant ceramic parts** able to endure extreme temperatures.

What are the Advantages of using Additive Manufacturing?

- AM is important for the **creation of lighter, complex designs** that may be too difficult or expensive to produce using traditional manufacturing techniques.
- **Removing the need for moulds, milling or machining**, AM offers a range of advantages for both prototyping and production.
- **Ideal for rapid prototyping**, the digital process means that design alterations can be done quickly and efficiently during the manufacturing process.
- Unlike with more traditional subtractive manufacturing techniques, the **lack of material wastage provides cost reduction** for high value parts, while AM has also been shown to reduce lead times.
- In addition, **parts that previously required assembly from multiple pieces can be fabricated as a single object** which can provide **improved strength and durability**.
- AM can also be **used to fabricate unique objects or replacement pieces** where the original parts are no longer produced.

What Materials can be used in Additive Manufacturing?

- **Biochemicals** used in AM include silicon, calcium phosphate and zinc while bio-inks fabricated from stem cells are also being

explored. These materials are generally used for healthcare applications.

- A range of **ceramics** are used in AM, including alumina, tricalcium phosphate and zirconia as well as powdered glass which can be baked together with adhesives to create new types of glass product.
- A wide variety of **metals and metal alloys** are used for additive manufacturing, including gold and silver, stainless steels and titanium amongst others. These can be made to create a variety of different metal parts, ranging from jewellery to aerospace components.
- **Thermoplastic polymers** are the most commonly used of AM materials and include a variety of types with their own advantages and applications. These include acrylonitrile butadiene styrene (ABS), polylactic acid (PLA) and polycarbonate (PC) as well as water-soluble polyvinyl alcohol (PVA) which can provide temporary support before being dissolved.

Where is AM used?

- AM is particularly suited to **aerospace applications** due to its weight saving capability and ability to produce complex geometric parts such as **blisks**.
- A variety of materials are widely additive manufactured for the **automotive industry** as they can be rapidly prototyped while offering weight and cost reductions.

- The **medical sector** is finding an increasing number of applications for additively manufactured parts, especially for bespoke custom-fitted implants and devices.

Road Ahead:

- Additive Manufacturing (AM) has immense potential to revolutionize India's manufacturing and industrial production landscape through digital processes, communication, imaging, architecture and engineering.
- With the release of the Strategy by Ministry of Electronics & Information Technology, Innovation and R&D ecosystem will be encouraged in PPP mode to transform existing research knowledgebase to develop Additive Manufacturing grade materials, 3D printer machines and printed indigenous products for vast domestic and international market in various sectors including electronics, photonics, medical device, agro and food processing etc.
- While additive manufacturing seems new to many, it has actually been around for several decades. In the right applications, additive manufacturing delivers a perfect trifecta of improved performance, complex geometries and simplified fabrication. As a result, opportunities abound for those who actively embrace additive manufacturing.

25 TECHNOLOGY INNOVATION HUBS ACROSS THE COUNTRY THROUGH NM-ICPS ARE BOOSTING NEW AND EMERGING TECHNOLOGIES TO POWER NATIONAL INITIATIVES

The 25 Technology Innovation Hubs (TIH) set up across the country through the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS) are boosting new and emerging technologies to power national initiatives in key areas. They are bringing out several technological solutions for people-centric problems. Several technologies and technology platforms established under the mission have helped push impact in multiple sectors.

NM-ICPS

- **Vigyan 2030** stipulates that Cyber-Physical Systems (CPS) should be taken up as a National Mission and states that CPS **will address the threat to jobs, security and strategic requirements that the new industrial revolution poses**.
- The goal is to **ensure opportunity by generating new directions and training**. The areas of **focus could be in various Major Technologies like Big Data, Manufacturing, and Quantum Communication**.

- **Train youth at all levels, develop Incubators and start-ups** in these areas and set up Top Level Challenges. **Push commercialisation around innovative MSMEs** and ensure diffusion Industry 4.0 through Manufacturing and Services.
- To **invest in research, training and skilling in robotics, artificial intelligence, digital manufacturing, big data analysis, quantum communication and internet of things**, Department of Science & Technology launch a Mission on Cyber Physical Systems to support establishment of centres of excellence. The National Mission on ICPS (NM-ICPS) is in line with high aspirations and offers a strategy to achieve the stated vision.
- Cyber-Physical Systems (CPS) **combines digital/ cyber elements with physical objects and data with capabilities of communication, data collection & processing, computing, decision making and action.** Cyber-Physical Systems allow organizations to take timely and optimal interventions/ actions. CPS is an integrated system involving Sensors, Communication, Actuators, Control, interconnected computing networks and data analytics.
- NM-ICPS is a **comprehensive Mission aimed at complete convergence with all stakeholders** by establishing **strong linkages between academia, industry, Government and International Organizations.**

MISSION Objectives

- To **promote translational research in Cyber-Physical Systems (CPS) and associated technologies.** To **develop technologies, prototypes and demonstrate associated applications** pertaining to national priorities.
- To **enhance core competencies, capacity building and training to nurture innovation and start-up ecosystem.** To set up world-class interdisciplinary centers of excellence in several academic institutions across the country, that can become repositories of core expertise in CPS and

related areas and serve as focal points for technology inputs for the industry and policy advice for the government

- To **involve Government and Industry R&D labs** as partners in the collaboration centres. **Incentivise private participation** to encourage professional execution and management of pilot scale research projects.
- To **set mission mode application goals and foundational themes** for excellence for different centres. Set up CPS test beds at various centres. To **tie up with incubation centres and accelerators to foster close collaboration** with entrepreneurship ecosystem.
- To **address some of the National issues and development of sector-specific solutions.** To **enhance high-end researchers base, Human Resource Development (HRD) and skill-sets** in these emerging areas.

Benefits of NM-ICPS

- CPS technologies provide a cutting edge to a **Nation's scientific, engineering, and technologically innovative capabilities; support other missions of the government, provide industrial and economic competitiveness** and have truly become a Strategic Resource.
- The proposed Mission would act as an **engine of growth** that would **benefit national initiatives in health, education, energy, environment, agriculture, strategic cum security, and industrial sectors, Industry 4.0, SMART Cities, Sustainable Development Goals (SDGs) etc.**
- CPS will indeed **bring a paradigm shift in entire skill sets requirement.** The job opportunities will be enhanced through the Mission by **imparting advanced skills and generating skilled manpower** as per the requirement of the industry/ society.
- As Innovation, Entrepreneurship and Start-up Ecosystem is an integral part of the proposed NM-ICPS, the **start-ups will also create a**

number of technologies driven job opportunities in CPS and allied areas.

Road Ahead:

- NM-ICPS, which fosters technological solutions in health, education, energy, environment, agriculture, strategy cum security, Industry 4.0 is being implemented through 25 Technology

Innovation Hubs (TIHs) established in top academic, and National R&D Institutes was approved at by the Union Cabinet at a total cost of Rs 3660 crores in December 2018. All the hubs are working on developing solutions for people-centric problems.

NEUROPATHOLOGICAL CHANGES FOLLOWING COVID-19 SIMILAR TO ALZHEIMER 's

The SARS-CoV-2 infection, which causes COVID-19, has inflammatory response and neuropathological pathway changes similar to Alzheimer's disease (AD), according to a new study.

Highlights of the Study

- The study by researchers looked at the autopsy brain tissue at the Columbia University Biobank of 10 people who succumbed to COVID-19. Four of them were women, aged 38, 74, 76 and 80 while the rest were men between the ages of 57 and 84.
- The **identification of abnormalities** in several molecules which help characterise the **neuroglial dysfunction** in these patients at a biochemical level.
- Brain lysates from control and **COVID-19 patients were analyzed for oxidative stress and inflammatory signalling pathway markers, and measurements of Alzheimer's disease (AD)-linked signalling biochemistry.**
- Several reports have described **insomnia, depressed mood, anxiety, post-traumatic stress disorder and cognitive impairment in a proportion of patients** after discharge from the hospital.
- The potential mechanisms underlying these symptoms are not fully understood but are probably multifactorial, **involving direct neurotrophic effect of SARS-CoV-2, consequences of long intensive care unit stays, the use of mechanical ventilation and sedative drugs, brain hypoxia, systemic inflammation,** secondary effects of medications used to treat COVID-19 and dysfunction of peripheral organs.

About Alzheimer's

- Alzheimer's disease is a **neurological condition** in which the **death of brain cells causes memory loss and cognitive decline.** It is the most common type of dementia, accounting for around 60–80% of cases of dementia in the United States.
- Alzheimer's disease **affects around 5 million people.** Trusted Source in the U.S. Estimates suggest that this number will **nearly triple by 2060.** The condition usually **affects people aged 65 years and over,** with only 10% Trusted Source of cases occurring in people younger than this.
- One of the main features of the condition is the **presence of plaques and tangles in the brain.** Another feature is a **loss of connection between the nerve cells, or neurons, in the brain.**
- These features mean that **information cannot pass easily between different areas of the brain or between the brain and the muscles or organs.**

Symptoms of Alzheimer's disease

Memory loss:

- A person may have **difficulty taking in new information and remembering information.** This can lead to **repeating questions or conversations, losing objects, forgetting about events** or appointments and wandering or getting lost.

Cognitive deficits:

- A person may experience **difficulty with reasoning, complex tasks, and judgment.** This can lead to **reduced understanding of safety and risks, difficulty**

with money or paying bills, difficulty making decisions and difficulty completing tasks that have several stages, such as getting dressed.

Problems with recognition:

- A person may become **less able to recognize faces or objects or less able to use basic tools**. These issues are not due to problems with eyesight.

Problems with spatial awareness:

- A person may have **difficulty with their balance, trip over, or spill things more often, or they may have difficulty orienting clothing** to their body when getting dressed.

Problems with speaking, reading, or writing:

- A person may develop **difficulties with thinking of common words, or they may make more speech, spelling, or writing errors**.

Personality or behaviour changes:

- A person may experience changes in personality and behaviour that include **becoming upset, angry, or worried more often** than before, a **loss of interest in or motivation for activities they usually enjoy, a loss of empathy, compulsive, obsessive, or socially inappropriate behaviour**.

Diagnosis

- There is **no single test for Alzheimer's disease**. If a doctor suspects the presence of the condition, they will ask the person — and sometimes their family or caregivers — about their symptoms, experiences, and medical history.
- In some cases, **genetic testing** may be appropriate, as the symptoms of dementia can be related to an inherited condition such as Huntington's disease.

Treatments

- There is **no known cure for Alzheimer's disease**. It is not possible to reverse the death of brain cells.

- Treatments can, however, **relieve its symptoms and improve quality of life for the person and their family and caregivers**.

The following are important elements of dementia care:

- **Effective management of any conditions occurring alongside Alzheimer's activities and day-care programs.**
- **Involvement of support groups and services.**
- **No disease-modifying drugs are available for Alzheimer's disease**, but some options may reduce the symptoms and help improve quality of life.
- **Drugs called cholinesterase inhibitors can ease cognitive symptoms, including memory loss, confusion, altered thought processes, and judgment problems**. They improve neural communication across the brain and slow the progress of these symptoms.

Emotion and behaviour treatments

- People may increasingly experience irritability, anxiety, depression, restlessness, sleep problems, and other difficulties. **Treating the causes of these changes can be helpful.**
- **Identifying what triggered these behaviours and avoiding or changing these things can help people deal with the changes**. Triggers may include changing environments, new caregivers, or being asked to bathe or change clothes.
- It is often possible to **change the environment to resolve obstacles and boost the person's comfort, security, and peace of mind**.

Road Ahead:

- Alzheimer's disease is a neurodegenerative condition. A build-up of plaques and tangles in the brain, along with cell death, causes memory loss and cognitive decline. There is currently no cure, but drugs and other treatments can help slow or ease the cognitive, emotional, and behavioural symptoms and improve the person's quality of life.

Bihar's **first floating power plant** in Darbhanga to be commissioned soon. The state is likely getting a 2-megawatt floating solar power generation unit in Darbhanga within a month.

Highlights of Bihar's Floating Power Plant

- The project **aims to promote pisciculture**.
- The unit, **commissioned to Avaada Energy**, a private firm, will come up over a six-acre pond. Avaada will **transmit power from the plant to the Bihar Renewable Energy Development Agency (BREDA)**, a government agency that works for expansion of clean renewable energy.
- The plant consists of **4,004 solar modules**. Each module is installed in the pond and is **capable of generating 505-megawatt peak (MWp) electricity**.
- They will **generate around 2 MW of green and clean energy**. Once commissioned, the plant will **provide power to 10,000 people in the state**.
- It will **generate 2.7 million units annually and will help in reducing 64,125 tonnes of CO2 in its lifecycle of 25 years**.
- **Importance of Floating Power Plant**

- The main benefit of a floating solar power plant is that the **water will cool the solar panels, ensuring their efficiency when temperatures rise, resulting in increased power generation**.
- The floating power plant will **help meet two goals: Produce green energy from solar panels and promote fish farming**.
- The idea could prove to be a **boon in utilising waterbodies for beneficial purposes and giving a new lease of life to waterbodies**.
- It will **help the state to achieve the target of 3,433 MW of renewable energy by 2022 that includes 2,969 MW from solar alone**.
- **About Darbhanga**
- Darbhanga is the **fifth-largest city and municipal corporation in the Indian state of Bihar** situated centrally in the Mithila region.
- It was the seat of the erstwhile **Khandwala dynasty**. It was the capital of Mithila.
- Darbhanga is also the biggest medical and educational hub in northern Bihar/Mithila. It is also known as the **'Heart of Mithilanchal'**.

HOW TO PROTECT THE FIRST 'CRISPR BABIES' PROMPTS ETHICAL DEBATE

Two prominent bioethicists in China are calling on the government to set up a research centre dedicated to ensuring the well-being of the **first children born with edited genomes**. The proposal comes ahead of the researcher who in 2018 shocked the world by announcing that he had created babies with altered genomes.

About the Discovery

- In 2018, the world learned that He had implanted embryos in which he had **used CRISPR-Cas9 to edit a gene known as CCR5, which encodes an HIV co-receptor**, with the goal of making them resistant to the virus.
- The **implantation led to the birth of twins in 2018, and a third child was later born to separate parents**.
- The parents had agreed to the treatment because the fathers were HIV-positive and the mothers were HIV-negative, and the couples were barred

from access to alternative assisted-reproduction technologies in China.

About CRISPR Cas9

- CRISPR-Cas9 is a **genome editing tool** that is creating a buzz in the science world. It is **faster, cheaper and more accurate than previous techniques** of editing DNA and has a wide range of potential applications.
- CRISPR-Cas9 is a **unique technology** that enables geneticists and medical researchers to **edit parts of the genome by removing, adding or altering sections of the DNA sequence**.
- It is currently the **simplest, most versatile and precise method of genetic manipulation** and is therefore causing a buzz in the science world.
- CRISPR-Cas9 was **adapted from a naturally occurring genome editing system in**

bacteria. The bacteria capture snippets of DNA from invading viruses and use them to create DNA segments known as CRISPR arrays.

How does it work?

- Researchers create a **small piece of RNA with a short "guide" sequence** that attaches (binds) to a specific target sequence of DNA in a genome.
- The **RNA also binds to the Cas9 enzyme.** As in bacteria, the modified RNA is used to recognize the DNA sequence, and the Cas9 enzyme cuts the DNA at the targeted location.
- Although **Cas9 is the enzyme that is used most often**, other enzymes (for example Cpf1) can also be used.
- Once the DNA is cut, researchers use the cell's own DNA repair machinery to add or delete pieces of genetic material, or to **make changes to the DNA by replacing an existing segment with a customized DNA sequence.**

Application of Genome Editing

- **Causal genetic mutations or epigenetic variants associated with altered biological function or disease phenotypes** can now be rapidly and efficiently recapitulated in animal or cellular models.
- **Manipulating biological circuits** could also facilitate the generation of useful synthetic materials, such as algae-derived, silica-based diatoms for oral drug delivery.
- Precise genetic engineering of important agricultural crops could confer **resistance to environmental deprivation or pathogenic infection, improving food security** while avoiding the introduction of foreign DNA.
- **Sustainable and cost-effective biofuels** are attractive sources for renewable energy, which could be achieved by creating efficient metabolic pathways for ethanol production in algae or corn.
- **Direct in vivo correction of genetic or epigenetic defects in somatic tissue would be permanent genetic solutions** that address the root cause of genetically encoded disorders.
- Engineering cells to optimize **high yield generation of drug precursors** in bacterial

factories could significantly reduce the cost and accessibility of useful therapeutics.

Issues related to Genome Editing

- An introduced trait could spread beyond the target population to other organisms through crossbreeding. **Gene drives could also reduce the genetic diversity of the target population.** There is a danger that CRISPR's affordability and efficiency could run roughshod over long-standing and valid concerns about the generation and release of GMOs.
- There is another, potentially much more dangerous and controversial, **application of CRISPR, namely to potentially eradicate disease by eradicating disease vectors and invasive species.** Such methods could effectively destroy an entire species and could have significant environmental consequences.
- It is not unreasonable to think that, in the wrong hands, **CRISPR could be used to make dangerous pathogens even more potent.** There exist some concerns about the accidental or deliberate release of GE microorganisms or viruses into the environment.

Ethical concerns associated with CRISPR Cas9

- Due to the possibility of off-target effects and mosaicism, **safety is of primary concern.**
- Some people worry that it is impossible to obtain informed consent for germline therapy because **the patients affected by the edits are the embryo and future generations.** Bioethicists also worry about the possibility of obtaining truly informed consent from prospective parents as long as the risks of germline therapy are unknown.
- As with many new technologies, there is concern that genome editing will only be accessible to the wealthy and will increase existing disparities in access to health care and other interventions. Some worry that taken to its extreme, **germline editing could create classes of individuals defined by the quality of their engineered genome.**
- **Human cannot replace the god.**

Road Ahead:

- CRISPR technology continues to mature, and existing systems are being engineered to contain innovative capabilities. The potential benefits of such revolutionary tools are endless. Currently, this is difficult because many international laws discourage or ban such research and/or inhibit its funding for certain types of investigation.
- Thus, wide spread and reliable data about benefits and risks are unavailable. Going

forward, many support establishing an organization that will decide how best to address the aforementioned ethical complexities.

- Many countries have advocated for the development of an international and interdisciplinary “global observatory for gene editing.” However, we must not forget that the risk cannot be justified by the potential benefit.

WHO WAS NARSINH MEHTA, AND WHAT IS THE CONTROVERSY OVER NAMING A SPIDER SPECIES AFTER HIM?

Recently, the researchers in Gujarat have discovered a new species of spider and named it Narsinhmehtai, in honour of Narsinh Mehta, a 15th century poet who was a devotee of Lord Krishna.

Who was Narsinh Mehta?

- **Mehta is believed to have been born in Talaja in present-day Bhavnagar district** in 1410 and died in Junagadh in 1480s.
- The family had its **origin in Vadnagar in north Gujarat**, and the caste name is believed to be Pandya but as members of the family were officers in kingdoms of those days, they were called Mehta (one who keeps books of accounts) which later on became the family name.
- It is believed that **Mehta learnt to speak only when he was eight years old, after a holy man asked him to utter the name of Lord Krishna.**

Miracles in his life

- Mehta used to spend time in Krishna-bhakti (devotion to Lord Krishna) even after his marriage to Manekba, paying little attention to family duties.
- Mehta is believed to have run away from home and done tapashcharya at a Shiva temple in Talaja for seven days.
- After that, Mehta relocated with his family to Junagadh. There too, he used to remain submerged in Krishna bhakti, writing and singing bhajan-kirtans and was a man of no means.

- **One of his bhajans narrates how Ra Mandlik**, the then ruler of Junagadh had imprisoned him, accusing the poet of not having seen Lord Krishna and yet claiming to have done so.
- **The king had ordered that Mehta be released only if the Lord comes to the rescue of his devotee by presenting the poet with a garland.** And the next morning, **Mehta was found with a garland.**

His poetry

- Mehta penned more than 750 poems, called padd in Gujarat. They mainly **deal with devotion to Lord Krishna, gyan (wisdom) vairagya (detachment from worldly affairs).**
- Others like **Shalmshano Vivah, Kunvarbainu Mameru, Hundi and Harmala** are believed to be autobiographical accounts of different occasions in his life.
- **Vaishnavajn to tene kahiye, Mahatma Gandhi's favourite bhajan is Mehta's creation.**
- **Birds, creatures in his poetry.**
- **Padho re popat raja ramna, a Bhajan refers the mind of a person as parrot and urges him to worship and praise the god.**
- Elsewhere, in bhajans like **Vanla re vaya kanuda, he talks about calls of various birds.**
- But as per Dr Urvish Vasavada, who has compiled more than 750 poems of Mehta in his book

Shabdaved, Narsinh Mehtani Samagra Kavita says that spiders don't occur anywhere in the poet's work.

- However, in his bhajan entitled Akhil Brhmandma, ek tun shrihari, Mehta's

philosophises propose that **there is one God but due to his various forms, he sounds different.**

SCIENTISTS CAN NOW TURN STEM CELLS INTO BONE USING NOTHING MORE THAN SOUND

Stem cells yield the potential to **help us repair parts of the human body** that have been damaged by injury or disease.

- Carrying out those repairs a new study outlines an innovative way of doing just that: by using high-frequency sound waves to turn stem cells into bone cells in as little as five days, with 10 minutes of stimulating treatment per day.

Highlights of the study

- The **sound waves cut the treatment time usually required to get stem cells to begin to turn into bone cells by several days.** This method also **doesn't require any special 'bone-inducing' drugs and it's very easy to apply to the stem cells.**
- The approach builds on years of work into **modifying materials with sound waves above frequencies of 10 MHz, which are much higher frequencies** than researchers have previously used in these kinds of experiments. Here, a **microchip was used to transform stem cells put in silicon oil and placed on a culture plate.**
- The researchers have shown that it **works with multiple types of stem cells, including fat-derived stem cells that aren't as painful to pull out of the body.**
- We can **use the sound waves to apply just the right amount of pressure in the right places to the stem cells, to trigger the change process.**
- This device is **cheap and simple to use**, so could easily be upscaled for treating large numbers of cells simultaneously – **vital for effective tissue engineering.**

Stem Cells

- Stem cells are **undifferentiated cells** that can turn into specific cells, as the body needs them.
- Stem cells have the **superpower of turning into any other kind of cell** – a superpower that **some animals use to regrow limbs; for medicine, they yield the potential to help us repair parts of the human body** that have been damaged by injury or disease.
- Stem cells also **show promise for treating some diseases that currently have no cure.**

Sources of stem cells

Adult stem cells

- Also called **tissue-specific or somatic stem cells**, adult stem cells exist throughout the body from the time an embryo develops.
- The cells are in a **non-specific state**, but they are **more specialized than embryonic stem cells.** They remain in this state until the body needs them for a specific purpose, say, as skin or muscle cells.

Stem cells are present inside different types of tissue. Scientists have found stem cells in tissues, including:

- **The brain, Bone marrow, Blood and blood vessels, Skeletal muscles, Skin, The liver.**
- Adult stem cells **can divide or self-renew indefinitely.** This means they can generate various cell types from the originating organ or even regenerate the original organ, entirely.

Embryonic stem cells

- The **blastocyst contains stem cells** and will later implant in the womb. **Embryonic stem cells come from a blastocyst that is 4–5 days old.** When scientists take stem cells from embryos, these are usually extra embryos that result from **in vitro fertilization (IVF).**

The blastocyst consists of two parts:

- An outer cell mass that becomes part of the placenta.
- An inner cell mass that will develop into the human body.
- The inner cell mass is where embryonic stem cells are found. Scientists call these **totipotent cells**. The term totipotent refer to the fact that they have total potential to develop into any cell in the body.
- With the right stimulation, the cells can become blood cells, skin cells, and all the other cell types that a body needs.
- Embryonic stem cells are considered pluripotent instead of totipotent because they cannot become part of the extra-embryonic membranes or the placenta.

Mesenchymal stem cells (MSCs)

- MSCs come from the connective tissue or stroma that surrounds the body's organs and other tissues.
- Scientists have used MSCs to create new body tissues, such as bone, cartilage, and fat cells.

Induced pluripotent stem cells (iPS)

- Scientists create these in a lab, using skin cells and other tissue-specific cells. These cells behave in a similar way to embryonic stem cells, so they could be useful for developing a range of therapies.
- However, more research and development are necessary. To grow stem cells, scientists first extract samples from adult tissue or an embryo. They then place these cells in a controlled culture where they will divide and reproduce but not specialize further.
- Stem cells that are dividing and reproducing in a controlled culture are called a stem-cell line. They can stimulate the stem cells to specialize in a particular way. This process is known as directed differentiation.

Types of stem cells

Totipotent:

These stem cells can differentiate into all possible cell types. The first few cells that appear as the zygote starts to divide are totipotent.

Pluripotent:

• These cells can turn into almost any cell. Cells from the early embryo are pluripotent.

Multipotent:

These cells can differentiate into a closely related family of cells. **Adult hematopoietic stem cells, for example, can become red and white blood cells or platelets.**

Oligopotent:

These can differentiate into a few different cell types. Adult lymphoid or myeloid stem cells can do this.

Unipotent:

These can only produce cells of one kind, which is their own type. However, they are still stem cells because they can renew themselves. Examples include adult muscle stem cells.

Uses

- **Tissue regeneration** is probably the most important use of stem cells.
- **Cardiovascular disease treatment.**
- Within 2 weeks of implanting the stem cells, networks of blood-perfused vessels had formed. The quality of these new blood vessels was as good as the nearby natural ones.
- **Brain disease treatment**
- Doctors may one day be able to use replacement cells and tissues to treat brain diseases, such as Parkinson's and Alzheimer's.
- In Parkinson's, for example, damage to brain cells leads to uncontrolled muscle movements. Scientists could use stem cells to replenish the damaged brain tissue. This could bring back the specialized brain cells that stop the uncontrolled muscle movements.

Cell deficiency therapy

- These new cells could repair heart damage by repopulating the heart with healthy tissue.
- Similarly, people with type I diabetes could receive pancreatic cells to replace the insulin-

producing cells that their own immune systems have lost or destroyed.

- **Blood disease treatments**
- Doctors now routinely use **adult hematopoietic stem cells** to treat diseases, such as **leukemia, sickle cell anemia, and other immunodeficiency problems.**
- **Hematopoietic stem cells** occur in blood and bone marrow and can produce all blood cell types, including red blood cells that carry oxygen and white blood cells that fight disease.

Challenges

- The argument against **using embryonic stem cells is that it destroys a human blastocyst, and the fertilized egg cannot develop into a person is an ethical concern.**
- Stem cell research often **involves inserting human cells into animals, such as mice or rats. Some people argue that this could create an organism that is part human.**
- Some people are already offering “stem-cells therapies” for a range of purposes, such as anti-aging treatments. Some of them may be **illegal, and some can be dangerous.**
- They're **complicated to set up, expensive to manage, and difficult to scale up.**
- Stem cells required to be **extracted from a patient's bone marrow**, which is a painful procedure.

Road Ahead:

- Stem cells are useful not only as potential therapies but also for research purposes. They may be able to discover what causes a wide range of illnesses and conditions, some of which do not yet have a cure. Stem cells can also help in the development of new drugs. Instead of testing drugs on human volunteers, scientists can assess how a drug affects normal, healthy tissue by testing it on tissue grown from stem cells.



HOME DELIVERY OF MEDICINES WILL BEGIN FROM 1ST FEBRUARY 2022 UNDER SERVICES E-HEALTH ASSISTANCE AND TELECONSULTATION (SeHAT).

Recently, the government has decided to start Home Delivery of medicines under **SERVICES e-HEALTH ASSISTANCE AND TELECONSULTATION (SeHAT)**.

What is SeHAT?

- It is the **tri-services teleconsultation service** of the MoD designed for all entitled personnel and their families.
- SeHAT stay home OPD is a **patient-to-doctor system** where the patient can consult a doctor remotely through the internet using his Smartphone, laptop, Desktop or Tablet.
- It also includes all ECHS beneficiaries.
- SeHAT Stay Home OPD has been developed by HQ IDS and DGAFMS in collaboration with the Centre for Development for Advanced Computing (CDAC Mohali).
- It is based on the lines of eSanjeevani a similar free OPD service run by the MoHFW for all citizens.
- Scalable SeHAT OPD is hosted on NIC Cloud with Private Subnets, Firewalls, WAF (Web Application Firewall), Anti-DDoS solution, Geo-fencing (restrict

users outside India), Encryption - Data at rest and while transit.

Significance of SeHAT

- It aims to provide quality healthcare services to patients from the comfort of their homes.
- Safe and structured video-based clinical consultations between a doctor in a hospital, and a patient within the confines of his or her home anywhere in the country, have been enabled.
- It is designed to be **extremely simple and easy to use**, which requires minimal effort from the users.

What is eSanjeevani OPD?

- The E Sanjeevani OPD has been launched to help all of the people who are finding it very difficult to get health advice from the doctors because of the coronavirus pandemic.
- It is Government of India's flagship telemedicine technology developed by the Centre for Development of Advanced Computing (Mohali).
- The main objective of eSanjeevani OPD is to **provide health advice to individuals with the help of digitalization**

PM eVIDYA COULD BE A GIANT STEP IN EXPANSION OF DIGITAL EDUCATION

- Budget 2022 is aiming to expand the **‘One class, one TV channel’** programme of **PM eVIDYA** from 12 to 200 TV channels.
- The proposal will enable all states to provide **supplementary education in regional languages** for classes I to XII.
- The move will help the **marginalised sections** especially from the rural areas, who **do not have good internet connectivity**.
- The uniqueness of the PM e-Vidya lies with its **comprehensive accessibility for all** as it caters the education content to all with its multi-mode set-up of remote learning platforms including internet, radio, community radio, podcast, and TV.
- These channels telecast curriculum based educational contents developed by **NCERT** and other agencies such as **CBSE, KVS, NIOS, Rotary**, etc.

Features Of Diksha Portal

- The teachers and students can access the digital infrastructure after scanning the QR code which are provided on the books.

- After scanning the code you will come up with suggestions and topics that you want to study.
- The portal can be accessed in various Indian languages and English.
- You can access portal in around 18 languages.
- Language can be chosen depending upon the comfort and convenience.
- The portal will also provide you suggestions regarding the courses as per your skill set.
- Diksha portal requires a user to choose the class whose study material has to be accessed.
- You have to click on the standard whose study material you want to access and you have to enter on submit button.

Objectives Of PM eVIDYA Program

- The main objective of the PM eVIDYA program is to provide quality education to all the students of the country.
- The students of the country are not required to be physically present in order to get an education as they will get an education from the comfort of their home.

WEIGHING IN ON A HEALTH DATA RETENTION PLAN

- Recently, the National Health Authority (NHA) has initiated a consultation process on the **retention of health data by health-care providers** in India.
- A simple classification system exposes individuals to harms arising from over-collection and retention of unnecessary data.
- One-size-fits-all system can also lead to under-retention of data that is genuinely required for research or public policy needs.

Retention of health data is needed:

- Currently, service providers can compete on how they handle the data of individuals or health records.
- The Supreme Court of India has clarified that privacy is a fundamental right, and any interference into the right must pass a four-part

test: legality; legitimate aim; proportionality, and appropriate safeguards.

- The mandatory retention of health data is one such form of interference with the right to privacy.
- The consultation paper asks whether the health data retention policy should be made applicable only to health-care providers who are participating in the ABDM ecosystem, or to all health-care providers in general.

Balancing benefits and risks

- The aim of data retention is described in terms of benefits to the individual and the public at large.
- Individuals benefit through greater convenience and choice, created through portability of health records.

- The broader public benefits through research and innovation, driven by the availability of more and better data to analyse.
- Globally, legal systems consider health data particularly sensitive, and recognise that improper disclosure of this data can expose a person to a range of significant harms.
- The privacy risks should make us very hesitant about retaining an individual's entire health or medical record on the grounds that they might be useful for research someday.
- As per Indian law, if an individual's rights are to be curtailed due to anticipated benefits, such benefits cannot be potential or speculative: they must be clearly defined and identifiable.
- In a world of big data, the research community is still to arrive at consensus on what constitutes adequate anonymisation, or what might be

considered best practices or methods for achieving it.

Possible Safeguards

- Ultimately, the test for retaining data should be that a clear and specific case has been identified for such retention, following a rigorous process run by suitable authorities.
- A second safeguard would be to anonymise data that is being retained for research purposes – again, unless a specific case is made for keeping personally identifiable information. If neither of these is true, the data should be deleted.
- An alternate basis for retaining data can be the express and informed consent of the individual in question.
- The health-care service providers and everyone else will have to comply with the data protection law, once it is adopted by Parliament.

A NEW FORM OF UNTOUCHABILITY

- Recently, a video, purportedly showing villagers from Surguja district of Chhattisgarh taking an oath to implement an economic boycott of Muslims.
- The Vishva Hindu Parishad (VHP) is known to distribute pamphlets calling for the economic boycott of those it labels “anti-national, anti-Hindu, love jihadists” – all convenient epithets to convey a communal message.
- These acts are not merely ‘expressions of hate’; they can be characterised as the emergence of a new form of untouchability guided by the political imperatives of Hindutva rather than the religious dictates of Hinduism.
- A progressive re-articulation of the concept of untouchability or a re-reading of the anti-discrimination legislation is required to end this abomination.
- The hierarchical caste-based Hindu social order was governed by the ideology of purity and pollution.

- Untouchability was a mechanism through which power was exercised over the Dalits and the hierarchy reinforced.
- One of the most common forms of untouchability was the imposition of social and economic boycott of Dalits if they dared to transgress social norms or exercise their rights.
- Collective discrimination, marginalisation and disempowerment was justified as the right of the individual to choose freely in a marketplace.

Limits of Anti-boycott laws

- During the freedom struggle, the struggle to eradicate untouchability gained momentum.
- This struggle found its highest expression in the fundamental rights enshrined in the Constitution under Articles 14, 15 and 17.
- Even during the Constituent Assembly debates, it was argued that the scope of untouchability should be restricted to practices related to religion and caste.
- There is a consensus that only those acts which are motivated by the ideology of purity and

pollution are considered within the ambit of untouchability.

- In India, mere provision of rights has proved to be insufficient to prevent marginalisation owing to the practice of untouchability and hence, the legislature and the judiciary have had to make and interpret special laws to that effect.
- Two laws which explicitly make social and economic boycotts punishable are The Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989, and Maharashtra Protection of People from Social Boycott (Prevention, Prohibition and Redressal) Act, 2016.

An ineffective approach

- The tethering of anti-boycott or untouchability laws to the tenets of purity and pollution and restricting their scope to caste-centric boycotts makes them ineffective to counter the calls of economic boycott of Muslims.

SCHEME FOR PENSION AND MEDICAL AID TO ARTISTES

Recently, the Ministry of Culture administers a Scheme by the name of 'Scheme for Pension and Medical Aid to artistes' to improve financial and socio-economic status of artistes and scholars in the field of arts.

- The objective of the Scheme is to **improve financial and socio-economic status** of the **old aged artistes and scholars** who have contributed significantly in their specialized fields of arts, letters etc. but are in penury condition.
- This Scheme has following two provisions/components:

National Artistes Pension Fund:

- Existing beneficiaries getting monthly artistes' pension under the 1961 Scheme of 'Financial Assistance to Persons Distinguished in Letters, Arts and Such other Walks of life who may be in indigent circumstances' as amended from time to time.
- Fresh cases of artistes, writers, etc. who are eligible for a grant/monthly financial assistance under the extant guidelines of the Scheme.

National Artistes Medical Aid Fund:

- The act of collectively resolving to boycott Muslims reinforces their 'othering' and re-emphasises the VHP's idea of 'Hinduness'; reconstituting Hinduism, based on caste hierarchy, into a unified, ethnic whole, where the figure of the Dalit is replaced by the Muslim as the significant 'other'.
- These grave new developments need to be taken into cognisance and an urgent politico-legal response to such public calls for Muslim economic boycott is required as they militate against the principle of fraternity enshrined in the Constitution.
- This can be done by a progressive redefinition of untouchability or by expanding the scope of the anti-boycott laws to include discrimination against religious communities.

- The objective of this fund shall be to provide a convenient and affordable Health Insurance Coverage of the Government for the existing beneficiary Artistes and his/her spouse the quality medical care for treatment of diseases involving hospitalization through an identified network of health care providers.

Eligibility under the scheme for Pension and Medical Aid to artistes?

- A person's contribution to art and letters etc. must be of significance. Traditional scholars who have made significant contribution in their fields would also be eligible notwithstanding the absence of any published works.
- Personal income of the applicant (including income of the spouse) must not exceed Rs.4,000/- (Rupees four thousand only) per month or annual income of Rs.48,000/- (Rupees forty-eight thousand only). This excludes artiste pension assistance amount already getting by a beneficiary from the Government.
- The applicant should not be less than 60 (sixty) years of age.

- The applicant artiste is getting pension of at least Rs.500/- per month from the concerned State Government/UT Administration.
- The artistes who are below the age of 42 years and want to get Artist Pension in future should immediately register themselves under the Atal Pension Scheme.
- The applicant artistes should not be getting financial assistance under other Schemes of the Ministry viz. Repertory Grant etc.
- The existing beneficiary Artistes who are getting financial assistance under the scheme along with his/her spouse will be eligible to get the facility of health insurance.
- The expenses on getting Health Insurance coverage of the existing beneficiaries and his/her spouse shall be borne by the Central Government in addition to the monthly pension amount being disbursed to them.

Scheme of Scholarship and Fellowship for promotion of art and culture?

- It is implemented by Ministry of Culture.
- It consists of three components:
 - **Award of Scholarships to Young Artists in Different Cultural Fields'**: Under this scheme component, up to 400 scholarships (in a Batch

Year) are awarded to persons of outstanding promise in the age group of 18-25 years. An amount of Rs. 5,000/- p.m. is given for 2 years for advanced training within India.

- **Award of Senior/Junior Fellowships to Outstanding Persons in the Fields of Culture'**: Under this scheme component, up to 400 Senior/Junior Fellowships (in a Batch Year) are awarded to outstanding persons in the age group above 40 years (Sr.) and 25 to 40 years (Jr.) respectively. An amount of 20,000/-p.m. and Rs. 10,000/- p.m. is given to Senior/Junior Fellows respectively for 2 years for cultural research.
- **Tagore National Fellowship for Cultural Research'**: Under this scheme component, up to 25 Scholarships and 15 Fellowships (in a Batch Year) are awarded to outstanding persons in order to invigorate and revitalise the various institutions under the Ministry of Culture (MoC) and other identified cultural institutions in the country, by encouraging scholars/ academicians to affiliate themselves with these institutions to work on projects of mutual interest. An honorarium of Rs. 80,000/- p.m. plus contingencies and Rs. 50,000/-p.m. plus contingencies is given to Fellows and Scholars respectively for 2 years.

STATUS OF NATIONAL INITIATIVE FOR DESIGN INNOVATION

Recently, the Ministry of Education has provided that 20 DICs have been established on Hub-Spoke Model with 64 Spokes under National Initiative for Design Innovation (NIDI).

National Initiative for Design Innovation (NIDI):

- Scheme envisaged **establishment of 20 Design Innovation Centres (DIC)**, One Open Design School (ODS) and One National Design Innovation Network (NDIN) across the country for promoting the culture of innovation, design and creative problem-solving.
- The NIDI scheme does not provide the allocation of funds to any specific district.

- DICs are established by co-locating them in existing publicly funded institutes of national repute, like IIT's, NIT's, Central and State universities, to facilitate optimal utilization of the existing resources including faculty and infrastructure with a funding of **Rs.10.00 Cr.** for each DIC.

Significances of NIDI scheme?

- The objective of the scheme is to **promote a culture of innovation** and **creative problem-solving**.
- DICs would not only focus on the spread of design education but also **propel the R&D activities** in design that become the catalyst for

devising innovative solutions to societal challenges suiting Indian conditions.

- DICs have been developing the culture of design innovation in the country and continuously creating an atmosphere where students and

community come together to make a difference in human life.

- It will enhance the skill development among students and make them self-sufficient.

UNDER SBM-U 2.0 AND AMRUT 2.0, PLAN PREPARATION HAS BEGUN TO MAKE CITIES 'GARBAGE-FREE' AND 'WATER-SECURE'

Recently, the Minister of Housing and Urban Affairs has informed that the Swachh Bharat Mission–Urban (SBM-U) 2.0 involves **urban-rural convergence**.

- The minister provided that infrastructure projects can be taken up on cluster basis to groups of neighbouring Urban Local Bodies (ULBs) and rural areas, so that **common waste processing facilities are utilized efficiently**.

Swachh Bharat Mission–Urban (SBM-U) 2.0

- The **second phase** of the SBM-U was launched on **October 1, 2021** for a Mission period of **five years**.
- It envisions to **make all cities 'Garbage Free'** and ensure **grey and black water (used water) management in all cities** other than those covered under AMRUT.
- It aims to make all urban local bodies ODF+ and those with a population of less than 1 lakh as ODF++, and Water+, thereby ensuring that **no untreated used water is discharged in open** to pollute water bodies.

- It focuses on source segregation of solid waste, utilizing the principles of **3R's** (reduce, reuse, recycle), scientific processing of all types of municipal solid waste and remediation of legacy dumpsites for effective solid waste management.

Significance of Swachh Bharat Mission–Urban (SBM-U) 2.0

- It has been designed to realize the aspiration of making all our cities **'Garbage Free'**.
- Its implementation will signify a step forward in the march towards effectively addressing the challenges of rapidly urbanizing India.
- It aims to contribute towards achievement of the **Sustainable Development Goals 2030**.
- It has revolutionized the sanitation space in urban India by building over 70 lakh household, community and public toilets, thus providing **safe and dignified sanitation** solutions for all.
- It has **prioritized the needs** of women, transgender communities, and persons with disabilities (Divyangs).

FUNDS FOR NAI ROSHNI SCHEME

Recently, the Ministry of Minority Affairs has informed that during the last three year i.e. 2018-19 to 2020-21, funds to the tune of **Rs. 26 crores** have been sanctioned under the Nai Roshni Scheme.

Nai Roshni Scheme

- It is a **Leadership Development Programme for Minority Women** launched in 2012-13.
- It is run with the help of NGOs, Civil societies and Government Institutions all over the country.
- It includes various training modules like Leadership of women, Educational Programmes,

Health and Hygiene, Swachh Bharat, Financial Literacy, Life Skills, Legal Rights of Women, Digital Literacy and Advocacy for Social and behavioural change.

Objectives of Nai Roshni Scheme

- Its objective is to **empower and instill confidence among minority women**, including their neighbours from other communities.
- The overall objective of the scheme is to **embolden the minority women** to move out of

the confines of their homes and community and assume leadership roles in society.

CABINET APPROVES PHASE 2 OF AMRUT

Recently, the Minister of Housing and Urban Affairs (MoHUA) has informed that in the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) 2.0, rural-urban synergy will be affected whereby water markets for reuse of treated used water shall be ascertained in rural urban continuum.

AMRUT 2.0:

- AMRUT is first focused **water Mission** which was launched in June 2015 in 500 cities.
- AMRUT 2.0 is a step towards **achieving water secure cities** to support the spirit of Aatma Nirbhar Bharat.
- It targets providing household water tap connections in 4,700 statutory towns and household coverage of sewerage/ seepage services in 500 AMRUT cities.
- The total indicative outlay for **AMRUT 2.0 is Rs. 2,99,000 crore** which includes allocation for projects of ongoing AMRUT Mission to the tune of Rs. 22,000 crore for five years from FY 2021-22 to FY 2025-26.
- Funding will be done to the States and Union Territories for project implementation, Administrative & Other Expenses. Project funds will be released in three instalments of 20:40:40.

Features of AMRUT 2.0

- Under AMRUT 2.0, cities will submit City Water Balance Plans (CWBPs) online on a robust Mission portal of MoHUA.

HARYANA CABINET NOD FOR ANTI-CONVERSION BILL

The Haryana Cabinet has approved the draft of The Haryana **Prevention of Unlawful Conversion of Religious Bill, 2022.**

- It is aimed at **prohibiting religious conversions** which are affected through misrepresentation, force, undue influence,

- The scheme provides for six days training programme followed by handholding for a period of one year.

- CWBPs will give the status of water availability, water demand and supply in the city culminating in gaps in services.
- With target of filling these gaps projects will be formulated in from of City Water Action Plan. These plans will be aggregated at State level in form of State Water Action Plan (SWAP).
- Mission mandates implementation of 10% worth of funds allocated to million plus cities in PPP mode.
- Taking up projects on 24x7 water supply in 500 AMRUT cities which have population above one lakh is encouraged.

Components of AMRUT 2.0

- Pey Jal Survekshan will assess quality and quantity of water supplied to the citizens and will instill healthy competition among cities to provide better water related services to the citizens.
- Information, Education & Communication (IEC) campaign targets to convert water conservation into a Jan Aandolan.
- Start-ups in water sector will also be encouraged through Technology sub-Mission.
- Capacity building program shall impart training to elected representatives, Municipal functionaries and larger audience comprising contractors, managers, plumbers, plant operators, workmen, consultants, students, women, and citizens.

coercion, allurement or by any fraudulent means or by marriage or for marriage by making it an offense.

- According to the draft Bill's statements of objectives and reasons the Constitution confers

on each individual the fundamental right to profess, practice and propagate his religion.

- The Bill provides for greater punishment for such conversions in respect of minor, women, Scheduled Castes and the Scheduled Tribes.
- It also provides for that the burden of proof as to whether a conversion was not affected through misrepresentation, use of force, under threat, undue influence, coercion, allurement or by any fraudulent means or by marriage or for marriage for the purpose of carrying out conversion lies on the accused.

Why is the government bringing this Bill?

- According to the government and officials, many incidents of alleged “love jihad” have been reported in Haryana over the past few months, especially in the southern parts of the state.
- The government has told Parliament that “the term ‘love jihad’ is not defined under the extant laws”.
- The anti-conversion legislation in the states do not use the expression. But it is still used freely in political conversations and speeches.

REPORT ON MGNREGS: RAISE GUARANTEED DAYS OF WORK

A Parliamentary committee has recommended increase in guaranteed days of work under MGNREGS from 100 to 150 under the rural job guarantee scheme.

- The recommendation comes at a time when the job scheme has become a safety net for migrant workers who returned to their villages during Covid-19.
- In Union Budget 2022-23, there was no increase in the allocation for MGNREGS, with the Finance Ministry retaining it at Rs 73,000 crore for the next fiscal year.
- The committee also recommended the Rural Development Department to “review its budgetary demand pertaining to MGNREGA and ensure that ‘agreed to labour budget’ is made at concerned level.

What is MGNREGS?

- The Government of India passed the Mahatma Gandhi National Rural Employment Guarantee Act, 2005 in September, 2005.
- The Act gives legal guarantee of a hundred days of wage employment in a financial year to adult members of a rural household who demand employment and are willing to do unskilled manual work.
- The Act will be applicable to areas notified by the Central Government.
- The objective of the Act is to enhance the livelihood security of the people in the rural areas by generating wage employment through works that develop the infrastructure base of that area.

NITI AAYOG AND USAID COLLABORATE TO ACCELERATE HEALTH INNOVATION AND ENTREPRENEURSHIP IN INDIA

The Atal Innovation Mission (AIM), NITI Aayog, and the U.S. Agency for International Development (USAID) announced a new partnership under the **Sustainable Access to Markets and Resources for Innovative Delivery of Healthcare (SAMRIDH) initiative**.

- The initiative aims to improve **access to affordable and quality healthcare** for vulnerable populations in tier-2 and tier-3 cities, and rural and tribal regions.
- The initiative will enhance SAMRIDH’s efforts to reach vulnerable populations, leveraging AIM’s expertise in innovation and entrepreneurship.

- The collaboration would focus on innovations across the healthcare landscape with the common goal to mount an effective response to the ongoing third wave of COVID-19 and build health system preparedness for future infectious disease outbreaks and health emergencies.

Atal Innovation Mission (AIM):

- It is Government of India’s flagship initiative to **promote a culture of innovation and entrepreneurship** in the country and was setup in 2016.
- Its objective is to:

- develop new programmes and policies for **fostering innovation in different sectors of the economy**,
- provide platforms and collaboration opportunities for different stakeholders, and
- create an umbrella structure to oversee the innovation & entrepreneurship ecosystem of the country.
- It is setup by National Institution of Transforming India (NITI) Aayog to promote the entrepreneurial requirements.

SAMRIDH initiative:

- It is supported by the **United States Agency for International Development (USAID) and Indian Institute of Technology-Delhi (IIT-D)**.
- It combines **commercial capital with public and philanthropic funds** to drive greater resources towards improving access to affordable

and quality healthcare services for India's most vulnerable.

- SAMRIDH aims to mobilize a capital pool of \$100+ million from private sector and bilateral organizations. It leverages this fund to offer both grant and debt financing provision to support the expansion of market-based health solutions.
- It aims to support the adoption and scaling up of market-based health solutions addressing the pandemic's emergency and surge needs through blended financing.
- The solutions include augmenting oxygen supplies, infrastructure, supply chains, community-based case management and outreach, demand generation, etc.
- The financing can be pure grants, a mix of grants complimenting debt, and pure blended capital transactions.

ATMANIRBHAR NORTH EAST THROUGH SUSTAINABLE AGRICULTURE- NERCRMS - A REGISTERED SOCIETY UNDER THE AEGIS OF NEC, MINISTRY OF DONER

The North Eastern Region Community Resource Management Society (NERCRMS) took the initiative to introduce apple in the region under "Promotion of Low Chilling Apple Plantation in NER of India (2020 – 21)".

North Eastern Region Community Resource Management Society:

- It is a registered society under the aegis of North Eastern Council, Ministry of Development of North Eastern Region.
- The society is dedicated towards the transformation of far-flung rural areas of North Eastern Region (NER) of India through different livelihood initiatives.
- The society, so far has covered four states of NER viz. Arunachal Pradesh (Changlang, Tirap and Longding districts), Assam (Karbi Anglong and Dima Hasao districts), Manipur (Ukhrul, Senapati, Churachandpur and Chandel districts) and Meghalaya (West Garo Hills and West Khasi Hills districts).
- The society adopted a holistic approach of development with two broad focus areas i.e.

- Social mobilization, organization and capacity building to tap and realize the great latent potential of the communities by employing time tested their traditional value systems and culture, and
- Intervene with the economic and social activities and infrastructure with predominant thrust on income generating activities to achieve economic transformation.
- The strategy adopted to achieve the goals is:
- **Capacity building of communities and participating agencies:** Institutional strengthening of community-based organisations (CBOs) and strengthening the capacity of participating agencies viz. NGOs, line deptts etc. on participatory planning, organisational and financial management, technical training on farm and non-farm activities, monitoring etc.
- **Economic and livelihood activities:** Promote viable income generation activities (IGAs) for poor households through production of field

crops, horticulture, forestry, livestock, fisheries, and non-farm activities using sustainable and environmentally friendly practices. Also to support communities with introduction of new technologies, credit/revolving fund to CBOs for internal lending etc.

- **Social sector development:** The specific objective of this component was to provide communities access to safe drinking water and improved sanitation.
- **Rural Roads and Rural Electrification:** With the objective to enhance communities' access to

markets, health services, education facilities and energy, the component sought to construct common facility centers (CFCs), inter village roads, culverts and suspension bridges and provide home solar lighting systems.

- **Community-based Bio-diversity Conservation & Communication:** The specific objective is to protect and preserve the unique natural resources and rich bio-diversity of the region.

ROPEWAY FOR CONNECTIVITY; BUILDING PARVATMALA FOR HILLY AREAS

Union Finance Minister Nirmala Sitharaman, while presenting Union Budget for 2022-23 announced that the National Ropeways Development Programme, Parvatmala, will be taken up on the Public-private partnership (PPP) model.

- The government has decided to build ropeways for hilly areas as an alternate and efficient means of connectivity.

Idea behind Ropeways Infrastructure

- **Cost-Effective Alternative:** Ropeways are an economical means of transportation since they are built in a straight route over mountainous terrain, resulting in lower land acquisition expenses.
- **Faster & Better:** Ropeways offer an advantage over roadway projects since they can be erected in a straight line, even over mountainous terrain, because they are an aerial means of transportation.
- **Sustainable Alternative:** Ropeways can pave the way towards low dust emissions which is good for the environment. Material containers can be built to prevent environmental contamination.
- **Last mile connectivity:** Ropeways are preferably better for last-mile connectivity ease. The projects using 3S (a type of cable car system) or related technologies can transport 6000-8000 passengers in the last mile.

Parvatmala scheme

- Parvatmala initiative is an ecologically sustainable alternative in place of conventional roads in difficult hilly areas.
- Besides **promoting tourism**, the objective is to **improve connectivity and convenience for commuters**.
- This scheme is also **suitable for the implementation in congested urban areas** where a traditional mass transit system would be impractical.
- According to the Finance Minister, contracts for eight 60-kilometre ropeway projects will be given in 2022-23.
- Currently, the scheme is being implemented in **Uttarakhand, Himachal Pradesh, Manipur, Jammu and Kashmir, and other North-Eastern states**.

Nodal agency

- Until now, the **Ministry of Road Transport and Highways (MORTH)** has been in charge of **developing highways and regulating the country's road transport sector**.
- However, the **Government of India (Allocation of Business) Rules 1961** were revised in February 2021, allowing the **Ministry to oversee the development of ropeways and alternative mobility solutions**.

Advantages of ropeway connectivity

- **Ideal for challenging, severe, difficult or sensitive terrain**, especially the hilly areas.

- The system **easily navigates** around obstacles such as rivers, buildings, ravines, and roadways.
- Ropes that are led over towers **take up little space** on the ground and pose no threat to persons or animals.
- This mode of transportation will provide **mobility to people living in remote places, allowing them easy access and transport to other areas.**
- Villagers and farmers in such places will be able to sell their produce in other areas, allowing them to increase their revenue.
- Ropeway with several cars pushed by a single power plant and **drive mechanism for economic reasons.**
- This **saves money on both construction and upkeep.**
- The employment of a single operator for a complete ropeway reduces labour costs even more.

Disadvantages of ropeway connectivity

- The **GST charges on ropeways are 18%, higher than that on the aviation mode, which is at 12%.**
- The **volume of regulations, licenses, permits, and the chain of bureaucracy needs to be checked** for a ropeway project to get quickly functional.
- The **ease of doing business** needs to increase in this industry.

Road Ahead:

- In conclusion, ropeways have the potential to become a sophisticated and advanced mode of transportation in India. It is a prudent step of the Government to include it under the ambit of the Highway Ministry as it will widen the scope of infrastructural developments in the country. It will also create a level playing field for Indian companies vis a vis their foreign counterparts - and even help our domestic players to reach a global scale.

Additional information

MoU with Uttarakhand:

- MORTH initiated a study carried out by **M/s Mckinsey & Co.** for Ropeway development in the country.
- **The study suggested that MORTH may take National Ropeway Development Programme named "Parvatmala", similar to the "Bharatmala" programme.**
- An MoU has been **signed with Uttarakhand Tourism Development Board (UTDB)**, for the development of Ropeways in the State. Initially, seven projects have been identified in Uttarakhand.
- Currently, **DPR for Kedarnath and Hemkund Sahib Ropeway** is in progress, for which NIT has been invited.

REVIVING THE 'KERALA MODEL' OF DEVELOPMENT

For years the darling of development experts, non-governmental organisations and social activists, the **'Kerala Model' seemed to show that impressive levels of human development indicators** – in health, education and quality of life, comparable even to some rich countries – could be achieved without a correspondingly high level of income.

- The focus in the new debates on Kerala seems increasingly on its failures: low employment, low levels of food intake and low incomes, accompanied by high levels of alcoholism and the nation's worst suicide rate.

- Reflecting the State's social outcomes, Kerala has India's highest literacy rate despite ranking only the **ninth-highest in per capita income** among 28 States.
- Kerala's **Gross State Domestic Product (GSDP)** contracted over 2019-20 and 2021-22, and **unemployment, at 9%**, is much higher than the 6% national average.
- Kerala can develop as a knowledge economy, improve the quality of higher education and vocational training to meet the requirements of a

modern workforce, and build on successes in tourism and hospitality services.

- The focus should be on the quantity as well as quality of health and education, and on ensuring that interventions reach all segments of the population.
- Basic education should continue to be a priority, but it is higher education that presents a pivotal opportunity on the global stage for Kerala.
- Kerala was **India's first digital State** with the highest share of households with personal computers and Internet connections, mobile phone penetration, and digital literacy.
- Another strength that needs to be sustained involves institutions, building on the State's grassroots organisation, participatory governance, and a free press.
- The Public Affairs Index 2020 ranked Kerala as the best-governed large State in 2019 on the basis

of 50 indicators reflecting equity, growth and sustainability.

- Decentralised governance, a strong grass-roots-level network of Accredited Social Health Activists (ASHA), volunteer groups, and Kudumbashree members helped in pandemic management.
- The ecological disaster across the Western Ghats needs to be confronted and investments made to repair forests, river systems, water bodies, and flood plains.
- The State needs a bold programme of forest restoration in keeping with the commitments on forest protection from over 130 nations at COP26.
- A reinvigorated Kerala model will do well to recognise the symbiotic links among social outcomes, environmental management, and participatory governance, and take actions that cut across these areas.

NUMBER OF BENEFICIARIES ENROLLED FOR MATERNITY BENEFIT PLAN EXCEEDED TARGET: GOVERNMENT

The number of beneficiaries who enrolled for the maternity benefit programme, called Pradhan Mantri Matru Vandana Yojana (PMMVY), exceeded the government's target of 51.7 lakh per year in each of the last three years.

- The total number of beneficiaries enrolled during each of the last three financial years under the **PMMVY** is more than the indicative target.

What is PMMVY?

- The PMMVY scheme was announced by Prime Minister Narendra Modi in a televised address to the nation on December 31, 2016.
- It provides a benefit of **5,000 in three instalments** to a **woman for her first living**

child upon meeting certain conditions. This is meant as **partial compensation for loss of wage** during her pregnancy so that she can get proper nutrition.

- The scheme is only for those **women who are not employed** by the Central or State governments or a Public Sector Undertaking and **don't receive similar benefits under any law**.
- It is clubbed with the **Janani Suraksha Yojana scheme** which provides nearly **1,000 for institutional births** so that altogether **mothers get 6,000 in maternity benefit**.

CHINTAMANI PADYA NATAKAM

Recently, the Andhra Pradesh government banned a 100-year-old play named '**Chintamani Padya Natakam**'.

- The Arya Vysya community has been petitioning governments for several years to ban the play, saying it portrays them in a negative light.

- The play is exhibited across the state, mainly in rural areas, during festivals and fairs.

What is Chintamani Natakam?

- 'Chintamani Padya Natakam' was written in 1920 by playwright **Kallakuri Narayana Rao**, who was also a social reformer.
- The play is about Chintamani, a courtesan and a devotee of Lord Krishna, who finds salvation by singing bhajans.
- She is courted by Subbi Shetty, a businessman from the Arya Vysya community, who loses his wealth and family due to his attraction to Chintamani.
- The original play had a social message, but over the years, it has been modified purely for entertainment.

What is the Arya Vysya community?

- Much of the play sees central character Subbi Shetty made fun of, especially for losing all his wealth to his vices.
- Arya Vysya community leaders say the content and dialogues are offensive, and they are ridiculed about their appearance through the character, who is always portrayed as a short and dark-coloured person.
- The play has undergone many changes over the decades, and to make it more entertaining and funnier, crude and vulgar language is used in many places, drawing the ire of the community.

PERCENTAGE OF POPULATION AS MINORITIES

The term "Minority" is not used in Census. However, data on all religions as reported by the people of India are collected in each Census.

Who are minorities?

- The term "Minority" has nowhere been defined in the constitution.
- But Government notifies the minorities as per Section 2(c) of the **National Commission for Minorities Act, 1992**, and the Central Government has so far notified **six communities as minority communities namely Christians, Sikhs, Muslims, Buddhists, Parsis and Jains.**
- The **Ministry of Minority Affairs** which was carved out of Ministry of **Social Justice and Empowerment** is the apex body for the central government's regulatory and developmental programmes for the minority religious communities in India
- As per Census 2011, the **literacy rate of the Minority Communities namely Christians, Jains, Sikhs and Buddhists is higher than the National Average of 72.98% except Muslims which is 68.54 %.**

Socio-economic status of minorities in India

- The sex-ratio for Muslims in both rural and urban areas showed a decline between 2004-05 and 2009-10; however, those corresponding to

Christians showed an improvement during this period.

- The **Labour Force Participation Rate (LFPR)** for male was much higher than female for all religious groups - the differential being greater in urban areas. The male-female differential in LFPR was the lowest among Christians.
- The LFPR for rural male, rural female and urban female was the highest for Christians while that for urban male was the highest for Sikhs.
- The **unemployment rate in rural areas is less than that of urban areas.** In rural areas, during 2009-10, unemployment rate was the highest for Christians for both males (3 per cent) and females (6 per cent). In urban areas, unemployment rate was the highest for Sikhs for both males (6 per cent) and females (8 per cent).

Steps taken by government for development of minorities

Educational Empowerment Schemes:

Merit-cum-Means based Scholarship Scheme-

- Scholarship is provided to minority students for Professional and Technical courses, at Under Graduate and Post Graduate level, out of which 30% scholarship are earmarked for girls.

Naya Savera -

- **Free Coaching and Allied Scheme** - The Scheme aims to provide free coaching to students/candidates belonging to minority communities for qualifying in entrance examinations of technical/ medical professional courses and various Competitive examinations.

Employment and Skill Development Schemes:

Nai Roshni -

- Leadership development of women belonging to minority communities and non-minority communities (not exceeding 25% of each batch)

Seekho Aur Kamao -

CRIME AGAINST WOMEN

National Crime Records Bureau (NCRB) compiles and publishes data on crimes, including crime against women, in its publication "Crime in India". The said report is available up to the year 2020.

- As per data published by NCRB, total number of crimes against women during 2020 is 371503, out of which the number of cases registered under the Protection of Women from Domestic Violence Act, 2005 (PWDVA) during the year is 496.

Why crimes against women?

- Cultural lag due to which more women are participating in public sphere, more they subjecting to public ridiculing.
- Gender stereotyping and patriarchy
- Objectification and commodification through media.
- Economic dependence of women due to limited access to educational infrastructure.
- Globalisation has increased the rate of violence against women due to changing value system and trans-national crime against women.
- Institutional weaknesses to curb violence against women.

Statistics on violence against women

- A total of 371,503 cases of crimes against women were registered across the country, citing data from the **National Crime Records Bureau (NCRB)**.

- Skill development scheme for youth of 14 - 35 years age group and aiming at providing employment and employment opportunities, improving the employability of existing workers, school dropouts etc.

USTTAD (Upgrading the Skills and Training in Traditional Arts/Crafts for Development).

An effective platform to provide self-employment, market and opportunity to traditional artisans and craft persons from the minority communities. Hunar Haats are being organised across the Country to provide employment opportunities and markets to artisans/craftsmen.

- The data shows that in 2020, 398,620 persons were arrested in connection with crimes against women, 488,143 were charge-sheeted, and 31,402 were convicted.
- Instances of crimes against women in the cities went down by 8.3% in 2020 over the previous year.
- Among states and Union territories, Uttar Pradesh saw the highest number of such cases, with 49,385, followed by West Bengal (36,439), Rajasthan (34,535), Maharashtra (31,954) and Madhya Pradesh (25,640).
- According to the NCRB report and cited by the government, "Majority of cases under crimes against women were registered under [the category of] cruelty by husband or his relatives (30.2%), followed by assault on women with intent to outrage modesty (19.7%), kidnapping and abduction of women (19.0%), and rape (7.2%)."

Steps taken by government for crime reduction?

- The **Ministry of Women and Child Development implements One Stop Centre (OSC) scheme** to provide integrated services such as **medical assistance, police facilitation, legal counselling, psycho-social counselling and temporary shelter to women** affected by violence under one roof.

- Ministry also implements **Universalisation of Women Helpline (WHL) Scheme**, which provides 24-hour toll-free telecom service through short code **181** to women seeking support and information.
- The Ministry also implements the **Swadhar Greh Scheme** which provides assistance to women victims of unfortunate circumstances including
 - women victims of domestic violence, family tension or discord,
 - who are made to leave their homes without any means of subsistence and have no special protection from exploitation,
 - facing litigation on account of marital disputes,
 - who are in need of institutional support for rehabilitation so that they could lead their life with dignity.
- The Scheme envisages **providing shelter, food, clothing, health, counselling, awareness generation, behavioural trainings, legal aid and guidance etc to such women.**
- The **Legal Services Authorities (LSA) Act, 1987** provides for free and competent legal services to the weaker sections of the society to beneficiaries, including women and children, to ensure opportunities for securing justice & are not denied to any citizen by reason of economic or other disabilities,
- Organize **Lok Adalat** to secure that the operation of the legal system promotes justice on a basis of equal opportunities.
- The legal services institutions like District / State / National Legal Services Authorities have been setup from the **Taluk Court level** to the Supreme Court.
- The Government has implements **Nyaya Bandhu (Pro-bono Legal Services) programme** to link the persons eligible to avail free legal aid under LSA Act, 1987 with lawyers.
- **Tele-law programme**, being run by the Government provides legal advice to public

including persons entitled for free legal aid at **pre-litigation stage by the Panel Lawyers through CSCs at the Panchayats.**

- As per section 8 of the **Protection of Women from Domestic Violence Act, 2005**, the State Governments are authorized to appoint such number of **Protection Officers** in each district as it may consider necessary.
- As such, the data regarding the details of such Protection Officers under PWDVA are **maintained by the respective State Governments.**

Solutions to curb violence against Women

Short-term solutions

- Stringent/ active patrolling and vigilance, especially at night.
- More sensitised officials at all levels of justice.
- Neighbourhood committees to create "Zero Crime Zones" and actively promoting community policing.
- Fastrack courts for quick disposal of cases.
- Training in self defence.

Long-term solutions

- Gender sensitisation
- Moral overhauling
- Awareness creation for crime against women
- Provide better education.

Road Ahead:

- Violence against women is rampant in India, hinders educational attainment and earnings potential, and has significant economic and social costs. COVID-19 has exposed the fault lines of gender equality, with increases in the incidence of domestic violence during lockdown.
- Social programmes to sensitise men and boys on gender-related issues, and community-level platforms like SHGs should be strengthened to provide awareness on safety mechanisms for women, sexual and reproductive health, and family planning choices.

The West Bengal BJP's **Scheduled Caste Morcha** led agitation in January to commemorate the **Marichjhapi massacre of 1979** has thrown light on a **dark incident** in the state's contemporary History which remains conveniently forgotten.

What is the incident?

- It involved violence and forceful action by the Left Front government between January and May 1979 **against** refugee settlers on the small **Sundarbans Island of Marichjhapi**.
- The incident started with the Bengali Hindu migration **into West Bengal from East Pakistan** and, **subsequently, independent Bangladesh**.

POLITICAL CLOUT AND EFFECT OF PARTITION

Before partition

- The backward sections of the Bengali Hindu community (Particularly the Nama shudras) had forged a formidable alliance with the Muslim League and the Krishak Praja Party during the last decades of British rule to **keep out the upper caste-dominated Congress from power in Bengal**.

Post partition first exodus

- The clout of the Namashudras was, however, lost with Partition and Independence.
- **Recurrent riots and atrocities** forced many of them to **migrate into India along with upper caste Hindu Bengalis**.

Second phase of the exodus

- The **second phase of the exodus** involving more of these **marginalised people** occurred after the creation of **independent Bangladesh**, when **Sheikh Mujibur Rahman's assassination in 1975** and a **vigorous turn towards a more Islamic identity** for Bangladesh, witnessed a rise in **communal riots**.

Idea of Rehabilitating outside West Bengal

- As large groups of refugees began to arrive, the government of West Bengal negotiated with the Centre along with other States to settle some of the refugee groups outside, like on the Andaman Islands, and more particularly in the arid and

forested **Dandakaranya**, lying partly in Orissa, Andhra Pradesh and Madhya Pradesh then and now mostly in Chhattisgarh.

- Such actions by the Congress government **were opposed by the Left**. So, the Left Coming to power for the first time, in 1977, saw many refugee families trying to come back and settle down in parts of West Bengal.

Settlements in Marichjhapi

- The islands of Sundarbans were a favoured area as earlier groups of refugees from East Pakistan had settled largely here and it **provided opportunities in fishing and agriculture**.
- Marichjhapi was particularly **important as the refugees had cleared the island and even set up a school and health centre on their own initiative**.
- The Left Front government under Jyoti Basu, however, **opposed such settlements as illegal** encroachment in areas allocated for **tiger projects**.

No support from the Union government over atrocities on the refugees

- The **local press** reported about **police atrocities** on the settlers.
- There was **hardly any possibility of the refugees** getting any support from the other end of the political spectrum as the **Congress was a weak force after its defeat in 1977**.
- The **coalition government at the Centre under Morarji Desai was dependent on Left support**.
- The All India Backward and Minority Communities Employees Federation (BAMCEF) led by **Kanshi Ram** also **not yet powerful**.

Atrocities

- From **January 1979, the state government initiated more punitive action**. On 27th January, it prohibited all movement from and to Marichjhapi.
- This was **challenged by the refugees in the Calcutta High Court** and a stay was obtained. The Left government reportedly did not follow the order and used police along with vigilante

groups (**mainly local goons**) to evict the refugees.

- Between **May 14 and 16, 1979**, severe atrocities were reported, including **police firing on unarmed people, dumping of bodies in the river, raping of women** and burning down of huts and boats.
- The incidents, though reported in some local papers, did not evoke any protests. **Opposition activities remained limited** to raising the issue.
- **Strict press censorship** limited the activities of reporters.

Grievance unredressed

- Even today the **exact number of people killed or displaced** can only be estimated **approximately**. There was **no large-**

scale inquiry and no government or police official was **charge sheeted**.

Silence in the Bengali intelligence community and acquiescence of this intellectual elite in the abuses

- The subsequent silence in the Bengali intelligence community about what so many knew happened at Marichjhapi is indicative of the intellectual dominance of certain perspectives and the acquiescence of this intellectual elite in the abuses”.
- This shows that the mainstream elite culture **could ignore the pain** and sufferings of the largely subaltern groups, who were perhaps not considered important enough to weave a narrative of pathos capable of Touching the heart chords of more cosmopolitan and intellectual urban elite, who still preferred to view the Leftist agenda and philosophy with rose-tinted glasses.

GROWTH IN SHIPPING INDUSTRY-MARITIME INDIA VISION 2030

The growth registered by the domestic shipping industry in the country. As per the **Maritime India Vision-2030** published by the **Ministry of Ports, Shipping and Waterways**, the global downturn in the shipbuilding industry significantly impacted the Indian shipyards and India's share in the Global markets has declined to **less than 1%**.

- Further, the Government of India has approved the **Financial Assistance Policy** for Indian Shipyards on 9th December 2015 for grant of financial assistance to Indian Shipyards for shipbuilding contracts signed between April 1, 2016 to March 31, 2026.

Maritime India Vision 2030

- These initiatives particularly focus on **operational efficiency improvement, port-driven industrialization and creating safe and sustainable world class ports to address the growing trade volume needs, as well as reducing logistics cost** through better evacuation and cost-effective processes.

Guiding Principles

- Analyse current and future challenges to define initiatives.

- Drive innovation by utilizing latest technology.
- Create time-bound action plan.
- Benchmark to understand current standing and adopt best-in-class practices.
- Address capability building and human resources.
- Explore ideas to achieve “Waste to Wealth”.

Key Themes

- Develop best-in-class Port infrastructure.
- Drive E2E Logistics Efficiency and Cost Competitiveness.
- Enhance Logistics Efficiency through Technology and Innovation.
- Strengthen Policy and Institutional Framework to Support all Stakeholders.
- Enhance Global Share in Ship Building, Repair and Recycling.
- Enhance Cargo and Passenger Movement through Inland Waterways.
- Promote Ocean, Coastal and River Cruise Sector.
- Enhance India's Global stature and Maritime Co-operation.

- Lead the World in Safe, Sustainable & Green Maritime Sector.
- Become Top Seafaring Nation with World Class Education, Research & Training.

The initiatives taken/being taken by the Government for upgradation of infrastructure in the ports

- The **Radio Frequency Identification Device (RFID) solution** has been implemented at all major ports to enable seamless movement of traffic across port gates, including substantial reductions in documentation checks. All Major ports have already implemented Radio Frequency Identification Device (RFID).
- Up gradation and integration with recent technologies- **IoT, Block Chain to ease transaction and real time basis tracking** has been envisaged in Maritime India Vision 2030.
- **Logistics Data Bank Service** under **Delhi Mumbai Industrial Corridor Development Corporation Ltd. (DMICDC)**, for enabling track & trace movement of EXIM container has been implemented in all the Container handling Major Ports.
- An **Enterprise Business System (EBS)** is being implemented at 5 Major Ports to provide a digital port ecosystem that will adopt leading International Practices without losing its alignment to existing local needs.
- In order to bring all regulators near port area, the Port has allotted the office space to **Participating Government Agencies (PGAs) like Animal Quarantine, Textile Commission and Asst. Drug Controller. Port has also allotted the land to FSSAI & Drug controller for setting up of laboratories.**

Why the improvement in shipping industry is the need of the hour?

CENTRE LAUNCHES WELFARE SCHEME FOR TRANSGENDERS - SMILE

Union Minister for Social Justice & Empowerment launched the Central Sector scheme **“SMILE: Support for Marginalised Individuals for Livelihood and Enterprise”** to provide **welfare and rehabilitation to**

- Empowering women in the maritime community providing an opportunity to raise awareness of the importance of gender equality within the sector.
- It reduces the logistics costs massively and also cut down the delivery time.
- It will contribute towards the blue economy.
- The growth in international trade and the removal of trade barriers enabled developing countries like India to concentrate on infrastructural improvement.
- Port connectivity enhancement, coastal community development, port modernization, new port development, and port-linked industrialization.

Road Ahead:

- India is the **16th largest maritime** country in the world. In order to augment the Indian tonnage in the shipping industry and to promote the objective of Atamanirbhar Bharat, factors like safe shipping, increased seaborne trade, and the use of greener fuels will further drive India's maritime logistics industry growth. The maritime logistics industry has a bright future with technological advancements and the government's multiple projects already in place.
- Besides the gamut of initiatives, pursuing 'Make in India' will further increase tremendous opportunities, especially in the ship repair industry. The shipbuilding policy will further encourage Indian shipyards to get more foreign orders. In tandem with the increasing awareness about being environmentally conscious, the maritime industry is pushing towards using alternate cleaner fuels to reduce carbon emissions as much as possible.

the Transgender community and the people engaged in the act of begging.

- The Ministry has allocated **365 crore rupees** for the scheme from 2021-22 to 2025-26.

About SMILE

- This umbrella scheme, designed by **Department of Social Justice & Empowerment**.
- Each and every need of Transgender community and persons engaged in the act of begging are **taken care of in most professional way**.
- The provision of National Portal & Helpline will provide necessary information and solutions to the problems of the Transgender community and the people engaged in the act of begging’.
- It includes two sub-schemes –
 - ‘**Central Sector Scheme for Comprehensive Rehabilitation for Welfare of Transgender Persons**’.
 - ‘**Central Sector Scheme for Comprehensive Rehabilitation of persons engaged in the act of Begging**’.
- The scheme strengthens and expands the reach of the Rights that give the targeted group the **necessary legal protection** and a **promise to a secured life**.

Central Sector Scheme for Comprehensive Rehabilitation for Welfare of Transgender Persons:

- It provides **Scholarships for Transgender Students studying in IX and till post-graduation** to enable them to complete their education.
- It has provisions for **Skill Development and Livelihood under PM-DAKSH scheme**.
- Through **Composite Medical Health** it provides a comprehensive package

MAHARASHTRA MAY BECOME 8TH STATE TO OPT OUT OF CENTRE'S FLAGSHIP CROP INSURANCE SCHEME

Maharashtra may follow several other big states and opt out **Pradhan Mantri Fasal Bima Yojana (PMFBY)**, the **much-vaunted crop insurance scheme**. The two major issues are denial and delay of claims along with a huge subsidy burden on state governments.

- The government is in an agreement with insurance companies under PMFBY, which will end by next year, he noted. “The state government can take steps then.”

Pradhan Mantri Fasal Bima Yojana

in **convergence with PM-JAY supporting Gender-Reaffirmation surgeries** through selected hospitals.

- The Housing facility in the form of ‘**Garima Greh**’ ensures **food, clothing, recreational facilities, skill development opportunities, recreational activities and medical support** etc. to the Transgender community and the people engaged in the act of begging.
- The Provision of **Transgender Protection Cell** in each state will monitor cases of offences and to ensure timely registration, investigation and prosecution of offences.

Central Sector Scheme for Comprehensive Rehabilitation of persons engaged in the act of Begging:

- It will **focus on Survey and identification, Mobilisation, Rescue/ Shelter Home and Comprehensive resettlement**.
- Besides, pilot projects have been initiated on Comprehensive Rehabilitation in ten cities namely Delhi, Bangalore, Chennai, Hyderabad, Indore, Lucknow, Mumbai, Nagpur, Patna and Ahmedabad.

Pradhan Mantri Dakshta Aur Kushalta Sampann Hitgrahi Yojana

- PM-DAKSH Yojana is a National Action Plan for **skilling of marginalized persons covering SCs, OBCs, EBCs, DNTs, Sanitation workers including waste pickers**.

- There will be a uniform premium of only **2% to be paid by farmers for all Kharif crops and 1.5% for all Rabi crops. In case of annual commercial and horticultural crops, the premium to be paid by farmers will be only 5%**. The premium rates to be paid by farmers are very low and balance premium will be paid by the Government to provide full insured amount to the farmers against crop loss on account of natural calamities.

- There is **no upper limit on Government subsidy**. Even if balance premium is 90%, it will be borne by the Government.
- Earlier, there was a provision of capping the premium rate which resulted in low claims being paid to farmers. This capping was done to limit Government outgo on the premium subsidy. This **capping has now been removed** and farmers will get claim against full sum insured without any reduction.
- The use of technology will be encouraged to a great extent. **Smart phones will be used to capture and upload data of crop cutting to reduce the delays in claim payment to farmers**. Remote sensing will be used to reduce the number of crops cutting experiments.
- PMFBY is a **replacement scheme of NAIS / MNAIS**, there will be exemption from Service Tax liability of all the services involved in the implementation of the scheme. It is estimated that the new scheme will ensure about 75-80 per cent of subsidy for the farmers in insurance premium.
- **There are Two Schemes under the said operational Guidelines**
 - **Pradhan Mantri Fasal Bima Yojana (PMFBY)**
 - **Revised Weather Based Crop Insurance Scheme (RWBCIS)**

Objective of the Schemes

- **Providing financial support** to farmers suffering crop loss/damage arising out of unforeseen events.
- **Stabilizing the income of farmers** to ensure their continuance in farming
- Encouraging farmers to **adopt innovative and modern agricultural practices**
- Ensuring **flow of credit to the agriculture sector** which will contribute to food security, crop diversification and enhancing growth and competitiveness of agriculture sector besides protecting farmers from production risks.

Who can be covered?

- All farmers who have been **sanctioned Seasonal Agricultural Operations (SAO)**

loans (Crop Loans) from Financial Institutions (FIs), i.e., loanee farmers, for the notified crop(s) season would be covered compulsorily.

- The Scheme is optional for **non-loanee farmers**.
- The insurance coverage will strictly be equivalent to sum insured/hectare, as defined in the Govt. notification or /and on National Crop Insurance Portal multiplied by sown area for notified crop.

Risks covered under the scheme

- **Yield Losses** (standing crops, on notified area basis). Comprehensive risk insurance is provided to cover yield losses due to non-preventable risks, such as Natural Fire and Lightning, Storm, Hailstorm, Cyclone, Typhoon, Tempest, Hurricane, Tornado. Risks due to Flood, Inundation and Landslide, Drought, Dry spells, Pests/ Diseases also will be covered.
- In cases where majority of the insured farmers of a notified area, having intent to sow/plant and incurred expenditure for the purpose, are prevented from sowing/planting the **insured crop due to adverse weather conditions**, shall be eligible for indemnity claims upto a maximum of 25 per cent of the sum-insured.
- In post-harvest losses, **coverage will be available up to a maximum period of 14 days from harvesting** for those crops which are kept in "cut & spread" condition to dry in the field.
- For certain **localized problems, Loss / damage** resulting from occurrence of identified localized risks like hailstorm, landslide, and Inundation affecting isolated farms in the notified area would also be covered.

Advantages of the scheme

- Opportunities for agricultural insurance in India are numerous and **insurance can be a risk transfer mechanism** for Indian farmers that depend heavily on rains especially with the increasing influence of climate change.
- There is **room for experiments and expansion of new insurance products** since

penetration is low and there also a favourable political environment for insurance and support of agricultural livelihoods.

- Provides comprehensive **insurance coverage against crop loss on account of non-preventable natural risks**, thus helping in stabilizing the income of the farmers and encourage them for adoption of innovative practices.
- Increased risk coverage of Crop cycle – **pre-sowing to post-harvest losses**.
- Area approach for settlement of claims for widespread damage. **Notified Insurance unit has been reduced to Village/Village Panchayat for major crops**.

Challenges associated with PMFBY

- Various constraints include the **mindset of farmers and states, finances, technology, logistics, convenience, transparency, and the role of insurers**.
- One of the major challenges that remain is: **How to segregate insurance and disaster relief. Insurance products have a commercial basis whereas the disaster relief for small and marginal farmers has a social implication**.
- There are **data constraints** that also greatly limit the use of insurance. Additional yield data and farm gate data, data on land holdings, crops grown and damage calculations are needed.
- **Lack of adequate databases for determining premiums and indemnities and lack of adequate infrastructure** create constraints in implementing crop insurance in India, particularly in backward states.
- There is also a **lack of public awareness** of agricultural insurance. In particular, backwards regions are still facing lack of development in getting the benefits of government programs.

Steps to be taken

- There is a **strong need for awareness drive among farming families, especially small and marginal farmers**.

- **Technology usage** will be critical both for design and usage by farmers and India do possess strong IT capacity.
- Measures can be taken to **improve weather insurance products** including involvement of international experts, using satellite imagery with innovative computer models, and creation and usage of specialized indices like Normalized Difference Vegetation Index.
- The credibility of **Crop Cutting Experiments (CCEs)** should be improved using a digital confirmation and auditing process and the State should ensure the use of **General Packet Radio Service (GPRS)** enabled and camera-fitted mobile phones while conducting CCEs.
- **Development of a web portal** could make data on land records for all states available to financial institutions for speeding the insurance processing.
- **Community-Based Insurance with farmer producer organizations (FPOs)** needs to be encouraged to reduce the high transaction costs in the existing model. FPOs, through **Private Public Partnerships (PPP)** can promote mobile technology use for money transfer both for premium collection and compensation payments.

Way forward

- Investment in agricultural infrastructure/research would be more equitable as opposed to subsidies to crop insurance and may yield more long-term benefits. Farmers deserve the chance to farm on their own. They know the weather better than anyone—it is their greatest foe and their greatest friend. The concept of index-based contracts for natural disasters in place of crop insurance has been recently introduced. Farmers would purchase a contract and be compensated when a certain event or natural disaster occurs.
- A better option would be an income guarantee not based upon yield, crop grown, or farm size. Farmers could be given an income guarantee not based on yield, price, or area planted. Considering the various subsidies that are given

to farmers through various means—fertilizers, seed, price supports, etc.—an income guarantee should not be an unfeasible option. Farmers need to be able to respond to market forces and develop their own risk-management tools.

Additional information

Beed Model of Gujarat

- The model of crop insurance in place in Gujarat's Beed district is being studied by a central government panel set up to suggest suitable working models for PMFBY.

- In the Beed model, there is a **cap on the profit of the insurance companies**. If the claims exceed the insurance cover, the state government pays the bridge amount. If the claims are less than the premium collected, the insurance company keeps 20 per cent of the amount as handling charges and reimburses the rest to the state government.
- "The Beed model **will reduce the state's subsidy burden** but we have to see if it is benefitting the farmers," stated the agriculture official.

'RASHTRIYA VAYOSHRI YOJANA' (RVY SCHEME) OF THE MINISTRY OF SOCIAL JUSTICE AND EMPOWERMENT

1571 Divyangjan and Senior Citizens got free of cost **Assistive Devices** in a distribution camp organized in Tikamgarh (M.P)

- Indigenously developed "**Sugamya**" Cane for Visually Impaired and '**Swavlamban Kendra Container**' for **skill development training and repairing** centre launched at Tikamgarh, Madhya Pradesh.
- Camp for distribution of aids and assistive devices to 'Divyangjan' under the ADIP Scheme and to Senior citizens under 'Rashtriya Vayoshri Yojana' (RVY Scheme) of the Ministry of Social Justice and Empowerment, Government of India was organized by the Department of Empowerment of Persons with Disabilities (DEPwD) in association with ALIMCO and District Administration Tikamgarh.

About Rashtriya Vayoshree Yojana

- Rashtriya Vayoshri Yojana (RVY) is a scheme for **providing Physical Aids and Assisted-living Devices for Senior citizens belonging to BPL category**.
- This is a **Central Sector Scheme, fully funded by the Central Government**.
- The expenditure for implementation of the scheme will be met from the "**Senior Citizens' Welfare Fund**".
- The Scheme will be implemented through the sole implementing agency - **Artificial Limbs**

Manufacturing Corporation (ALIMCO), a PSU under the Ministry of Social Justice and Empowerment.

- Under the scheme, **the physical aids will be provided only to the senior citizens** of the nation.
- This implies those **who are aged above 60 years will get free assisted living aids and physical devices** which are required for their sustainability.
- The main criteria for the senior citizens to get full benefits of Rashtriya Vayoshri Yojana (RVY) scheme is that they **must belong to BPL family and should hold valid BPL card issued by the concerned authority**.

Salient features of the scheme

- **Free of cost distribution of the devices**, commensurate with the extent of disability/infirmity that is manifested among the eligible senior citizens.
- In case of multiple disabilities/infirmities manifested in the same person, the assistive devices will be given in respect of each disability/impairment.
- Artificial Limbs Manufacturing Corporation (ALIMCO) will undertake **one-year free maintenance of the aids & assisted living devices**.

- **Beneficiaries in each district will be identified by the State Governments/UT Administrations through a Committee chaired by the Deputy Commissioner/District Collector.**
- **As far as possible, 30% of the beneficiaries in each district shall be women.**
- The State Government/UT Administration/District Level Committee can

also utilize the data of BPL beneficiaries receiving Old Age Pension under the NSAP or any other Scheme of the State/UT for identification of senior citizens belonging to BPL category.

- **The devices will be distributed in Camp mode.**

GOVT APPROVES PLAN FOR 60,000 HOUSES UNDER PMAY ACROSS FIVE STATES

The Ministry of Housing and Urban Affairs on Tuesday approved project proposals for over **60,000 houses** across five states – Andhra Pradesh, Chhattisgarh, Himachal Pradesh, Karnataka and Rajasthan.

- The total number of sanctioned houses under PMAY(U) now stand at 114.04 lakh, of which around 93.25 lakh have been grounded for construction and around 54.78 Lakh have been completed and delivered to the beneficiaries.
- The total investment under the mission stands at Rs 7.52 lakh crore, with central assistance of Rs 1.87 lakh crore.

What is Pradhan Mantri Awas Yojana?

- It is an initiative of the Government of India which aims at **providing affordable housing to the urban poor** by the year 2022.
- The scheme was first launched on 1 June 2015 under '**Housing for All**' mission.
- The interest rate for the PMAY scheme starts at **6.50% p.a.** and can be availed for a tenure of up to 20 years.
- The last date for availing the PMAY CLSS scheme for the LIG and EWS categories has been extended to 31 March 2022.
- The Pradhan Mantri Awas Yojana – Gramin (PMAY-G) was previously known as the Indira

Awas Yojana and was **christened as PMAY-G** in 2016.

- The scheme is aimed at the provision of affordable and accessible housing units to eligible beneficiaries in rural regions of India (excluding Chandigarh and Delhi).
- The Pradhan Mantri Awas Yojana – Urban (PMAYU), as the name suggests, is focused towards the urban areas in India.
- At present, there 4,331 towns and cities which are enlisted under this scheme.

Features and Benefits of PMAY Scheme

- Under PMAY Scheme, subsidy interest rate is provided at 6.50% p.a. on housing loan for the term of 20 years to all the beneficiaries.
- **Differently abled and senior citizens** will be given preference in allocation of ground floors.
- Sustainable and eco-friendly technologies would be used for construction.
- The scheme covers entire urban areas in the country which includes 4041 statutory towns with the first priority given to 500 Class I cities. This will be done in 3 phases.
- The credit linked subsidy aspect of the PM Awas Yojana gets implemented in India in all statutory towns from the initial stages itself.

TRIBAL AFFAIRS MINISTRY ALLOCATES RS 2.26 CRORE TO REKINDLE TELANGANA'S STATE FESTIVAL - MEDARAM JATHARA FESTIVAL

The Ministry of Tribal Affairs has sanctioned 2.26 Crores for various activities pertaining to Medaram Jathara 2022.

- **Sammakka Saralamma Jathara or Medaram Jathara** is a tribal festival of honouring the

goddesses celebrated in the state of Telangana, India.

- The Jathara begins at Medaram in Tadvai Mandal in Mulugu district.
- It commemorates the fight of a mother and daughter, Sammakka and Saralamma, with the reigning rulers against an unjust law.
- It is believed that after Kumbha Mela, the Medaram Jathara attracts the largest number of devotees in the country.
- Medaram Jathara is the second-largest fair of India, after the Kumbh Mela, celebrated by the second-largest Tribal Community of Telangana—the Koya tribe for four days.
- This year it is being celebrated from 16th-19th February, 2022.
- According to a tribal story, about 6-7 centuries ago, that is in the 13th century, some tribal leaders who went for a hunting found a new born girl (Sammakka) emitting enormous light playing amidst tigers.
- She was taken to their habitation. The head of the tribe adopted her and brought up as a chieftain (She later became the saviour of the tribals of the region) she was married to Pagididda Raju a

feudatory tribal chief of Kakatiyas (who ruled the country of Andhra from Warangal City between 1000 AD and 1380 AD).

- She was blessed with 2 daughters and one son namely Sarakka, Nagulamma and Jampanna respectively.

Jampanna Vagu

- Jampanna vagu is a tributary to River Godavari.
- According to the history, Jampanna is the tribal warrior and the son of Tribal Goddess Sammakka.
- The Jampanna vagu took his name as he died in a battle fighting against Kakatiyan Army in that stream.
- The Jampanna vagu is still red in colour marked with the blood of Jampanna (Scientifically the red colour of the water is attributed to the soil composition).
- Tribal's believe that taking a holy dip in the red water of Jampanna Vagu reminds them the sacrifice of their gods who save them and also induces courage into their souls.
- There is a bridge constructed on top of Jampanna Vagu, known as Jampanna Vagu bridge.

IE THINC SESSION TO DISCUSS IMPACT OF PANDEMIC ON WOMEN WORKFORCE

More women lost jobs in India during the pandemic than men. A UN report has quantified the post-pandemic joblessness among **women at 47 per cent** and **men at seven per cent**. It has affected the women workforce, particularly in the rural areas and urban slums.

Impact of pandemic on women workforce

- The virus is significantly **increasing the burden of unpaid care, which is disproportionately carried by women**. They spent, on average, 62 hours per week caring for children (compared to 36 hours for men) and 23 hours per week doing housework (15 hours for men).
- A **surge in domestic violence National Commission for Women's (NCW) data** showed that domestic violence complaints

doubled after the nationwide lockdown was imposed in India.

- **Women were at the frontline tackling the pandemic**, 76% of healthcare and social-care workers, 86% of personal care workers in health services are women. With the pandemic, women in these sectors saw an unprecedented rise in workload, health risk and challenges to work-life balance.
- **Women in the labour market were hit hard by the pandemic**. Women also had more difficulties re-entering the labour market during the partial recovery last summer 2020 with employment rates rising by 1.4% for men but only by 0.8% for women
- A striking **lack of women in COVID-19 decision-making bodies**. Of 115 national

dedicated COVID-19 task forces in 87 countries, including 17 EU Member States, 85.2% were made up mainly of men, 11.4% comprised mainly women, and only 3.5% had gender parity.

Measures to address the issue

- Expanding **educational opportunities and increasing awareness** for sharing of workload at home between man and woman.
- There is also an urgent need to ensure that significant interventions take place to provide **easier access to finance from banks and other financial institutions, as well as tax incentives.**
- Additional relief measures would include **increasing the overdraft facility in the Jan Dhan accounts** of those running their own businesses in the informal sector by 10,000 rupees.

- Another measure which could help is if those who were previously employed could **withdraw funds from their provident funds.**
- **Skilling from an early age, amassing traditional skills** (tailors, beauty therapists, hair stylists, yoga trainers) and **non-traditional skills** (engineers, doctors, artificial intelligence, and data analytics) **encourages self-reliance** (through education and counselling) and enables them to challenge societal limitations.

Road Ahead:

It is in this context that 'Udyam Stree' was developed, a **platform to accelerate women entrepreneurship** by bringing people together from across the country to communicate and collaborate for women empowerment. A unified platform where stakeholders in the ecosystem can come together is the need of the hour. However, there is still a long road ahead in ensuring that the businesses run by women in the informal sector are recognized and protected. However, for now, to ensure damage control, these are strong measures which need to be put in play.

DOMESTIC VIOLENCE AND WOMEN'S HEALTH IN INDIA

Gender-based violence (GBV) or violence against women and girls is regarded as a global pandemic that **affects one in every three women** across their lifetime. An estimated **736 million women** become victims of intimate partner violence (IPV), or non-partner sexual violence, or both, at least once in their life.

Statistics related to domestic violence

- **Women aged 15-49 years** living in the least developed countries have a **37% lifetime prevalence** of domestic violence.
- **Among younger women (15-24)**, the risk is even higher, with one of every four women who have ever been in a relationship facing some form of violence.
- **In England**, the 2020 Crime Survey reported a **9% increase from 2019** in domestic-abuse related crimes.
- In the **United States (US)**, the number of women who have ever reported experiencing **domestic violence increased by 42% from 2016.**

- **In India, 30% of women have experienced domestic violence** at least once from when they were aged and **around 4% of ever-pregnant women** have experienced spousal violence during a pregnancy.

Domestic Violence?

- When one talks about domestic violence, it is a **systematic method to instil fear and subservience in an individual** in a domestic setting like a household.
- The intent behind this violence can range from the **compulsion to maintain the power structure of an individual** over the other or **to instil/coerce another individual for self-gratification purposes.**
- Domestic Violence in India typically means **violence suffered by an individual at the hands of their biological relatives** but specifically covers the violence suffered by

women from the male members or relatives in her family.

- According to the domestic violence Act, **Domestic Violence means harming or injuring a woman in a domestic relationship.** It includes **physical, sexual, verbal, emotional, and economic abuse** within its ambit. The abuse under the Domestic Violence Act includes not only actual abuse but also the threat of abuse.

Why Domestic Violence?

- The **sociological, behavioural and cultural factors** include factors like anger issues/aggressive attitude, poverty/economic hardship, difference in status, controlling/dominating nature, drug addiction, upbringing and psychological instability among others.
- **Historical factors** can be traced back to the inherent evil of **patriarchy and superiority complex** that has prevailed for centuries among men.
- A subtle form of domination on women, if not direct and glaring, reflects in the **religious sanctifications**. This also contributes to perpetration of domestic violence against women.
- **Cultural Factors** leading to domestic violence include the **desire for a male child**. This obsession resulting from the lack of awareness and inherent male superiority leads to perpetration of domestic violence against women.
- **Dowry** is a form of socio-cultural factor. But it becomes important to separately mention it because of the rampant domestic violence cases resulting from illegal demand of dowry. This was realised by the Parliament also because dowry-related domestic violence has been made a separate head in the scope of abuse resulting in domestic violence under the **Domestic Violence Act**.

Consequences of Domestic Violence against women

Short Term Consequences:

- The short-term physical effects of violence can include **minor injuries or serious conditions**.
- They can include **bruises, cuts, broken bones, or injuries to organs** and other parts inside the body.
- Some physical injuries are **difficult or impossible to see without scans, x-rays, or other tests done by a doctor or nurse**.
- The long-emotional and verbal abuse might **affect the woman's mood and children's mood in their day-to-day activities & might also reduce the efficiency**.

Long-term Consequences:

- Violence against women, including **sexual or physical violence**, is linked to many long-term health problems.
- Long-term mental health effects of violence against women can include **Post Traumatic Stress Disorder, Depression or Anxiety**.
- This can further lead to the problem of **substance abuse and drug addiction**.
- Sexual violence can result in **irreparable injury to sexual violence and a loss of self-worth**.

Constitutional Provisions safeguarding women

- **Equality before law (Art. 14)**
- **Prohibition of discrimination on grounds of religion, race, caste, sex or place of birth (Article 15)**
- **Equality of opportunity in matters of public employment (Article 16)**
- **Protection of life and personal liberty (Art.21)**
- **Equal justice and free legal aid (Art. 39)**
 - that the citizens, men and women equally, have the right to an adequate means to livelihood;
 - that the health and strength of workers, men and women, and the tender age of children are not abused and that citizens are not forced by economic necessity to enter avocations unsuited to their age or strength.
- **Fundamental duties (Art. 51A)** to promote harmony and the spirit of common brotherhood amongst all the people of India transcending

religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women.

Steps to prevent domestic violence

- Programs that teach young people healthy relationship skills such as communication, effectively managing feelings, and problem-solving can prevent violence.
- Awareness generation should be encouraged.
- Stringent implementation of existing laws.
- Laws should be updated with dynamic nature of the time.

- Self-defence training should be provided to women.

Road Ahead:

- Domestic violence has hindered the development of the women as a class of individuals in all aspects of life. Many survivors undergo multiple counselling sessions to return to normal lives.
- Despite having a legal framework in place to curb domestic violence, women continue to suffer. Women should be sensitized about the importance of financial independence and the legal framework that is readily available to help them.

UNION MINISTER FOR SOCIAL JUSTICE & EMPOWERMENT DR. VIRENDRA KUMAR LAUNCHES A SCHEME FOR ECONOMIC EMPOWERMENT OF DNTS (SEED)

The Minister of Social Justice and Empowerment, Dr. Virendra Kumar will launch the **Scheme for Economic Empowerment of DNTs (SEED)** on 16th February, 2022 at Dr. Ambedkar International Centre, New Delhi for the welfare of De-notified, Nomadic and Semi Nomadic Communities.

Who are De-notified, Nomadic and Semi-Nomadic Tribes?

- The De-notified, Nomadic and Semi-Nomadic Tribes are the **most neglected, marginalized and economically and socially deprived communities**.
- Most of them have been **living a life of destitution for generations** and still continue to do so with an uncertain and gloomy future.
- De-notified, Nomadic and Semi-nomadic Tribes somehow escaped the attention of our developmental framework and thus are **deprived of the support unlike Scheduled Castes and Scheduled Tribes**.
- Historically, these communities **never had access to private land or home ownership**.
- These tribes **used forests and grazing lands for their livelihood and residential use and had "strong ecological connections**. Many of them are dependent upon various types of

natural resources and carve out intricate ecological niches for their survival.

- The **changes in ecology and environment** seriously affect their livelihood options.
- Based on the **National Commission's recommendations**, the **Ministry of Social Justice and Empowerment** has constituted the **Development and Welfare Board for De-notified, Nomadic and Semi-Nomadic Communities (DWBDNCs)**.

About SEED

4 components

- To provide coaching of good quality for DNT/NT/SNT candidates to enable them to appear in competitive examinations.
- To provide health insurance to DNT/NT/SNT Communities.
- To facilitate livelihoods initiative at community level to build and strengthen small clusters of DNT/NT/SNT Communities institutions.
- To provide financial assistance for construction of houses to members of the DNT/NT/SNT Communities.
- Considering the shortage of houses for DNTs, it has been proposed to earmark a **separate outlay for PMAY to support specific importance in**

providing houses only for DNTs living in rural areas who have not taken benefits of the Pradhan Mantri Awas Yojana as SC, ST, OBC and are living below poverty line.

- The Scheme will be implemented through a portal, **developed by the Department of Social Justice & Empowerment.**
- One module for **registration of the applicant with details of his family, income, occupation, Aadhar and bank details, caste certificate, etc.**

- With this UID, the applicant can apply of one or other components of the scheme, subject to his eligibility.
- The portal will create a **permanent database** and can be retrieved whenever the applicant **desires to enroll for new component.**
- The funds will be **transferred directly to the beneficiaries in their account.** The other **implementing agencies** are Ministry of Rural Development, National Rural Livelihood Mission (NRLM) and National Health Authority (NHA).

GOVERNMENT APPROVES ' NEW INDIA LITERACY PROGRAMME, A NEW SCHEME OF ADULT EDUCATION FOR FYS 2022-27"

Government approved a new scheme **New India Literacy Programme** for the period **FYs 2022-2027** to cover all the aspects of Adult Education to align with National Education Policy 2020 and Budget Announcements 2021-22. The National Education Policy 2020 has recommendations for Adult Education and Lifelong Learning.

- The Union Budget 2021-22, announcement had been made to enable increased access of resources, online modules covering the entire gamut of adult education will be introduced.

New India Literacy Programme

- The objectives of the scheme are to impart **not only foundational literacy and numeracy** but also to cover other components which are **necessary for a citizen of 21st century** such as
 - **critical life skills** (including financial literacy, digital literacy, commercial skills, health care and awareness, child care and education, and family welfare);
 - **vocational skills development** (with a view towards obtaining local employment);
 - **basic education** (including preparatory, middle, and secondary stage equivalency); and
 - **continuing education** (including engaging holistic adult education courses in arts, sciences, technology, culture, sports, and recreation, as well as other topics of interest or use to local

learners, such as more advanced material on critical life skills).

- The scheme will be **implemented through volunteerism through online mode.**
- The **training, orientation, workshops of volunteers**, may be organized through face-to-face mode.
- All **material and resources shall be provided digitally** for easy access to registered volunteers through easily accessible digital modes, viz, **TV, radio, cell phone-based free/open-source Apps/portals, etc.**
- The scheme will **cover non-literates of the age of 15 years and above in all state/UTs** in the country.
 - The target for Foundational Literacy and Numeracy for FYs 2022-27 is 5 crore learners by using "**Online Teaching, Learning and Assessment System (OTLAS)**" in collaboration with National Informatics Centre, NCERT and NIOS in which a learner may register him/herself with essential information like name, date of birth, gender, Aadhaar number, mobile number etc.

Salient Features of the scheme

- **Schools to be used for conducting survey** of beneficiaries and Voluntary Teachers (VTs).

- **Different strategies are to be adopted for different age cohorts.** Flexibility for States/UTs will be provided to undertake innovative activities.
- **Foundational Literacy and Numeracy** will be imparted through Critical Life Skills to all non-literates in the age group of 15 years and above.
- **Use of Technologies to impart Adult Education** for wider coverage of the scheme.
- **Performance Grading Index (PGI) for State/UT and district level** will show the performance of States and UTs to implement the scheme and achievements on yearly basis by weighing both the physical and financial progress through UDISE portal.
- **The age cohort of 15-35 will be saturated first followed by ages 35 and above.**
 - Priority will be given in terms of categories to the **Girls and women, SC/ST/OBC/Minorities, Persons with Special Needs (Divyangjans), Marginalized/Nomadic/ construction workers/laborers/etc.** who can substantially and immediately benefit from adult education.
 - In terms of location/area, the **focus shall be on all aspirational districts of NITI Aayog,**

districts with literacy rates less than the National/State average, districts with female literacy rates less than 60% as per the 2011 Census, Districts/ Blocks with large SC/ST/ Minority population, Educationally Backward Blocks, Left Wing Extremism Affected districts.

Road Ahead:

- **Adult Education is now 'Education for All' in the country: As a progressive step,** it has also been decided that from now onwards that the term "Education For All" will be used in place of "Adult Education" by the Ministry in view of the fact that the terminology "Adult Education" is not incorporating appropriately all non-literates of 15 years and above age group.
- As per Census 2011, the absolute number of non-literates of the country in 15 years and above age group is 25.76 crore (Male 9.08 crore, Female 16.68 crore). In consideration of the progress of persons certified as literates being to the tune of 7.64 crore under the Saakshar Bharat programme implemented during 2009-10 to 2017-18, it is estimated that currently around 18.12 crore adults are still non-literate in India.

DELHI POLICE'S 'PINK BOOTH' AT GB ROAD TO HELP SEX WORKERS REHABILITATE, SKILL-UP

Though the **pink booth is a women-centric initiative** started by the Delhi Police to **help women file complaints or get guidance from women officials**, at the GB road, it has been **revamped to cater to sex workers.**

Pink Booth

- There are **only women officials.** Medical staff from hospitals also visit for training and health check-ups.
- While the ground floor of the booth is made for officers to take complaints or grievances from women.
- The first floor has been converted to a hall where sewing machines are kept. The booth also has computers for women.

- The police have also invited nursing staff from AIIMS to provide job training to seven women.
- After completion of the training, police said the women can work as helpers at city hospitals and clinics.

Challenges faced by Sex-workers in the society

- **Access to justice for women is constrained by social barriers ranging from lack of knowledge of their rights, dependence for assistance and resources and the threat of sanction; and lack of capacities in the justice systems** to respond to the particular needs of women.
- Violence against sex-workers in India is linked to the perception of sex workers are criminals and

not citizens. This has led to **systemic, systematic and large-scale violation of human and fundamental rights such as the right to life, dignity, equality, equal protection and due processes under the law.**

- The law enforcement is regarded by sex workers as the most repressive state agency. **Police abuse sex workers, illegally detain, sexually assault and torture them in custody.**
- **Stigmatisation**, which has its roots in standards set by patriarchal morality, is a major factor preventing women from accessing their rights.
- Most of the sex-workers are **HIV positive**. Most important of all would be getting access to essential health services that include treatment for HIV/AIDS and sexually transmitted diseases, which they are denied.
- Most of them **do not have access to clean and safe housing**, as they are refused outrightly by owners or the society.

Road Ahead:

- Women in **sex-work are entitled to rights in the economic, political, social, civil and cultural spheres** of their lives. The rights to education; political participation (including representation at the national and international levels); citizenship; livelihood; health; equality before the law; freedom from gender stereotyped notions about women's chastity and roles and responsibilities within a hetero- normative and patriarchal family, can only be fully achieved if discrimination is eliminated from all spheres of sex workers' lives.
- Addressing the accountability of the state for acts or omissions of state and non-state actors, instituting an independent monitoring system to hold the judiciary accountable in maintaining the checks and balance between state organs; is also crucial.

MENTAL HEALTH IN INDIA: IMPACT OF SOCIAL MEDIA ON YOUNG INDIANS

Individuals across different age groups use social media platforms like Facebook, Instagram, YouTube and Twitter for communication and networking, and Indians spend **approximately 2.4 hours of a day** on social media alone.

- Young individuals aged 18-24 years spend excessive time on these applications – with Facebook and Instagram having 97.2 million and 69 million users from this age group alone in India, clearly showcasing growing dependency on social media. The constant use leads to exposure to risky content, changes in behavioural patterns, feeling of inferiority and even cyberbullying, resulting in grave mental health challenges and illnesses.

Mental Health

- Mental health refers to cognitive, behavioural, and emotional well-being. It is all about how people think, feel, and behave. People sometimes use the term “mental health” to mean the absence of a mental disorder.

- Mental health can affect daily living, relationships, and physical health.
- According to the **World Health Organization (WHO)**, “Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to make a contribution to his or her community.”

Why is mental health important for overall health?

- Mental and physical health are equally important components of overall health.
 - For example, depression increases the risk for many types of physical health problems, particularly long-lasting conditions like diabetes, heart disease, and stroke.
- Similarly, the presence of chronic conditions can increase the risk for mental illness.

Risk factors for mental health conditions

- **Depression** is linked to lack of self-esteem, poor concentration and other maladaptive symptoms, and can lead to difficulties in communication, failure to work or study productively, amplified

risk of substance use and abuse, as well as suicidal thoughts.

- Instagram leads to **body image issues I.e., Body Dysmorphia** by developing an intrinsic urge for comparison. This is felt worse by women & young girls who are often socialised into prioritising their looks over other features.
- The discussion on mental health in India is not addressed seriously, and **faces stigma and neglect**.
- Increase in cases of **suicidal deaths**.

Steps taken by Government of India to reduce Mental Illness

- The Government of India has launched the **National Mental Health Programme (NMHP)** in 1982, with the following objectives:
 - To ensure the **availability and accessibility of minimum mental healthcare** for all in the foreseeable future, particularly to the most vulnerable and underprivileged sections of the population;
 - To **encourage the application of mental health knowledge** in general healthcare and in social development; and
 - To **promote community participation** in the mental health service development and to stimulate efforts towards self-help in the community.
- The **District Mental Health Program (DMHP)** was launched under NMHP in the year 1996 (in IX Five Year Plan). The DMHP was based on **'Bellary Model'** with the following components:
 - **Early detection & treatment.**
 - **Training:** imparting short term training to general physicians for diagnosis and treatment of common mental illnesses with limited number of drugs under guidance of specialist. The health

workers are being trained in identifying mentally ill persons.

- **IEC:** Public awareness generation.
- **Monitoring:** the purpose is for simple Record Keeping.

Road Ahead:

- The power of a tool is only as good as how we use it. It is imperative to address the systemic and current challenges to regulate social media use, especially restricting it for pre-teens. We must also take action on mental health seriously and monitor the incidence of psychiatric disorders (like, depression, anxiety) and identify the factors of risk and resilience.
- There is a need to conduct a disaggregated situational assessment of the diverse young demographic in our country, keeping in mind the differences associated with class, gender and other social factors. This would help in locating the mental health challenges faced by them and develop policy and program solutions for the same.
- However, the first focus needs to be on creating awareness and dialogue that would help in destigmatising the issue, in order to allow autonomy for the individual to share feelings in a safe space. Support systems like family and peers, need to be equipped with understanding the factors related to the issue and initiate supportive steps.
- Additionally, to address the structural challenges, there is a need to reimagine the workspace and educational frameworks. It is pertinent to remember that social characteristics impact the needs of individuals differently and thus the methods of intervention should be planned accordingly.

100 DISTRICTS IN THE COUNTRY BECOME 'HAR GHAR JAL' UNDER JAL JEEVAN MISSION

After touching the milestone of providing tap water supply to more than 9 Crore homes on 16th February, 2022, Jal Jeevan Mission achieved another milestone of

providing tap water to every home of 100 districts in the country.

- Chamba, an Aspirational District of Himachal Pradesh has become the 100th 'Har Ghar Jal'

District. Chamba is the fifth aspirational district to become 'Har Ghar Jal'. Other four Har Ghar Jal Aspirational districts are: Bhadrachal Kothgudem, Jayashankar Bhupalpalli, Komram Bheem Asifabad (all in Telangana) and Mewat in Haryana.

Jal Jeevan Mission

- JJM aims to ensure assured tap water supply or '**Har Ghar Jal**' to all rural households by 2024.
- Every rural household has drinking water supply in **adequate quantity of prescribed quality on regular and long-term basis at affordable service delivery charges** leading to improvement in living standards of rural communities.
- It comes under **Jal Shakti Ministry**.
- Under the Jal Jeevan Mission, **quality-affected villages, Aspirational districts, SC/ST majority villages, water-scarce areas and Saansad Adarsh Gram Yojna (SAGY) villages are prioritized** for providing tap water supply.
- In a paradigm shift from earlier water supply programmes, Jal Jeevan Mission **focuses on water service delivery and not just building water supply infrastructure**.
- The motto of the Jal Jeevan Mission is '**no one is left out**', thus ensuring every household irrespective of its socio-economic status, gets tap water supply.
- Jal Jeevan Mission strives for the **freedom of mothers and sisters from centuries old drudgery of fetching water for household, and improving their health, education and socio-economic condition**. The Mission is bringing '**ease of living and adding pride and dignity to rural families**'.

- Central Government has asked the States to **ensure provision of clean tap water supply in the remaining schools and anganwadi centres** at the earliest to ensure better health, improved sanitation and hygiene for children.
- Jal Jeevan Mission is a '**bottom up**' **approach** where community plays a vital role from planning to implementation, management, operation and maintenance.
 - To achieve this, **Village Water & Sanitation Committee (VWSC)/ Pani Samiti** are being constituted and strengthened; Village Action Plan are developed through community engagement; **Implementation Support Agencies (ISAs)** are engaged to support village communities in programme implementation and create awareness among people.

Achievements under Jal Jeevan Mission

- Jal Jeevan Mission, has **provided tap water supply to more than 5.78 Crore rural households**.
- As a result, today **100 districts in the country are enjoying benefits of clean tap water supply** and Jal Jeevan Mission is on track to fulfil the Government's resolve to provide tap water supply to every rural household by 2024.
- In **Goa, Haryana, Telangana, Andaman & Nicobar Islands, Puducherry, Dadar & Nagar Haveli and Daman & Diu**, every rural household has tap water supply.
- Many more States like **Punjab (99%), Himachal Pradesh (92.5%), Gujarat (92%) and Bihar (90%)** are on the verge of becoming 'Har Ghar Jal' in 2022.

GOVERNMENT APPROVES RASHTRIYA UCHCHATAR SHIKSHA ABHIYAN (RUSA) SCHEME TO CONTINUE TILL 31ST MARCH, 2026

The Government has approved the scheme of Rashtriya Uchchatar Shiksha Abhiyan (RUSA) for continuation till 31.03.2026 or till further review, whichever is earlier. The proposal entails an expenditure of Rs. 12929.16 crore out

of which Central Share is Rs. 8120.97 crores and the State Share is of Rs. 4808.19 crores. It has been envisaged to support around 1600 projects under the new phase of the scheme.

About RUSA

- Rashtriya Uchchar Shiksha Abhiyan (RUSA), a **Centrally Sponsored Scheme (CSS)** is an overarching scheme, operating in mission mode for **funding the state government universities and colleges** to achieve the **aims of equity, access and excellence and exploration**.
- RUSA understands that sometimes the **most important lessons of life are learnt outside the classroom**. So, whether it is **upgrading libraries or computer laboratories, promoting autonomous colleges or clubbing them to consolidate their strength and forming cluster universities**, this programme realizes that every institution holds the power to enrich lives through top-class education.
- New phase of RUSA targets to reach out the **unserved, underserved areas; remote/rural areas; difficult geographies; LWE areas; NER; aspirational districts, tier-2 cities, areas with low GER etc., and to benefit the most disadvantaged areas and SEDGs**.
- The new phase of the scheme has been designed to implement some of the **recommendations and aims of the New Education Policy**, which suggests some key changes to the current higher education system to **revamp and re-energize** it and thereby **deliver quality higher education, with equity and inclusion**.
- Under the new phase of the scheme, State Governments will be supported for **Gender inclusion, Equity Initiatives, ICT, Enhancing employability through vocationalisation & skill upgradation**.
- States will also be supported for creation of **new Model Degree Colleges**. State Universities will

be supported for **Multi-Disciplinary Education and Research**.

- Grants will be provided for **strengthening both accredited and non-accredited Universities** and Colleges for undertaking various activities including teaching-learning in Indian languages.

Importance of Higher Education in Society?

- A **person with a degree is expected to be awarded a better salary**. Educated people benefit from multiple resources such as **health and life insurance**. In the bigger picture, **higher education brings monetary benefits**.
- The **jobs are changing and so are the educational needs**. Students with an **advanced understanding of artificial intelligence and machine learning techniques** shall be in huge demand in the upcoming years. Therefore, it is critical to invest in higher education and achieve the required skills.
- Higher education can be seen as a **personality development tool**. During the studies, the students are shifted to their non-comfort zone. This zone teaches them to engage in critical thinking and work out on problems. These **improved skills in thoughts and logic make them better people with the ability to solve real-life crises**.
- Having highly **qualified professors, well-built infrastructure, books, libraries, access to computer systems, and similar other educational needs** are compulsory for quality assurance. The higher studies should also offer **lessons on morality, ethics, good conduct, behaviour, coexistence, and more**.

'WILL RESUME MID-DAY MEALS ONCE WE HAVE FULL ATTENDANCE'

The Delhi government has said that the **doorstep delivery of dry ration kits** will continue rather than hot cooked midday meals till 100% attendance is achieved in Delhi government schools after the **Delhi Rozi Roti Adhikar Abhiyan (DRRAA)**, an **organisation working**

on food rights, sent a legal notice to the Delhi government and three municipal corporations in the national capital.

- The DRRAA notice said that hot-cooked midday meals in schools did not resume even though

schools reopened for physical classes for Classes I to VIII on February 14, following the improvement in the Covid-19 situation.

Mid-Day Meal Scheme

- **In 1925, a Mid-Day Meal Programme was introduced for disadvantaged children in Madras Municipal Corporation.** By 1990-91 the number of States implementing the mid-day meal programme with their own resources on a universal or a large scale had increased to twelve states.
- The CCEA cleared the **PM POSHAN (POshan SHAKti Nirman) Scheme for providing one hot cooked meal in Government and Government-aided schools from 2021-22 to 2025-26**, earlier known as 'National Programme for Mid-Day Meal in Schools' popularly known as **Mid-Day Meal Scheme**.
- This is a **Centrally-Sponsored Scheme** which covers all school children studying in Classes I-VIII in Government, Government-Aided Schools.
- The **Cabinet Committee on Economic Affairs (CCEA), chaired by the Hon'ble Prime Minister has approved the continuation of the national scheme of PM POSHAN in Schools for the five-year period 2021-22 to 2025-26 with the financial outlay of ₹ 130794.90 crore.**

Features of Mid-Day Meal Scheme

- The scheme is proposed to be extended to students studying in **pre-primary or Balvatikas in Government and Government-aided primary schools in addition to all the 11.80 crore children from elementary classes.**
- The **concept of Tithi Bhojan will be encouraged extensively.** Tithi Bhojan is a **community participation programme** in which people provide special food to children on special occasions/festivals. **School Nutrition Gardens in schools to give children first-hand experience with nature and gardening.** The harvest of these gardens is used in the scheme providing additional micro

nutrients. School Nutrition Gardens have already been developed in more than 3 lakh schools.

- **Social Audit of the scheme is made mandatory** in all the districts. Special provision is made for providing supplementary nutrition items to children in aspirational districts and districts with high prevalence of Anaemia.
- **Cooking competitions will be encouraged** at all levels right from village level to national level to **promote ethnic cuisine and innovative menus** based on locally available ingredients and vegetables.
- **Vocal for Local for Atmanirbhar Bharat:** Involvement of Farmers Producer Organizations (FPO) and Women Self Help Groups in implementation of the scheme will be encouraged. Use of locally grown traditional food items for a fillip to local economic growth will be encouraged.

Advantages of Mid-Day Meal Scheme

- Enhancement of **nutritional values among children.**
- **Help children to develop their cognitive ability.**
- **Supplies nutritious food to poor children which helps them to concentrate on studies better.**
- It will help **reduce cases of disease such as anaemia and make people aware of sanitation.**
- **To increase the enrolment of the children belonging to disadvantaged sections in the schools.**

Challenges faced by children

- **Corruption** is to the large extent in this scheme. At some places this scheme does not work properly. Some **people make profit by selling the products** given by the government to the schools etc
- The **food given are of low quality**, rather are rotten or spoilt and it does not meet the minimum requirements of nutrients etc.

- **Problem of management of the mid-day meal, wastage of food by the students, insufficient and delayed receipt of funds.**
- **Increased workload of teachers, procuring dry ration from the retail shops, lack of infrastructure for storage, cooking and serving food, lack of safety provisions, unhygienic surroundings, etc.**
- **Lack of diversity in food products.**

Road Ahead:

- The National Education Policy (NEP) has also recommended that pre-school education should

be formalised. This is a step towards that. Also, it will help prevent leakages and bring more transparency. We will become more hands on and nudge states to pay schools through the direct benefit transfer (DBT) mode.

- When the scheme was first started in 1995, the midday meal was meant to ensure that children in government schools, especially those unable to get food at home, had at least one meal a day. It also became an initiative to improve enrolment in schools. The scheme is now being revamped to expand its ambit.

PM CARES FOR CHILDREN SCHEME EXTENDED UP TO 28TH FEBRUARY, 2022

The Ministry of Women and Child Development, Government of India has extended the PM Cares for Children Scheme till 28th February, 2022. Earlier the scheme was valid till 31st December, 2021. All eligible children can now be enrolled till 28th February, 2022 to avail benefits of PM CARES for Children Scheme.

PM CARES for Children Scheme

- The PM CARES for Children Scheme was launched by The Hon'ble Prime Minister of India on 29th May 2021 for the Children.
- **It aims to support children who have lost both the Parents or legal Guardian or Adoptive Parents or Surviving Parent to COVID-19 pandemic during the period starting from 11th March 2020.**

The scheme covers all children who have lost:

- **Both parents or Surviving parent or legal guardian/adoptive parents/single adoptive parent** due to COVID 19 pandemic, starting from 11.03.2020 the date on which WHO has declared and characterized COVID-19 as pandemic till 28.02.2022.
- To be entitled to benefits under this scheme **Child should not have completed 18 years of age on the date of death of parents.**

- The objective of the scheme is **to ensure comprehensive care and protection of children who have lost their parent(s) to COVID pandemic, in a sustained manner, enable their wellbeing through health insurance, empower them through education and equip them for self-sufficient existence with financial support on reaching 23 years of age.**
- The PM CARES for children scheme inter-alia provides support to these children through **convergent approach, gap funding for ensuring education, health, monthly stipend from the age of 18 years, and lump sum amount of Rs. 10 lakhs on attaining 23 years of age.**
- The scheme is accessible through the online portal. All States/UTs have now been asked to identify and register the eligible children on the portal till 28th February, 2022. **Any Citizen can inform the administration regarding a child eligible for support under this scheme through the portal.**

THE PRIME MINISTER, ADDRESSED A WEBINAR ON POSITIVE IMPACT OF UNION BUDGET ON RURAL DEVELOPMENT

- The Prime Minister began by reiterating the mantra of **Sabka Saath, Sabka Vikas, Sabka Vishwas and Sabka Prayas** as inspiration behind all the policies and actions of the government.
- **Our pledges for the Azadi Ka Amrit kaal will be realized only with the efforts of everyone and everyone will be able to make that effort only when every individual, section and region gets the full benefit of development”.**
- Rural digital connectivity is no longer mere aspiration but has become a necessity, said Prime Minister Shri Narendra Modi.
- The theme of the webinar '**Leaving No Citizen Behind**' was aimed at bringing industry leaders, policymakers and government officials together to deliberate upon the positive impact of the budget and identify sector specific actionable strategies to collectively work towards furthering the common goal of upliftment of everyone with saturation of each household and village, leaving no one behind.

What does digital connectivity mean?

- Digital connectivity is about *access to fast and reliable internet connection* (fixed or mobile) which enables users to benefit from smart and digital services.
- It is the '**fourth utility**', an **everyday necessity alongside water, gas and electricity**. Superfast broadband can be a useful indicator for measuring a place.

Digital Connectivity in the rural areas?

- **Fast and reliable connectivity means better opportunities.** Reliable and fast connections can unleash **new innovations in crop harvesting**.
- **Stable connectivity can keep families and bring people back to the countryside** thanks to enabling remote working, telemedicine, online services and innovations in agriculture.
- New technologies can contribute to **improve the quality and reduce the costs of delivering services to rural communities**.

- ICT solutions allow rural communities to **access high-quality services by overcoming physical distances and road or rail infrastructure challenges**.
- Increasing access and usage of broadband infrastructure in rural areas lead to **higher property values, increased job and population growth, higher rates of new business formation, and lower unemployment rates**.

Benefits of Broadband Connectivity in Villages

- Broadband will not only provide facilities in the villages but will also **create a big pool of skilled youth in the village economy**.
- Broadband, will **enable expanding the service sector to rural areas and help in boosting the economy**.
- There is a need for a **saturation approach to provision of basic infrastructure, especially in aspirational districts**.
- The need for **spreading awareness** about the use of such connectivity and **healthy competition between villages in achieving targets**.
- It **helps to promote R&D and commercialisation of technologies**. It will enable **affordable broadband and mobile services proliferation** in rural and remote areas.

How can we achieve Digital Saturation?

- Digital saturation is the foundation for the **achieving all facets of development including financial, social or economic development** especially in rural and remote areas.
- For achieving 100% saturation, it was indicated that **convergence of all stakeholders is required to provide cost and technology efficient services** which is also part of GatiShakti program of the Government of India.
- **BharatNet** shall be leveraged for the same and utilised for early saturation of all rural and remote areas including ensuring uptime and SLA as per norms for better demand.

- **Innovation conferences** may be one of the activities to ensure new development of technologies apart from focussed development of rural specific content.
- The efforts need to be made to **mobilise the State government departments including creation of National Portal** for early resolution through **Single window clearance**.
- **Industry experts also indicated the need for focus on supply side and demand side constraints** including power requirement of telecom, **focus on green telecom and reduction in tax and fee's structure and regulatory fees** for the services etc.

About BharatNet

- BharatNet Scheme has been launched by the government of India **under the Digital India program** in order to provide high-speed digital

connectivity of the internet in rural areas at a very affordable price.

- This **high-speed digital connectivity** will be provided **through optical Fibre**. It is the world's largest rural broadband connectivity project.
- Through this scheme, **the citizens in rural and remote areas will get broadband services at affordable prices and the internet connectivity infrastructure for gram, Panchayats will be established**.
- This scheme has been launched with the **vision to transform India into a digitally empowered society and knowledge economy**.
- It intends to cover all 2.5 lakh Gram Panchayats for the provision of **E-governance, E-healthcare, E-Commerce, E-Education, and Public Interest Access services**.

INCLUSIVE, EQUITABLE AND QUALITY EDUCATION IS EVERY CHILD'S RIGHT: VICE PRESIDENT

The Vice President, stressed that inclusive, equitable and quality education is every child's right. He called upon private schools to come up with policies to help underprivileged and needy children. He said that extending a helping hand to the needy and the vulnerable should be accorded priority.

About Inclusive, Equitable and Quality Education

- Along with Academic education, **giving equal importance to sports, co-curricular and recreational activities**.
- In an inclusive education system, **all learners with and without disabilities learn together with their peers in schools and classes** in their local community schools.
- They all **receive the support they need, from preschool to tertiary and vocational education, in inclusive and accessible schools** that are **responsive to cultural and community values, evidence and best practices, and individual preferences**.

- An inclusive education system is geared towards **providing quality education to all children and youth equitably**.
- Inclusive education means **different and diverse students learning side by side in the same classroom**.
- They **enjoy field trips and after-school activities together**. They **participate in student government together**. And they **attend the same sports meets and plays**.

Why Inclusive, Equitable and Quality Education?

- Such an approach will lead to the **all-round growth of students and make them confident individuals**.
- Need of call for **promotion and propagation of mother tongue**.
- Inclusive systems provide a **better-quality education for all children** and are instrumental in changing discriminatory attitudes.

- Education **excludes and segregates perpetuates discrimination against traditionally marginalized groups.**
- When education is more inclusive, so are **concepts of civic participation, employment, and community life.**

Challenges in ensuring Inclusive, Equitable and Quality Education

Less Students Enrolment:

- Enrolment rate of children with disabilities at least on par with that of nondisabled children in the mainstream education system.

Lack of Competencies among teachers:

- Teachers are the key actor to successfully implementing inclusive education. There is Lack of Competency, Proper knowledge and educational qualifications which are required from teachers in order to fulfil the predetermined purpose.

Large class sizes:

- Large classes are the big hindrance for the special students in order to take full advantage in the mainstream classes.

Rigid Curriculum:

- Rigidity in curriculum does not allow the special students to go at par in learning with the normal ones. No special curriculum is here to fulfil the diverse needs of special students.

Inadequate pre- service training and professional development:

- Lack of training and professional development of mainstream teachers at all levels are the big issues in inclusive education.

Inadequate Infrastructure:

- Lack of infra structural facilities in our institution is one of the big issues which hinders us to realize the dream of inclusive education.

How to ensure an Inclusive, Equitable and Quality Education?

- **Enforcement of non-discrimination and Zero Rejection policies** should be implemented.
- **Significant investments (human, social and financial) are made in recruiting and training qualified teachers, including teachers with disabilities,** who can provide inclusive and quality learning for all learners.
- **Teacher education and curriculum reforms** incorporate the principles of Universal Design for Learning, including equal access and participation.
- The educational institutions to **involve students in activities such as gardening, tree plantation and water conservation. It will bring children close to nature.**
- **Well-resourced support services** are made available at all levels, **to assist all schools and all teachers in providing effective learning for all students,** including those with disabilities.
- A **diversity of languages and modes of communication** are used throughout the system. Priority is given to teachers who are already fluent in their use with adequate support provided to ensure all teachers have opportunities to develop fluency.
- In decentralised systems, a **consistent set of regulations, accountability mechanisms and resource planning for inclusive education** at all levels of government is ensured.
- **Multi-stakeholder engagement** between ministries of education, schools, educators, support services, parents and communities, is promoted **to ensure equal access and effective inclusion.**
- Engagement with stakeholders with disabilities (parents, educators, government officials and others) is properly supported **to ensure full participation in decision-making.**



BASAI WETLANDS: AN OASIS IN THE HEART OF A CONCRETE JUNGLE

At a stone's throw from the glitzy malls of the Millennium City, home to 300-plus species of rare, common and migratory birds, the 250-acre shallow wetland has shrunk to a quarter of its original size over the years.

Basai Wetland:

- Basai wetland, located in **Basai village in Gurgaon tehsil in Gurgaon district in Haryana, India**, is a flora and fauna rich water body.
- Basai wetland lies in one of the **paleochannel of the Sahibi River, a tributary of Yamuna which originates from the Aravalli range in Rajasthan** and flows through west and South Haryana into Delhi where it is also known as the **Najafgarh drain**.
- Basai is recognised as a **key biodiversity area by the International Union for Conservation of Nature (IUCN), the Wildlife Institute of India and the Bird Life International, a global network of NGOs that work to protect bird habitats**.

Threats to Basai wetland:

- The wetland continues to disappear under **newly laid roads, modern housing constructions and other infrastructure development**.
- An upcoming **expressway**, cutting through the terrain here, has majorly impacted the flyway of thousands of migratory birds from Europe and Central Asia.
- **Lack of awareness** about the history and importance of wetlands among the people.
- Ultimately, it would be to the peril of the residents when the **threat of water scarcity, receding groundwater table, flash floods during heavy rains and the sight of depleting greenery from their high-rise windows turn into a bitter reality**.

Conclusion:

The Basai wetlands is like an oasis in the heart of a concrete jungle. We need a new appreciation of what wetlands provide to us if we want to reclaim the lost glory.

SWACHH BHARAT! THIS MAHARASHTRA PANCHAYAT ADOPTS INNOVATIVE, LOW-COST METHODS TO ELIMINATE PLASTIC WASTE

Swach Bharat Mission Grameen is in the news?

- **Sasewadi Gram Panchayat in Bhor Block of Pune district in Maharashtra** has set a healthy precedent towards **eliminating plastic waste and achieving visual cleanliness** through an

innovative and low-cost, cluster level system for **plastic waste management (PWM)**.

PWM system in Sasewadi village:

- Sasewadi village was the first to have a system in place for **collection, segregation and**

transportation of waste, while making maximum utilisation of available resources.

- To begin with, they converted their proposed vermi-composting unit into a resource recovery centre, in which they provided a small space for storage of the plastic waste that was collected.
- Thereafter, they hired a sanitation worker to collect and segregate waste and another worker for transportation of plastic waste to the company at a nominal charge.
- Initially, the people would not segregate waste properly. However, after consistent interpersonal communication, almost all of households took their role seriously and were linked to the system.

The plastic processing unit provides two vital benefits:

- It accepts all kinds of plastic waste for processing, and the bi-products (carbon chunks, gas emissions, and oil + gas) that it generates are not harmful to the environment. In fact, the gas generated along with the oil are used to power the equipment at the plant.
- Further, the emissions are well below the prescribed limit of the Maharashtra Pollution Control Board.

Swachh Bharat Mission Grameen:

- To accelerate the efforts to achieve universal sanitation coverage and to put the focus on sanitation, the Prime Minister of India had launched the Swachh Bharat Mission on 2nd October 2014.
- Under the mission, all villages, Gram Panchayats, Districts, States and Union Territories in India declared themselves "open-defecation free" (ODF) by 2 October 2019, the 150th birth anniversary of Mahatma Gandhi, by constructing over 100 million toilets in rural India.
- To ensure that the open defecation free behaviours are sustained, no one is left behind, and that solid and liquid waste management facilities are accessible, the Mission is moving towards the next Phase II of SBMG i.e ODF-Plus.
- ODF Plus activities under Phase II of Swachh Bharat Mission (Grameen) will reinforce ODF behaviours and focus on providing interventions for the safe management of solid and liquid waste in villages.

TONGAN ERUPTION WILL GO DOWN IN THE HISTORY OF VOLCANOLOGY

- Recently, the NASA scientists are studying the explosion of submarine volcano Hunga Tonga-Hunga Ha'apai to understand how features formed on the surfaces of Mars and Venus.
- The explosion might help the scientists to reveal results of water-lava interactions on the red planet and elsewhere across the Solar System.
- Hunga Tonga-Hunga Ha'apai was formed from ash and lava expelled from an undersea volcano

in early 2015 and is similar to structures on Mars and possibly also Venus.

- The scientists used satellite observations and seafloor surveys to study how such islands form, erode and persist.
- The researchers wanted to use that knowledge to understand how small conical volcanoes found on Mars may have formed in the presence of water billions of years ago.

BETTER HABITAT MANAGEMENT HELPS TIGERS FLOURISH IN SARISKA

The present Tiger population in Sariska Tiger Reserve is now 25, where once the tiger population

became extinct. The measures for habitat management for tigers was launched about six months ago at the

famous Sariska Tiger Reserve in Rajasthan's Alwar district have started bearing fruit.

Initiatives taken to increase the tiger population in the wildlife sanctuary:

- Creation of water holes and development of grasslands for ungulates as a prey base. The forest was now depicting an appropriate balance between the prey and predator.
- The grassland habitats developed in dry patches of land have helped ungulates to feed better and breed in the areas such as Naya Pani, Dabli and Bhagani, leading to enhanced feed for tigers.

Sustainable Habitat:

New tourist route

- The forest administration has opened a new route in the tiger reserve's buffer zone, adjacent to Alwar town, for tourists to facilitate better sightings of the big cats.
- The new Bara-Liwari route, will reduce pressure on the core area and increase livelihood opportunities for the rural population.

Social initiatives in protection of the big cats:

- A **foundation of a private bank** as part of its corporate social responsibility expenditure has started delivering goods and resources which the Forest Department could not arrange because of a variety of handicaps.
- The foundation is funding development of grasslands, earthen bunds and water holes for wild animals at 10 locations.
- **Rehabilitation:** The foundation is making livelihood intervention for the villagers being relocated from the sanctuary.

Genesis:

- The tiger reserve, spread across 1,216 sq. km, witnessed the first-of-its-kind tiger relocation from the Ranthambore National Park in 2008 after the felines became extinct in the sanctuary.
- Since then, the animal has taken some time in multiplying at its own ease.
- Incentives that act as catalyst to perform the duties is welcomed:

- The foundation has distributed 23 motorcycles with helmets to the forest guards in Sariska for monitoring the tiger movement with the pledge that one new motorcycle per new tiger will be given in the future.

Achievements:

- Four years ahead of its goal: India achieved a remarkable feat by doubling the country's tiger population from 2006 in 2018, four years ahead of its goal.
- **Fund:** The budgetary allocation for tiger conservation has increased from Rs. 185 crore in 2014 to Rs. 300 crores in 2022,
- Success with the tiger relocation could be replicated elsewhere:
- Tigers have been successfully translocated in the western part of Rajaji Tiger Reserve last year.
- The SOP will be shared with all Tiger Range Countries
- The **Conservation Assured | Tiger Standards (CA|TS) accreditation** has been already awarded to 14 tiger reserves in India (Manas, Kaziranga, Orang, Satpura, Pench, Kanha, Panna, Valmiki, Dudhwa, Parambikulam, Mudumalai, Bandipur, Anamalai and Sundarbans).

What is CA | TS?

- CA|TS is a set of criteria which allows tiger sites to check if their management will lead to successful tiger conservation as per the international standards.

Who else have achieved CATS accreditation?

- Other than India, one tiger reserve each in Russia and Nepal, and two in Bhutan have the CAITS status.

Who are the Tiger Range Countries?

- India, Bangladesh, Vietnam, Cambodia, Bhutan, Thailand, Indonesia, Laos, China, Malaysia, Russia, Nepal and Myanmar.

Statistics:

- India has the highest number of tigers in the wild 2,967 tigers, or seven out of every 10 in the world, according to the All-India Tiger Estimation Results released in 2019. The number reflects a

33% increase over 2014 when there were 2,226 tigers in the country.

- NTCA has **designated the combined areas of the Guru Ghasidas National Park and Tamor Pingla Wildlife Sanctuary as a Tiger Reserve.** This will be the **53rd Tiger Reserve in India.**

NTCA:

- NTCA is a **statutory body under the Ministry of Environment, Forests and Climate Change**, established in 2005 for strengthening tiger conservation.
- It was constituted under enabling provisions of the Wildlife (Protection) Act, 1972, as amended in 2006, for strengthening tiger conservation, as per powers and functions assigned to it.
- The Minister for Environment & Forests is the current Chairperson of the National Tiger Conservation Authority.
- **Under section 38V (1) of the wild life Protection Act 1972,** The state government shall on the recommendation of the tiger conservation authority, notify any area as a tiger reserve. So, it becomes mandatory for the state to accept the recommendation.
- No alteration of boundaries of a tiger reserve shall be made except on the recommendation of the NTCA and approved by the National Board of Wild Life.

- No state government can de-notify a tiger reserve except in public interest with the approval of the NBWL.

National Board for Wildlife (NBWL):

- The National Board for Wildlife (NBWL) is the **apex body in India for all wildlife-related matters.** It is primarily responsible for the promotion of wildlife conservation and the development of wildlife and forests.
- It is a **statutory body** constituted under **Section 5A of the Wildlife (Protection) Act, 1972 (WLPA).**
- It approves projects (including government projects) in and around the protected areas (national parks, wildlife sanctuaries, etc.).
- It is an **advisory board and advises the central government** on policy matters concerned with wildlife conservation in the country.
- The Board was constituted in 2003 under the WLPA, as mentioned before.
- It replaced the Indian Board for Wildlife, which was formed in 1952 as an advisory board.
- The NBWL is chaired by the Prime Minister.

Project Tiger

Project Tiger is an ongoing Centrally Sponsored Scheme of the Ministry of Environment, Forests and Climate Change providing central assistance to the tiger States for tiger conservation in designated tiger reserves.

WHAT ARE RAMSAR SITES, AND WHAT IS THE SIGNIFICANCE OF THE LISTING?

On the eve of the **World Wetlands Day on 2 February 2022,** the **Ramsar Convention on Wetlands designated Khijadia Bird Sanctuary near Jamnagar in Gujarat and Bakhira Wildlife Sanctuary in Uttar Pradesh as wetlands** of international importance.

Ramsar Convention on wetlands:

- The Ramsar Convention on wetlands, which came into existence in **1971,** is an intergovernmental treaty that **provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.**

What are wetlands?

- The **Ramsar Convention on Wetlands** defines wetlands as “areas of marsh, fen, peat land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters.”
- **US Fish and Wildlife Service** has adopted the definition given by **Cowardin** and others who defined wetland as, “are lands transitional between terrestrial and aquatic systems where

the water table is usually at or near the surface or the land is covered by shallow water.

- The **Wetlands (Conservation and Management) Rules, 2017** notified by the Union Ministry of Environment, Forest and Climate Change define wetlands as “area of marsh, fen, peatland or water; whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters, **but does not include river channels, paddy fields, human-made water bodies/ tanks specifically constructed for drinking water purposes and structures specifically constructed for aquaculture, salt production, recreation and irrigation purposes.**”

What is the significance of Ramsar listing?

- It is like an **ISO certification**. They can take you off the list as well if you don't meet their standards continuously.
- Ramsar tag makes it incumbent upon authority to strengthen the protection regime there and also creates **defences against encroachment** etc. on wetlands.
- **Nal Sarovar Bird Sanctuary and Thol Wildlife Sanctuary**, both Ramsar Sites, are

examples of **sustainable and wise use of wetlands** as they **provide livelihood** to locals besides supporting around 100 species of waterfowl.

- They are among the world's most productive environments; **cradles of biological diversity** that provide the water and productivity upon which countless species of plants and animals depend for survival.
- They **provide humanity, ranging from freshwater supply, food and building materials, and biodiversity, to flood control, groundwater recharge, and climate change mitigation.**

Additional information

Wetlands in India

- In India, according to the National Wetland Inventory and Assessment compiled by the Indian Space Research Organisation (ISRO), wetlands are spread **over 4.63 per cent of the total geographical area of the country.**
- In state-wise distribution of wetlands, **Gujarat is at the top with 22.7 percent** of total wetlands areas of the country thanks to a long coastline.
- **India's tally of 49 designated wetlands** spread over 10,936 sq km in 18 states and two Union Territories is the largest network of Ramsar Sites in South Asia.

WHAT ARE LOW-CARBON EMITTING TECHNOLOGIES?

- In the **Net Zero Emissions by 2050 Scenario**, **industry emissions fall 2.3% annually to 6.9 Gt CO₂ by 2030** – despite expected industrial production growth. Industrial energy consumption has risen considerably in the past two decades - increasing an average 1% per year between 2010 and 2019, along with demand for industrial products and CO₂ emissions.
- **According to the International Energy Agency's Industry Tracking Report 2021, in the Net Zero Emissions Scenario, growth in energy use needs to be limited to about 0.9%**

per year to 2030, despite expected expansion in industrial production.

Low Carbon-Emitting Technologies:

- **Low-carbon emitting technologies (LCET)** are referred to as innovative technical solutions that are characterized by a low emission intensity, compared to state-of-the-art alternatives. In a way, they can be seen as best-in-class technologies with a focus on environmental impact.
- Low carbon low emission clean energy technologies can help significantly **reduce greenhouse gas emissions, promote access to energy and enhance productive energy use.**

- This would require the recognition of all emission reduction potential initiatives in the form of programs and public funding support for the development and deployment of low-carbon emitting technologies (LCET).

LCET help in achieving Net Zero Emissions?

- Access to **affordable renewable energy** and their deployment are key enablers for decarbonization of heavy industries.
- **Technologies required to clean up the most polluting sectors** – such as hydrogen to reduce iron ore, green ammonia to fuel ships, or carbon capture and storage etc.
- There is a **need to foster a market environment** that rewards supply of low-carbon emitting technologies and circular products and promotes bio-based technologies.
- Although **both industry and governmental regulations** increasingly support the expansion of renewables and related infrastructure, policy instruments that encourage their economically viable use would foster a more rapid deployment.
- Energy efficiency brings a variety of benefits: **reducing greenhouse gas emissions, reducing demand for energy imports, and lowering our costs on a household and economy-wide level.**

Challenges associated with LCET for carbon neutrality?

- Identification of land with Renewable Energy potential and the time-consuming procedures of land clearance.
- The low-carbon transition challenge is bigger for companies that are largely **coal-powered** and contribute more than half of our country's emissions.
- **Technological deficiency** in the production of electronics that form the backbone of the EV industry, such as batteries, semiconductors, controllers, etc.
- **EVs have higher servicing costs** which require higher levels of skills.

Road Ahead

- Emerging economies have a stability incentive to create resilience in their energy systems. Being efficient pays off in many ways and the regulations and legislative measures needed in those countries are measures to support growth and stability of energy supply and transmission systems as well as their flexibility.
- There will, however, also be a market driven environment, where companies are pressured to adhere to global decarbonization standards (supply-chain requirements), otherwise they will not be able to sell products on international markets anymore.

NATIONAL ADAPTATION FUND FOR CLIMATE CHANGE (NAFCC)

The National Adaptation Fund for Climate Change (NAFCC) was established to support **adaptation activities in the States and Union Territories (UTs)** of India that are **vulnerable to the adverse effects of climate change.**

- The Ministry of Environment, Forest and Climate Change has **demarcated the Hazard Line** for the entire mainland coast of India under its **Integrated Coastal Zone Management (ICZM) project.**

NAFCC?

- The National Adaptation Fund for Climate Change (NAFCC) is a **Central Sector Scheme** which was set up in the year 2015-16.
- The overall aim of NAFCC is to **support concrete adaptation activities** which **mitigate the adverse effects of climate change.**
- The projects related to adaptation in sectors such as agriculture, animal husbandry, water, forestry, tourism etc. are eligible for funding under NAFCC.
- **National Bank for Agriculture and Rural Development (NABARD)** is the **National Implementing Entity (NIE).**

- The activities under this scheme are implemented in a **project mode**.

Objectives of NAFCC?

- Funding concrete adaptation projects/programmes aligned with the relevant Missions under National Action Plan on Climate Change (NAPCC) and the State Action on Climate Change (SAPCCs) in agriculture, horticulture, agro-forestry, environment, allied activities, water, forestry, urban, coastal and low-lying system, disaster management, human health, marine system, tourism, habitat sector and other rural livelihood sectors to address climate change related issues.
- Preparing and updating climate scenario, **assessing vulnerability and climate impact assessment**.
- **Capacity building of various stakeholders** on climate change adaptation and project cycle management and developing knowledge network.
- **Mainstreaming the approaches/ learnings from project/programme implementation through knowledge Management.**

Significance of NAFCC?

- It helps to reduce carbon footprints via improved policies and regulations that promote and enforce resilience measures.
- **Coastal Regulation Zone Notification 2019 has been notified** to conserve and protect the

unique environment of coastal stretches and marine areas to promote sustainable development.

- Participation of various stakeholders make everyone accountable towards steps reducing adverse impact of climate change.
- The long-term benefits of developing climate smart villages will be in terms of having developed adaptation capacities in key sectors of Rural Development; Water, Agriculture and Energy.
- Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas.

Challenges associated with implementation of NAFCC?

- There is lack of proper awareness among people as they are unable to change their mindsets.
- Inadequate budgetary allowance led to improper implementation of projects.
- There is lack of accountability among various stakeholders.

Road Ahead:

- India is a victim of climate events on the one hand and major emitter of Green House Gases on the other. National actions will have to be demonstrably effective in curbing carbon emission.

WORLD WETLANDS DAY CELEBRATED AT SULTANPUR NATIONAL PARK

Ministry of Environment, Forest and Climate Change on **World Wetlands Day** on 2022 stated that the government is taking affirmative action, involving communities and citizens, in halting and reversing wetlands degradation and loss.

- Two new Ramsar sites (Wetlands of International Importance), **Khijadia Wildlife Sanctuary in Gujarat and Bakhira Wildlife Sanctuary in U.P** were also announced on the occasion.

World Wetlands Day:

- **2 February** as World Wetlands Day: a moment to raise awareness of wetlands' importance for a sustainable and prosperous future.
- **Wetlands Action for People and Nature** is the theme in 2022 highlighting the importance of actions to ensure the conservation and sustainable use of wetlands for humans and planetary health.
- World Wetlands Day is an opportunity to **engage all stakeholders at all levels** – to strengthen and multiply action for wetlands.

- This day also marks the **anniversary of the Convention on Wetlands**, which was adopted as an international treaty in 1971.

Functions of Wetlands:

- Wetlands can be thought of as “**biological supermarkets**.” They produce great quantities of food that attract many animal species.
- Many animals need **wetlands for part or all of their life-cycles**. In late winter and early spring, for example, adult tiger salamanders migrate from uplands to vernal pools for breeding and egg deposition.
- Scientists also point out that **atmospheric maintenance** is an additional wetland function. Wetlands **store carbon** within their live and preserved (peat) plant biomass instead of releasing it to the atmosphere as carbon dioxide, a greenhouse gas affecting global climates.
- Wetlands also play an important role in the **hydrologic cycle**. Wetlands can receive, store, and release water in various ways, physically through ground water and surface water, as well as biologically through transpiration by vegetation.
- **Water purification, Flood protection, Shoreline stabilization, Groundwater recharge and stream flow maintenance** etc are other functions of wetlands.

Ramsar Convention:

- The Ramsar Convention on Wetlands of International Importance Especially as Waterflow Habitat is an international treaty for the conservation and sustainable use of wetlands.
- It is also known as the Convention on Wetlands.
- It is **named after the city of Ramsar in Iran**, where the convention was **signed in 1971**.
- The Ramsar Convention **works closely with six other organisations** known as international organization partners (IOPs). These are:
 - **Bird Life International**
 - **International Union for Conservation of Nature (IUCN)**
 - **International Water Management Institute (IWMI)**

- **Wetlands International**
- **WWF International**
- **Wildfowl & Wetlands Trust (WWT)**

Sultanpur National Park:

- It is located in **sultanpur village** on Gurugram-Jhajjar Highway, 15 km from **Gurugram, Haryana**.
- It has recently been announced as Ramsar site.
- Sultanpur has the **typical North Indian climate** of harsh summers (up to 46 °C) and cold winters (low of up to 9 °C). **Rainy season is short**, from July to the end of August.
- The Sultanpur National Park is lush with trees, shrubs and clusters of **bougainvillea**.
- Every year 90 migratory bird species arrive here in search of feeding grounds and to spend the winter.

Khijadia Wildlife Sanctuary:

- Khijadia, which is part of the **Central Asian Flyway**, has become the fourth wetland of **Gujarat** to get the Ramsar tag.
- A **freshwater wetland near the coast of the Gulf of Kutch**, was formed following the creation of a bund (dike) in 1920 by the then ruler of the **erstwhile princely state of Navanagar** to protect farmlands from saltwater ingress.
- The sanctuary is now part of **Marine National Park, Jamnagar, the first marine national park in the country**.
- More than 180 plant species are present, including the critically endangered Indian bdellium-tree (*Commiphora wightii*).

Bakhira Wildlife Sanctuary:

- A **freshwater marsh** in the Sant Kabir Nagar district, is the largest natural floodplain wetland of **eastern Uttar Pradesh**.
- The Sanctuary was established in 1980 and is protected under the Wildlife Protection Act (1972); an “**eco-sensitive zone**” extends up to a kilometre around its boundary.
- It provides a wintering ground for over 25 species that migrate on the Central Asian Flyway, some of which are threatened or near-threatened such

as the endangered Egyptian vulture (*Neophron percnopterus*), the vulnerable greater spotted eagle (*Aquila clanga*),

common pochard (*Aythya ferina*) and swamp francolin (*Francolinus gularis*).

FREQUENT MARINE HEATWAVES IN INDIAN OCEAN DISRUPT INDIA'S MONSOON PATTERNS

Marine heat waves (MHW) in the Indian Ocean region have increased significantly in the past few decades, according to a new report.

- The study found that marine heatwaves impact the monsoon by reducing the rainfall over the central Indian subcontinent, while enhancing it over the southern peninsula.

Heatwaves and Marine Heatwaves?

- A heat wave is a **period of excessively hot weather**, which may be accompanied by high humidity, especially in oceanic climate countries.
- A heat wave is considered extreme weather that can be a natural disaster, and a danger because heat and sunlight may overheat the human body.
- **The ocean's average temperature has increased by 1.5°C** in the last century, and for the past 10 years average annual ocean temperatures have been the highest ever recorded.
- In addition to this long-term, **persistent warming, discrete periods of extreme regional ocean warming called marine heatwaves (MHWs)** are becoming more frequent.

Impact of Heatwaves on Climate:

- It causes **habitat destruction** due to **coral bleaching**. An underwater survey showed that 85 per cent of the corals in Gulf of Mannar near the Tamil Nadu coast got bleached after marine heatwaves in May 2020.
- It causes **destruction of sea grass and kelp forests**.
- It will **adversely affect fisheries**.
- Higher water temperatures associated with MHWs can cause **extreme weather events such as tropical storms and hurricanes, and disrupt the water cycle; making floods, droughts and wildfires** on land more likely.

- MHWs occur alongside other stressors such as **ocean acidification, deoxygenation**, and overfishing. In such cases, MHWs not only further damage habitats, but also increase the risk of deoxygenation and acidification.

Implications of MHWs on Indian Monsoon:

- Marine heatwaves in the western Indian Ocean and the Bay of Bengal are found to **result in drying conditions over the central Indian subcontinent**.
- The western Indian Ocean region experienced the largest increase in marine heatwaves at a rate of about 1.5 events per decade, followed by the north Bay of Bengal at a rate of 0.5 events per decade.
- There is a **significant increase in the rainfall over south peninsular India** in response to the heatwaves in the north Bay of Bengal. These changes are in response to the modulation of monsoon winds by the heatwaves.

Measures to tackle MHWs?

- It is imperative to **update our weather models** to skilfully predict the challenges presented by a warming world.
- Governments must **invest in nature-based solutions** alongside ambitiously **reducing fossil fuel-based emissions** to achieve the goals agreed to under the **Paris Agreement**.
- **Funding agencies and governments must build research capacity** to monitor MHWs, understand their impacts, and predict future heatwave events.
- Research should **aim to establish a temperature baseline** which considers species' thermal limits, and combine physical and biological data to better predict future conditions and highlight biodiversity most at risk.
- Effective responses to MHWs require action from a broad range of **stakeholders: policymakers,**

researchers, the private sector (fisheries, aquaculture, ecotourism), conservationists, and civil society.

- **Local management agencies** should therefore raise awareness across all stakeholders and implement forecast systems to help achieve a coordinated response.

Additional information

Kelp forests

- Kelp is a type of **large brown seaweed** that **grows in shallow, nutrient-rich saltwater, near coastal fronts** around the world.
- They are recognized as one of the **most productive and dynamic ecosystems** on Earth.
- Kelps function underwater in the same way trees do on land. They create habitat and modify the physical environment by shading light and softening waves.
- Kelp forests also help protect coastlines by decreasing the power of waves during storms and reducing coastal erosion.

Ocean acidification

- As carbon dioxide (CO₂) dissolves in sea water, it forms **carbonic acid**, decreasing the **ocean's pH**, a process collectively known as **ocean acidification**.
- Ocean acidification has the potential to **change marine ecosystems** and impact many ocean-related benefits to society such as coastal protection or provision of food and income.
- Increased ocean temperatures and oxygen loss act concurrently with ocean acidification and constitute the 'deadly trio' of climate change pressures on the marine environment.
- Changes in species growth and reproduction, as well as structural and functional alterations in ecosystems, will threaten food security, harm fishing industries and decrease natural shoreline protection.
- To combat the worst effects of the deadly trio, CO₂ emissions need to be cut significantly and immediately at the source.
- Sustainable management, conservation, restoration and strong, permanent protection of at least 30% of the ocean are urgently needed.

SOVEREIGN GREEN BONDS TO MOBILIZE RESOURCES FOR GREEN INFRASTRUCTURE

Finance Minister announced that government will be issuing sovereign green bonds for mobilising resources for creating green infrastructure. The proceeds will be deployed in public sector projects, which help in reducing the carbon intensity of the economy.

What are Green Bonds?

- **Green Bonds** are those **issued by any sovereign entity, inter-governmental groups or alliances and corporates**, with the aim that the proceeds of the bonds are utilised for projects classified as **environmentally sustainable**. This will also **improve the ESG** (Environmental, Social and Governance) climate in the country.

Significances of Green Bonds?

- They are a financial innovation designed to facilitate sustainable investing for institutional investors such as pension funds, insurance

companies, mutual funds, and sovereign wealth funds.

- Use of **green bonds for environment-focused projects** is expected to boost financing for clean energy.
- Secure legitimacy in the face of societal level pressures to demonstrate sustainable business practices.
- Demonstrate accountability to identifiable stakeholders with sustainability demands on the organisation.
- Green bonds may offer tax incentives to attract investors, such as tax exemption and tax credits.
- These green bonds have been crucial in increasing financing to sunrise sectors like renewable energy, thus contributing to India's sustainable growth.

Why government is going for Green Bonds?

- It is going to move towards **carbon neutrality**.
- It can help mobilise financial resources for distribution companies as well as for clean energy investors.
- It further moves towards **achieving SDG Goals 2030**.
- It is making aggressive strides towards a low-carbon economy with ambitious targets like

achieving a robust **175 gigawatt of renewable energy** capacity by the year **2022**.

Road Ahead:

We expect 2022 to be another stellar year for issuance of these bonds as Indian companies become increasingly conscious of their carbon footprint. Banks will likely step-up issuance of green debt to fund their growing lending program to accelerate India's energy transition.

CLIMATE CHANGE EFFECT: HIGHEST GLACIER ON MOUNT EVEREST MELTING AT A RAPID PACE, SAYS STUDY

Climate change is causing the highest glacier on Mount Everest to melt at a rapid pace, a new study has found.

- Researchers led by the University of Maine found that the South Col Glacier has lost more than 180ft (54m) of thickness in the last 25 years.

Highlights of the study

- **South Col** is losing ice roughly **80 times faster** than it took for the ice to accumulate on the glacier's surface.
- Ice that took 2,000 years to form on the glacier has completely melted away since the 1990s.
- The highest glaciers on the planet are **impacted by human-source climate change**.
- The glacier's rapid decline could have serious impacts on the mountain, and those who live near it.
- The melt may **result in more avalanches on Everest, or expose more bedrock** that makes the terrain more treacherous for climbers.
- The rate of decline has been blamed on **warming temperatures and strong winds**.
- Millions of people depend on the Himalayan Mountain range for drinking water, and if other glaciers in the region - and worldwide - follow Everest's example, their capacity to provide water for drinking and irrigation could fall significantly.

Mount Everest

- It is Earth's highest mountain above sea level, located in the **Mahalangur Himal sub-range of the Himalayas**.
- The **China-Nepal border** runs across its summit point.
- The Himalayan ranges were thrust upward by **tectonic action** as the **Indian-Australian Plate** moved northward from the south and was **subducted (forced downward) under the Eurasian Plate** following the collision of the two plates between about 40 and 50 million years ago.
- Everest is composed of multiple layers of rock folded back on themselves (nappes).
 - Rock on the **lower elevations** of the mountain consists of **metamorphic schists and gneisses, topped by igneous granites**.
 - **Higher up** are found **sedimentary rocks of marine origin** (remnants of the ancient floor of the **Tethys Sea** that closed after the collision of the two plates).
 - Notable is the **Yellow Band**, a **limestone formation** that is prominently visible just below the summit pyramid.
- The elevation of the summit developed **29,028 feet (8,848 metres)**, plus or minus a fraction, was established by the **Survey of India between 1952 and 1954** and became widely accepted.

CORPORATE NET ZERO PROMISES FOUND TO BE INSUFFICIENT AND RELYING ON CHEAP OFFSETS

Twenty-five of the world's largest corporates, including Apple Inc, Accenture Plc, Google LLC, Amazon.com, Inc, Unilever Plc and Nestle SA, account for five per cent of global greenhouse gas (GHG) emissions.

- They have **all made zero emissions, net zero or carbon-neutral pledge** under the hood of ambiguity, a lack of real ambition and an overdependence on controversial copouts like carbon offsets.
- NCI found that the pledges in reality only commit to reduce emissions by 40 per cent on average, not 100 per cent as suggested by the terms 'net zero' and 'carbon neutral'.

Carbon offsetting:

- Carbon offsets are **credits for reductions in greenhouse gas emissions made at another location, such as wind farms which create renewable energy and reduce the need for fossil-fuel powered energy.**
- Carbon offsets are quantified and **sold in metric tonnes of carbon dioxide equivalent (CO₂e).**
- Buying **one tonne of carbon offsets means** there will be **one less tonne of carbon dioxide** in the atmosphere than there would otherwise have been.

Benefits of carbon offsetting

- Carbon offsets send a **direct market signal by putting economic value on a commodity that has historically not been priced.**
- For a carbon offset to be credible it must meet essential quality criteria, that it will be retired from the carbon market so **it cannot be double counted**, and that it **addresses issues such as permanence and leakage.**
- Projects that are issued offset allowances to **trade on the voluntary market have to meet the registry's rules and requirements.**
 - **follow specific third-party approved methodologies**
 - **monitor emission reductions and avoidances**
 - **be validated/verified by third parties.**

- Carbon offsets have a **diverse plethora of project types** that can aid a company in not only reducing its emissions but also build a narrative such as: **ecosystem preservation, gender equality, improving impoverished communities, safe drinking water, etc.**
- It also often delivers added **benefits at the project site, such as employment opportunities, community development programmes and training and education.**

Limitations of carbon offsetting

- **Not a fix-all solution** for reducing corporate GHG emissions.
- offsets are a cost and **do not have a financial return-on-investment** compared to other operational efficiencies such as on-site solar.
- It can be viewed as **"green washing"** if used improperly.
- The other limitations of offsets **concern target setting.**

Way forward

- The regulatory climate is always changing and could endanger long-term strategies centered around offsets. For these reasons, Inogen Alliance recommends that carbon offsets be considered just one tool used within the overall decarbonization strategy.
- **Carbon offsets paired with renewable energy certificates, power purchase agreements, and operational changes such as: energy efficiency, on-site renewables, down-sizing, and green product sourcing can be a powerful tool in reaching carbon-neutrality.**

Additional information

Net Zero Emissions:

- 'Net zero' implies that all of a company's GHG – mainly carbon dioxide (CO₂) – **emissions are cancelled out by an equivalent volume of emissions captured or absorbed, resulting in net emissions being zero.**

- Net zero emission means that all man-made greenhouse gas emissions must be removed from the atmosphere through reduction measures, thus reducing the Earth's net

climate balance, after removal via natural and artificial sink to zero.

- This way humankind would be carbon neutral and global temperature would stabilise.

KAZIRANGA NATIONAL PARK IS A NET CARBON EMITTER; CLIMATE CHANGE MAY MAKE IT WORSE

Kaziranga National Park in Assam, home to the largest-population of the **one-horned rhinoceros** in the world, is **releasing more carbon than it is absorbing**.

- This is according to latest research conducted by a group of scientists from the **Indian Institute of Tropical Meteorology**, Pune, Maharashtra and Tezpur University in Tezpur, Assam.
- The research published in the journal Agricultural and Forest Meteorology February 9, 2022, showed that as the planet warms further, the ability of the Kaziranga National Park to absorb carbon would further decrease.

Kaziranga National Park

- Kaziranga National Park lies partly in **Golaghat District** and partly in **Nagaon District of Assam**.
- It is the **oldest park in Assam** along the river **Brahmaputra on the North** and the **Karbi Anglong hills on the South**.
- Kaziranga was designated a **UNESCO World Heritage site in 1985**.
- It is famous for the **Great Indian One-horned Rhinoceros**.
- The landscape of Kaziranga is of **sheer forest, tall elephant grass, rugged reeds, marshes & shallow pools**.
- It has been **declared as National Park in 1974**.
- Kaziranga with Tiger Reserve also **attracts Ganges Dolphin**.

Why Kaziranga emitting more carbon than absorbing?

- The soil of **deciduous forest** is home to a **large population of bacteria that release carbon dioxide** as they breathe, which adds to the carbon dioxide being emanated by other organisms, including trees.

- The group found that **Kaziranga absorbed the most amount of carbon dioxide during the pre-monsoon season of March, April and May**.
- The **photosynthetic activity of trees during the monsoon decreases due to increased cloud cover**. Hence, the **ability of the forest to absorb carbon dioxide also decreases**.
- The **situation remains the same during the post-monsoon and winter months, making the forest a net carbon emitter**.
- Another observation was the **existence of a greater number of heavier isotopes in the water being released by the trees, through a process known as transpiration**.
- Isotopes of an element, in this case **hydrogen and oxygen**, have the **same atomic number but with different atomic mass**.
- The scientists observed a **strong link between the water and carbon cycles of the forest**.
- They also witnessed a decreasing trend in the rainfall coming from the transpired water in the pre-monsoon months which are responsible for the highest carbon absorption.

About One-Horned Rhino

- It is **native to the Indian subcontinent**.
- It is listed as **Vulnerable on the IUCN Red List**.
- Globally, Indian Rhinoceros (*Rhinoceros unicornis*) has been **listed in CITES Appendix I since 1975**.
- Nearly **85%** of the global Indian rhinoceros population is **concentrated in Assam, where Kaziranga National Park contains 70% of rhino population**.

- As a result of **habitat destruction and climatic changes** its range has gradually been reduced so that **by the 19th century, it only survived in the Terai grasslands of southern Nepal,**

northern Uttar Pradesh, northern Bihar, northern West Bengal, and in the Brahmaputra Valley of Assam.

INDIA TO HAVE TWO NATIONAL CENTRES OF EXCELLENCE IN CARBON CAPTURE & UTILIZATION AT IIT BOMBAY & JNCASR, BENGALURU, SUPPORTED BY DST

The Department of Science & Technology (DST) under the Union Ministry of Science and Technology has established the **National Centre of Excellence in Carbon Capture and Utilisation (NCOE-CCU)** at Indian Institute of Technology (IIT) Bombay.

Carbon Capture Utilisation and Storage CCUS

- **Carbon capture, utilisation and storage (CCUS)** refers to a suite of technologies that can play an important and diverse role in **meeting global energy and climate goals.**
- CCUS involves the **capture of CO₂ from large point sources, including power generation or industrial facilities that use either fossil fuels or biomass for fuel.**
- The CO₂ can also be **captured directly from the atmosphere.**
- If not being used on-site, the captured CO₂ is **compressed and transported by pipeline, ship, rail or truck** to be used in a range of applications, **or injected into deep geological formations** (including depleted oil and gas reservoirs or saline formations) which **trap the CO₂ for permanent storage.**

Why CCUS?

- In the IEA Sustainable Development Scenario, in which **global CO₂ emissions from the energy sector fall to zero on a net basis by 2070, CCUS accounts for nearly 15% of the cumulative reduction** in emissions compared with the Stated Policies Scenario.
- The primary focus involves **understanding the role of CO₂ in the global climate and mitigation strategies of the CO₂ emitted from the industrial and energy sector,** ranging from advances in capture

technologies to subsequent utilization of captured CO₂.

- CCUS is a crucial **climate change mitigation solution** that is constantly advancing in its technology readiness levels for **operational feasibility and economic viability.**

Strategic roles of CCUS technologies in the transition to net zero

Tackling emissions from existing infrastructure:

- In the Sustainable Development Scenario an initial focus of CCUS is on **retrofitting fossil fuel-based power and industrial plants.**
- **By 2030, more than half of the CO₂ captured is from retrofitted existing assets.**

A cost-effective pathway for low-carbon hydrogen production:

- Global hydrogen use in the Sustainable Development Scenario increases sevenfold to 520 mega tonnes (Mt) by 2070.
- **The majority of the growth in low-carbon hydrogen production is from water electrolysis using clean electricity,** supported by 3 300 gigawatts (GW) of electrolyzers (from less than 0.2 GW today).
- **The remaining 40% of low-carbon hydrogen comes from fossil-based production** that is equipped with CCUS, particularly in regions with access to **low-cost fossil fuels and CO₂ storage.**

A solution for the most challenging emissions:

- **Heavy industries account for almost 20% of global CO₂ emissions today.** CCUS is virtually the only technology solution for deep emissions reductions from cement production.

- **By 2070, nearly half of global energy demand for aviation is met by synthetic fuels**, requiring the capture of around 830 Mt of CO₂ for use as feedstock.

Removing carbon from the atmosphere:

- When net-zero emissions are reached in the Sustainable Development Scenario, 2.9 gigatonnes (Gt) of emissions remain, notably in the transport and industry sectors.
- These lingering emissions are offset by capturing CO₂ from bioenergy and the air and storing it.

Road Ahead:

- DST aims to **nurture the area of Carbon Capture, Utilization, and Storage** through emphasis on research and development, and

capacity building of both human resources and infrastructure. The objective is to evolve technologies and methodologies that address issues related to high capital costs, safety, logistics and high auxiliary power consumption.

- **Globally, power and industry account for about 50% of all greenhouse gas (GHG) emissions.** The Carbon Capture, Utilization, and Storage (CCUS) programme aim to reduce carbon emission by either storing or reusing, so that captured carbon dioxide does not enter the atmosphere. The new Center, the IIT Bombay statement said, will act as a multi-disciplinary, long-term research and development, collaboration, and capacity-building hub in Carbon Capture and Utilization.

ELECTRIC VEHICLES CAN LOWER EMISSIONS OF VOLATILE ORGANIC COMPOUNDS IN INDIA BY 2030: STUDY

India can **slash emissions of volatile organic molecules (VOC) by 76 per cent** in the next eight years by **swapping all two- and three-wheelers with electric vehicles** and all diesel-fuelled ones with Compressed Natural Gas (CNG), a new study has predicted.

VOLATILE ORGANIC COMPOUNDS - VOCs

- VOCs are **carbon-containing chemicals released by petrol and diesel vehicles**. They impact air quality and human health.
- VOCs can have a **natural origin**. Plants emit these chemicals to attract pollinators, defend themselves from pests and predators and adapt to environmental stress.
- **Human-made VOCs** are a cause for concern, yet they don't draw enough attention.
- **Benzene, a chemical that induces cancer**, is the only VOC included in the ambient air-quality standards.
- VOCs can **irritate the eyes, nose and throat, damage body organs and cause cancer**.
- VOCs can **drive the formation of other dangerous pollutants** e.g., reaction with sunlight and nitrogen dioxide to form ground-

level ozone that triggers health problems such as cough, difficulty breathing and increases the risk of infections.

- VOCs also **trigger the formation of PM2.5**, a pollutant that reaches deep into the lungs, affecting their normal functioning.

Solutions for improving air quality

- Adoption of **electric vehicles**.
- This intervention could lower the emissions of black carbon — a sooty black material coming from gas and diesel-powered vehicles — by 50 per cent.
- Use **paints with low VOCs** in public or private institutions as well as at home e.g., technical paints or green paints.
- Promote **vertical farming** in your vicinity.
- The biggest factor to consider when reducing VOC exposure is the **off-gassing process** through cross-ventilation indoor.
- **Installing air purifier near a workspace** is a good way to lower the concentration of dangerous chemicals in the air.

Conclusion

Reducing the concentration of VOCs indoors and outdoors is an important health and environmental goal. However, it is important to understand that there are VOCs of

concern indoors and outdoors that do not impact photochemical oxidation and therefore are not regulated by EPA.

ARCI SCIENTISTS DEVELOP ENERGY-EFFICIENT METHOD FOR HYDROGEN PRODUCTION WITH LESS CARBON FOOTPRINT

ARCI Scientists develop **energy-efficient method for hydrogen production with less carbon footprint** with **high purity (99.99%) from methanol-water mixture** at ambient pressure and temperature that uses only one-third of the electrical energy required in water electrolysis.

Hydrogen Energy production?

- With near-zero or zero end-use emissions and **continually replenished fossil fuel resources**, hydrogen can be an ideal sustainable energy carrier and would play an immense role in the near future.
- Hydrogen is gaining much attention due to its **high specific energy value of 40 kWh/kg** as compared to **chemical fuels like gasoline, diesel, liquid petroleum gas** (12-14 kWh/kg).
- The most abundant raw material containing hydrogen is water. It is also **present in natural gas, petroleum, and biomass, and they can form the source for generation of hydrogen.**
- For India's **energy transition to clean fuels, adoption of green hydrogen from renewable energy, integrated water electrolysis** process to generate energy would bring in significant benefits.

Various Uses of Hydrogen Energy

- Hydrogen is generated as a **by-product in Chlor – Alkali industries**. Earlier, it was used partly for non-energy applications, and the balance part was either flared or vented out in the atmosphere.
- Hydrogen is produced for **non-energy applications, e.g., in fertilizer industries and petroleum refineries.**
- Hydrogen fuelled **small power generating sets, fuel cell buses, three-wheeler, two-wheeler (motorcycles), and catalytic**

combustion systems for residential and industrial sectors have also been developed and demonstrated.

Advantages of Hydrogen Energy

- It's a **Renewable Energy Source and Bountiful in Supply**. The Use of Hydrogen Greatly **Reduces Pollution**.
- Numerous **sources to produce Hydrogen locally**, it can be **produced from methane, gasoline, biomass, coal or water.**
- When hydrogen is burnt to produce fuel, the **by-products are totally safe**, which means they have **no known side effects**.
- It is a **non-toxic substance** that is **rare for a fuel source**. This means that it is friendly towards the environment and **does not cause any harm or destruction to human health.**
- **When hydrogen is combined with oxygen in a fuel cell, electricity is produced**, which can be used to power vehicles or drive an electric motor as a heat source and for many other uses.
- When it combines with oxygen, the only by-products are water and heat, which is the advantage of using **hydrogen as an energy carrier.**

Disadvantages of Hydrogen Energy

- **Electrolysis and steam reforming**, the two main processes of **hydrogen extraction, are extremely expensive.**
- A **lot of research and innovation is required to discover cheap and sustainable ways to harness this form of energy.**
- Hydrogen is a **highly flammable and volatile substance** that **lacks smell**, which makes any leak detection almost impossible. To detect leaks, one must install sensors.

- It's a **daunting task to transport hydrogen brilliantly due to its lightness.**
- Separation from oxygen requires other non-renewable sources such as coal, oil and natural gas. **Fossil fuels are still needed to produce hydrogen fuel.**

Road Ahead:

- Even if hydrogen were to become cheap right now, it would take years to become the most used source of energy since vehicles themselves and

service stations would need to be customized to conform to hydrogen requirements. This would require **massive capital outlay.**

- It's a fact that hydrogen energy is a renewable resource because it's abundantly available, and its impacts hugely neglected. We may be able to minimize over-reliance on fossil fuels when we embrace hydrogen energy, but it will be daunting to get rid of it from the system.

WHO'S AFRAID OF A GLOBAL PLASTIC TREATY?

When the world's governments meet at a **United Nations Environment Assembly (UNEA)** on 28 February – 2 March 2022, top of the agenda will be the creation of a **global treaty on plastics.**

- The UN Environment Programme (UNEP) says **8 million tonnes of plastic waste end up in our oceans** every year, and forecasts suggest this could double by 2025 if we don't take drastic action.

About Plastic

- **In 1907 the invention of Bakelite** brought about a revolution in materials by introducing truly synthetic plastic resins into world commerce.
- By the end of the 20th century, **plastics had been found to be persistent pollutants** of many environmental niches, from Mount Everest to the bottom of the sea.
- **Plastic is a polymeric material**—that is, a material whose molecules are very large, often resembling long chains made up of a seemingly endless series of interconnected links.
- Plastic pollution, accumulation in the environment of synthetic plastic products to the point that they create problems for wildlife and their habitats as well as for human populations.

Problems associated with plastic

- Synthetic plastics are largely **nonbiodegradable**, they tend to persist in natural environments.
- In the ocean, plastic pollution **can kill marine mammals** directly through entanglement in

objects such as fishing gear, but it can also kill through ingestion, by being mistaken for food.

- **Drainage systems become clogged** with plastic bags, films, and other items, causing flooding.
- **Wind-transported microplastic fibres and particles have been detected in snow deposited high atop mountains and on Arctic beaches and sea ice which acts as helping hand in Climate Change.**
- **Phthalates are plasticizers**—softeners used to make plastic products less brittle.
- They are **found in medical devices, food packaging, automobile upholstery, flooring materials, and computers as well as in pharmaceuticals, perfumes, and cosmetics.**
- **BPA**, used in the manufacture of clear, hard polycarbonate plastics and strong epoxy coatings and adhesives, is present in packaging, bottles, compact discs, medical devices, and the linings of food cans.
- **PBDE** is added to plastics as a flame retardant.
- All these compounds have been **detected in humans and are known to disrupt the endocrine system.**

Steps taken worldwide for getting rid of menace of plastic

- **Plastic Fischer** applying a principle of locally built, low-tech and low-cost, they created their "**Trash Boom**" – a floating barrage that is

stretched across a river to capture plastic waste as the current takes it downstream.

- Plastic Fischer plans to rapidly scale up deployments in Indonesia, Viet Nam and India. The company will make the **open-source technology**, to increase opportunities to capture plastic in rivers around the world.
- **River Recycle**, the business aims to **install 500 cleaning and recycling points on the rivers** that discharge the most plastic pollution into oceans. Communities hosting the company's technology benefit not only from a cleaner environment, but also from **new jobs created** to service the recycling process. River Recycle's projects include a facility on the Mithi River in Mumbai, India.
- The **Blue Flag tag or Blue Flag certification** is one of the world's most recognised voluntary eco-labels. It is awarded to beaches, marinas and sustainable boating tourism operators.
- The certification is awarded by the Denmark-based non-profit Foundation for Environmental Education or FEE. It is awarded annually to beaches and marinas in FEE member countries.
- The Blue Flag beaches are considered the cleanest beaches in the world. Around fifty countries currently participate in the program, and over 4,000 beaches, marinas, and boats have this certification.

Steps taken by India to eliminate plastic pollution

- **India aims to phase out single use plastic by 2022.**
- The waste management infrastructure in the States/UTs is being strengthened through the **Swachh Bharat Mission**.
- The following steps have also been taken to strengthen implementation of **Plastic Waste Management Rules, 2016** and also to reduce the use of identified single use plastic items:
 - (i) the States/UTs have been requested to constitute a **Special Task Force**.
 - (ii) A **National Level Taskforce** has also been constituted by the Ministry for taking coordinated efforts.

- The Government has also been taking measures for **awareness generation** towards elimination of single use plastics and effective implementation of Plastic Waste Management Rules, 2016. A two-month long **Awareness Campaign of Single Use Plastic 2021** has been organized.
- The **India Plastic Challenge – Hackathon 2021**, has been organized for students of Higher Educational Institutions and start-ups recognized under Start-up India Initiative.

What can be done to eliminate plastic waste?

- **Creation of a modelling tool** that allows governments to **measure their plastic waste flows, behaviour change, policy financing and inclusion** that really help support governments in their transition to a circular economy and removing that plastic waste and pollution from their nature, for good.
- There should be an **aligned approach**, allowing governments to work together collectively and then hopefully to join a system where there would be much higher, much more stringent requirements and ensuring accountability.
- Strengthening the **Global Plastic Action Partnership**, a public private platform that was born at the World Economic Forum, specifically to help governments to identify ways to address this issue and to **provide training for plastic waste management**.
- We need that **global goal to be translated into a set of common global standards, rules, regulations – including bans, that the world can agree to**.

Road Ahead:

- Plastic is a very practical product for a lot of purposes, and it will still be with us. But the problem, of course, is the way we use plastic when it ends up as plastic litter, when we throw it into nature, when it ends up in the oceans, and then it becomes a global phenomenon because the oceans move plastics around and the problem of one contributes to the problem of another country. We then drink the water, even if it's

filtered, we eat the fish and eventually the plastics end up in us. So, plastics is not only the stuff you find lying around, it's even inside ourselves.

- We all need a global treaty that is bold. We should not fall short of ambition. To really build for ourselves a beautiful world, we need standards, goals, targets to support the implementation, and we need to also be very proactive in thinking about incentives, disincentives for change. One of the things we need to address is the cost economics, single use plastics, virgin material, life cycle assessments from production to usage.

Additional information

Great Pacific Garbage Patch (GPGP)

- The Great Pacific Garbage Patch (GPGP) is the **largest of the five offshore plastic**

accumulation zones in the world's oceans. It is located halfway between Hawaii and California.

- It is estimated that 1.15 to 2.41 million tonnes of plastic are entering the ocean each year from rivers. More than half of this plastic is less dense than the water, meaning that it will not sink once it encounters the sea.
- The GPGP covers an estimated surface area of 1.6 million square kilometers, an area twice the size of Texas or three times the size of France.
- Due to seasonal and interannual variabilities of winds and currents, the GPGP's location and shape are constantly changing. Only floating objects that are predominantly influenced by currents and less by winds were likely to remain within the patch.

UNDERSTANDING OCEANS: WHY UNESCO WANTS TO MAP 80% OF THE WORLD'S SEABED

Around 80 per cent of the world's ocean floors will be mapped by 2030, pledged the United Nations Educational, Scientific and Cultural Organization (UNESCO) February 10, 2022.

- A total funding of \$5 billion (over Rs 37,600 crore) will be required for the project. This amounts to an average of \$625 million per year by 2030.
- At present, only 20 per cent seabed has been mapped and studied, the UN agency in charge of ocean sciences said.

Need of Sea-bed Mapping?

- The repository of knowledge will be gained through studying the topology and depth of seafloors to identify the following:
 - **Location of ocean faults**
 - **Workings of ocean currents and tides**
 - **Transport of sediments**
- Data gathered will **help understand seismic and tsunami risks, sustainable fisheries resources, ways to deal with oil spills, air crashes and shipwrecks** as well as potential for offshore infrastructure, according to UNESCO.

- They also have a major role to play in **assessing the future effects of climate change**, whether it be temperature increases or sea level rise.
- Research will propel **technological advancements** i.e.,
 - Multiple-beam sonars to measure water height at different points;
 - intensifying the use of sonar on autonomous vessels;
 - transmission of cartographic data

Advantages of sea-bed mapping

- Seafloor bathymetry is essential for **safety of navigation and for establishing the limits of the extended continental shelf (ECS)**.
- Bathymetric data are also fundamental to our ability to **model ocean circulation**, with the predicted location of key circulation features,
- Precise seafloor information, foremost high-resolution bathymetric data, is required to work toward the goal of protecting at least 10% of the world's oceans and to support the achievement of SDG 14 – Life below water – of the agenda 2030 for Sustainable Development.

- It will help in skill training and job creation.

Challenges associated with sea-bed mapping

- **Navigation of autonomous underwater vehicles** is more difficult than navigation of airborne and terrestrial platforms because GPS is not available.
- Even after collaboration at a scientific and technical level to share data, countries may face **geo-political threat**.
- The damage wouldn't be confined to the ocean floor. **Plumes of sediment will have a dire effect on sea life accustomed to clear water.**
- Further, the **plumes might also include toxins** that can pass on to Fishes.
- The **plumes might also reduce the ocean's ability to sequester carbon**—or even release stored carbon into the atmosphere—thereby worsening climate change.
- **Lack of technological advancement and large-scale untapped resources** in the oceans.

- **Threat to marine life.**

Road Ahead:

- Understanding the seafloor and associated processes is closely linked to its bathymetry. Mapping the gaps in the world's oceans will better our knowledge of the seafloor and the oceans in general. This knowledge is a significant contribution to the development of sustainable ocean management plans and allows us to respond appropriately to modern challenges, such as environmental degradation in the marine realm, climate change, geohazards and a growing ocean industry.
- In sum, an increase in data gathering activities combined with effective targeting of future mapping programs and latest technology developments, as well as efficient data processing chains and mapping expertise will be needed if we are ever to deliver knowledge of the seafloor comparable to our knowledge of the land surface.

THE THRILLER OF MALDIVES' DYING MANGROVES AND INDIA'S FUNCTION WITHIN THE QUEST TO SAVE LOTS OF THEM

During one of his daily visits into the mangroves of Neykurendhoo island in northern Maldives, 45-year-old Ibrahim Marif began noticing something strange — the **mangroves were dying**.

- Concerned about the degradation happening in front of him, Marif rushed to tell the island's council members, a local government body that oversees everyday affairs.
- the health of the mangroves had deteriorated to such a degree that the country's **Environmental Protection Agency (EPA)** began to take notice and sent its scientists to the islands to conduct field surveys and laboratory analyses.
- Simultaneously, photographs of the dying mangroves in 11 islands in northern Maldives began flooding social media, showing large patches of grey in between the lush green mangrove forests that had been struggling to survive.

- The sentimental value attached by the Maldivian people to the mangroves meant that the government had to act quickly to find the cause.

Historically importance of Mangroves in Maldives

- The **Maldives is home to 15 mangrove species**, known as 'faa' in the Dhivehi language, including some that are listed as critically endangered by the International Union for Conservation of Nature's (IUCN) Red List.
- But among these, the country is most anxious about saving one particular species that the IUCN lists as being of 'least concern', the **Bruguiera cylindrica**.

What are Mangroves?

- Found in several parts of tropical Asia, as well as in Australia, the **Bruguiera cylindrica can grow up to 20 metres in height** and has a greyish bark.

- While the ecological importance of mangroves has been well-documented, in the Maldives, the *Bruguiera cylindrica* has historically been an important plant, in part because it is a source of food in the country.
- Its propagules, a vegetative structure that detaches from the plant to give rise to a new plant, can be cooked and eaten in various ways.

- During this period, which later came to be known as '**bodu thadhu**', or the 'big famine' in Dhivehi, islands like Kelaa, with large forests of kan'doo faa or the *Bruguiera cylindrica*, became areas with food secure populations.

RENEWABLE ENERGY TO REPLACE DIESEL IN AGRICULTURE BY 2024, SAYS GOVT

Recently, the Union Power Minister R K Singh has said that **India will achieve zero-diesel** use in agriculture and replace the fossil fuel with renewable energy by 2024.

- He stressed the **need for collaborative efforts** between the Central and State Governments towards the large-scale deployment of energy efficiency measures in potential sectors of the economy.
- He emphasised the need to have a state-specific agency dedicated for energy efficiency and conservation.

- He urged that the states should develop action plan to achieve the assigned targets.
- He further said that the central government is working for a new and modern India, which cannot happen without modern power systems, and it look forward to working with all states and UTs to achieve this.
- The minister during the meeting highlighted that the commercial buildings should follow ECBS and the domestic buildings should follow ECO NIVAS and this should be part of the building by-law.

'CLIMATE SMART' AGRICULTURE

In the backdrop of the 2070 carbon neutrality target set by India at the CoP26 in Glasgow, the Union Budget for 2022-23 has listed "**climate action**" and "**energy transition**" as one of the four priorities for the Amrit Kaal.

- The finance minister has made a few announcements in this context, including an additional allocation of **Rs 19,500 crore for solar PV modules**.
- She also talked of co-firing of 5-7 per cent of biomass pellets in thermal power plants, "sovereign green bonds" and a "**battery-swapping policy**".
- India has kept away from the recent EU-US pledge to **slash methane emissions by 30 per cent** by 2030, despite the country being the **world's third largest emitter of methane**.
- As per the national GHG inventory, the agriculture sector emits 408 MMT of carbon-dioxide equivalent and rice cultivation is the third highest source (17.5 per cent) of GHG

emissions in Indian agriculture after enteric fermentation (54.6 per cent) and fertiliser use (19 per cent).

- The Economic Survey 2021-22 points out that the country is over-exploiting its ground water resource (see map), particularly in the northwest and some parts of south India.

What is Climate Smart Agriculture?

- Climate-smart agriculture (CSA) is an approach that **helps guide actions to transform agri-food systems towards green and climate resilient practices**.
- CSA supports reaching internationally agreed goals such as the SDGs and the Paris Agreement.
- It aims to tackle three main objectives:
 - sustainably increasing agricultural productivity and incomes;
 - adapting and building resilience to climate change; and

- reducing and/or removing greenhouse gas emissions, where possible.

Key characteristics of CSA

- **CSA addresses climate change:** Contrary to conventional agricultural development, CSA systematically integrates climate change into the planning and development of sustainable agricultural systems.
- **CSA integrates multiple goals and manages trade-offs:** Frequently, when it comes time to implement CSA, trade-offs must be made. This requires us to identify synergies and weigh the costs and benefits of different options based on stakeholder objectives identified through participatory approaches.
- **CSA maintains ecosystems services:** Ecosystems provide farmers with essential services, including clean air, water, food and materials. It is imperative that CSA interventions do not contribute to their degradation. Thus, CSA adopts a landscape approach that builds upon the principles of sustainable agriculture but goes beyond the narrow sectoral approaches that result in uncoordinated and competing land uses, to integrated planning and management.

- **CSA has multiple entry points at different levels:** CSA should not be perceived as a set of practices and technologies. It has multiple entry points, ranging from the development of technologies and practices to the elaboration of climate change models and scenarios, information technologies, insurance schemes, value chains and the strengthening of institutional and political enabling environments.
- **CSA is context specific:** Interventions must take into account how different elements interact at the landscape level, within or among ecosystems and as a part of different institutional arrangements and political realities. The fact that CSA often strives to reach multiple objectives at the system level makes it particularly difficult to transfer experiences from one context to another.
- **CSA engages women and marginalised groups:** To achieve food security goals and enhance resilience, CSA approaches must involve the poorest and most vulnerable groups. Gender is another central aspect of CSA. CSA strives to involve all local, regional and national stakeholders in decision-making.

JUST TRANSITION DECLARATION - CAN IT BE THE WAY TOWARDS ACHIEVING UNIVERSAL ACCESS TO CLEAN COOKING FUELS AND TECHNOLOGIES?

The **Just Transition Declaration** was agreed at the United Nations Climate Change Conference held at Glasgow during November 2021 and was signed by more than 30 countries.

- The concept of a “**Just Transition**” was initiated in the 1970s when the Labour Unions of the United States expressed their **concern for the workers** whose jobs were threatened due to environmental regulations.
- Today, the concept is much broader and encompasses a wide range of aspects and actors influenced by the large-scale transition towards a cleaner environment.

What is Just Transition?

- The global understanding describes ‘Just Transition’ as a process “towards an **environmentally sustainable economy**, which needs to be well managed and contribute to the goals of decent work for all, social inclusion, and the eradication of poverty.”
- The **International Labour Organisation (ILO)** adopted the concept of Just Transition in the year 2013 and published the guidelines for Just Transition in the year 2015.
- Further, Just Transition found its space in the preamble of the **Paris Agreement on Climate Change in 2015**.

- The **Just Transition Declaration** agreed to at **Glasgow** supports the transition to **net zero emissions** following the guidelines of Just Transition.

The principles of Just Transition Declaration

- Support for workers in the transition to new jobs;
- support and promote social dialogue and stakeholder engagement;
- economic strategies;
- local, inclusive, and decent work;
- supply chains; and
- Paris Agreement reporting and Just Transition.
- **Attempt to place the changes of transition to clean cooking fuels as per the first five principles of Just Transition Declaration.**
- **Support for workers in the transition to new job opportunities** locally emerge such as for installations, repairs, and maintenance for electricity, solar, and biogas-based technologies. However, these new opportunities demand new skill sets.
- **Support and promotion of social dialogue and stakeholder engagement** is required at various levels including international, national, local, and industrial.
- The strategies towards **environmentally sustainable economy** would also demand meticulous planning for manufacturing/processing and distribution of clean cooking fuels and technologies as well as for mainstreaming the local population in the newly created opportunities.
- The **creation of local, inclusive, and decent work for all** through diverse range of new supply and service delivery chains.

- **New or scaling up of supply and distribution networks** along with repair services are required in the scenario where the entire population shifts to clean cooking fuels and technologies.

Why clean cooking fuel technology is the need of the hour?

- To **reduce household air pollution** emissions to the level of WHO guidelines safe for health.
- They are **ideal bridge fuels to non-intermittent, fully renewable energy options for household energy use.**
- Household air pollution produced by rudimentary cookstoves is so **toxic.**
- **Reliance on traditional use of solid biomass** for cooking contributes to **forest depletion and climate change.**
- Cooking with biomass is also an **enormous burden on families' livelihoods.**
- In rural areas, women and girls can devote up to six hours per day gathering wood or spend a third of household income on fuel.

Road Ahead:

- A complete transition to clean cooking fuels and technologies by itself falls into the framework of 'Just Transition' where the benefit is for all, especially for the women. meticulous planning amplifies the potential towards an environmentally sustainable economy and decent jobs for all at the local level. Thus, 'Just Transition' can be the way to achieve universal access to clean cooking fuels and technologies.

IN A DECADE, WETLAND AREA IN DELHI INCREASED BY 9.3%

The National Wetland Decadal Change Atlas, prepared by **Space Applications Centre** has stated that the total **wetland area in Delhi increased by 9.3%** in the decade following 2006.

- It is mainly on account of transformation of the category and rejuvenation or developmental activities.
- The report revealed that the total wetland area, which was 2,537 hectares in 2006-07, stood at

2,773 hectares in 2017-18 – a jump of 236 hectares.

- While the natural inland wetland area increased by 24 hectares, from 1,333 hectares to 1,357 hectares, the manmade inland wetland area saw a significant rise and went up from 1,204 hectares to 1,416 hectares in the same period.
- Decadal changes (2017-18 vs 2006-07) show an overall 9.3% increase in wetland area.
- The major change has been mainly observed in the waterlogged and tank/pond category.
- They are due to transformation of wetland category and also rejuvenation or developmental activities.

- According to the report, the Yamuna is perhaps the only water body that fulfils the day-to-day requirements of the residents of Delhi.

What is National Wetland Decadal Change Atlas?

- The National Wetland Decadal Change Atlas is prepared by the Space Applications Centre (SAC), Ahmedabad.
- It was also released highlighting the changes which have happened in Wetlands across the country in the past decade.
- The original Atlas was released by SAC in 2011 and has over the years been used extensively by all the State Governments also in their planning processes.

A STOCKTAKING OF BRICS PERFORMANCE IN CLIMATE ACTION

By 2100, global temperature rise (compared to pre-industrial levels) is expected to breach the 1.5°C limit goal determined in the 2015 Paris Agreement.

- According to the Intergovernmental Panel on Climate Change, **global emissions need to be halved over the next decade**, with net-zero emissions achieved by the middle of the century, to successfully bend the temperature curve towards **1.5°C and below**.

BRICS Climate Actions

- The BRICS grouping—comprising **Brazil, Russia, India, China, and South Africa**—has prioritised climate action as one of its fundamental areas of focus and has strived to support the United Nations (UN) and G20 on climate change mitigation and biodiversity protection.
- The BRICS has emphasised the **need for cooperation in adopting the post-2020 Global Biodiversity Framework drafted by the UN Convention on Biological Diversity**, and the BRICS countries have regularly used their position within the G20 to nudge the bloc to consider deep-rooted reforms on climate change, energy efficiency,

environmental assessment benchmarking and energy security.

- Additionally, the BRICS summits have made several futuristic commitments on climate action since the group's inception.
- At the **seventh iteration of the BRICS Environment Ministerial in August 2021**, held ahead of the fifteenth meeting of the **Conference of the Parties (COP) to the Convention on Biological Diversity in October and the Glasgow Climate Change Conference (COP26)** in November, the BRICS reaffirmed its collective cooperation in the fight against climate change, anchored in equity, national priorities and circumstances, and the principles of 'common but differentiated responsibilities and respective capabilities'.

Climate Action Performance: BRICS vs OECD and G20

- **Average annual mean surface temperature change (2016-2019)**, BRICS performs below the G20, OECD and the world on this indicator. The G20 and OECD perform better than the world, while the BRICS's performance is below that of the world by a mere 1.07 percent.
- As per, **Per capita greenhouse gas emissions (2018)** the BRICS's performance exceeds that of

the G20 and OECD on GHG emissions but falls below the world average.

- **Per capita CO₂ emissions from fuel consumption as part of production (2019)** the BRICS performs better than the G20 and OECD, it falls below world performance by a mere 3.65 percent.
- **Effective expenditure incurred on carbon savings (2019)** the expenditure incurred on carbon savings is then adjusted with a correction factor based on per capita GDP to result in what is referred to as the proxy indicative of the 'effective expenditure on carbon savings'. The BRICS outperforms the G20, OECD and the world on this indicator.
- **Effective proportion of coal-powered energy (2019)** the BRICS outperforms the G20 and OECD, its performance is below that of the world.

Assessing India's Climate Policies

- By end-2019, India's total **renewable energy installed capacity** (including large hydropower and nuclear power) had reached more than 136 GW, and the proportion of renewable energy in electricity installed capacity was 37.18 percent.
- Launched in January 2015, **Unnat Jyoti by Affordable LEDs for All (UJALA) and LED Street Lighting National Programme (SLNP)** are the world's largest domestic lighting projects and streetlight replacement programmes, respectively.
- The **Buildings Energy Efficiency Programme** has covered 10,344 buildings,

including railway stations and airports, contributing to energy savings of 224 million kWh per year.

- As part of the **National Electric Mobility Mission Plan 2020**, the Department of Heavy Industry formulated the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME India) Scheme in 2015.
- The **Pradhan Mantri Krishi Sinchayee Yojana** aims to expand irrigation coverage and promote water-use efficiency.

Road Ahead:

- This report has evaluated the climate action performance of the BRICS, G20 and OECD groupings in relation to average annual mean surface temperature change, per capita GHG emissions, per capita CO₂ emissions from fuel consumption as part of production, proxy indicative of effective expenditure incurred on carbon savings, and effective proportion of coal-powered energy.
- Countries can explore cooperation opportunities in energy efficiency, renewable energy, circular economy and ecosystem, and biodiversity protection. The three blocs must consider collaboration in innovation, technology transfer and information and knowledge sharing, and develop best practices in energy efficiency, renewable energy, circular economy and ecosystem, and biodiversity protection. Climate cooperation should also leverage avenues to boost the flow of climate finance to the country's most in need of it within these blocs.

THOUSANDS OF CRIMSON ROSE BUTTERFLIES FLY ACROSS OCEAN FROM INDIA TOWARDS SRI LANKA

The pristine beach of Dhanushkodi at the southern-most tip of the Rameswaram island in the Indian peninsula has witnessed a rare phenomenon over the past few days.

- Thousands of Crimson Rose butterflies swarmed all available flowering plants along the beach. It was their stopover for nectaring, before the butterflies undertook their ultimate flight

towards Sri Lanka, which is around 25 km away from the tip of Dhanushkodi.

Crimson Rose Butterflies

- Crimson Rose, which belongs to the **Swallowtails (Papilionidae) family**, is known to migrate along the coast, inland and crosses the sea often.

- Crimson Rose, a large butterfly with a **mix of black, white and crimson colours** on its wings and body, is known for crossing the sea to migrate to Sri Lanka.
- It is recorded as a species of "**Least Concern (LC)**" by IUCN.
- It is found in **India, Sri Lanka, Maldives** and possibly the coast of **western Myanmar**.
- In India, it is found in the **Western Ghats, southern India (Tamil Nadu, Kerala), eastern India (West Bengal and Odisha)**. It is a **straggler in the Andaman Islands**.
- **Crimson Roses were spotted on Ipomea flowers and Half leaf flowers** on the beach.

SCIENTISTS RAISE ALARM OVER 'DANGEROUSLY FAST' GROWTH IN ATMOSPHERIC METHANE

Methane concentrations in the atmosphere raced past 1,900 parts per billion last year, nearly triple pre-industrial levels, according to data released in January by the **US National Oceanic and Atmospheric Administration (NOAA)**.

- Scientists says the grim milestone underscores the importance of a pledge made at last year's COP26 climate summit to curb emissions of methane, a greenhouse gas at least 28 times as potent as carbon dioxide.

Atmospheric Methane

- Methane (CH₄) is the most abundant organic trace gas in the atmosphere.
- Following water vapor and carbon dioxide (CO₂), **methane is the most abundant greenhouse gas in the troposphere**.
- Both on a molecule and a mass basis, additional methane is actually much more effective as a greenhouse gas than additional CO₂.
- Methane is also the **most abundant reactive trace gas in the troposphere** and its reactivity is important to both tropospheric and stratospheric chemistry.
- The **oxidation of CH₄ by hydroxyl (OH) in the troposphere leads to the formation of formaldehyde (CH₂O), carbon monoxide (CO), and ozone (O₃), in the presence of**

The grandest gathering was on a **Calotropis gigantea plant**, which was the sole plant in the vicinity. Each butterfly spent about 30 seconds on nectaring and then continued its journey towards Sri Lanka.

- The most interesting and visually stunning aspect of the migration was that the **butterflies made small pit stops on flowering plants on the beach to fuel their journey**.
- This gathering just shows the **importance of native beach vegetation** in the journey of a butterfly and the importance of protecting the beaches in their original pristine form.

sufficiently high levels of nitrogen oxides (NO_x).

- Along with CO₂ methane helps **control the amount of OH in the troposphere**.
- Methane also **affects the concentrations of water vapor and ozone in the stratosphere**, and plays a key role in the conversion of reactive chlorine to less reactive HCl in the stratosphere.

Why the Atmospheric Methane is rising?

- For more than a decade, **researchers have deployed aircraft, taken satellite measurements and run models in an effort to understand the drivers of the increase**.
- Potential explanations range from the **expanding exploitation of oil and natural gas and rising emissions from landfill to growing livestock herds and increasing activity by microbes in wetlands**.
- Methane molecules sometimes also contain the **heavier isotope carbon-13**. Methane **generated by microbes** — after they consume carbon in the mud of a wetland or in the gut of a cow, for instance — contains less ¹³C than does methane generated by heat and

pressure inside Earth, which is released during fossil-fuel extraction.

- By studying **methane trapped decades or centuries ago in ice cores and accumulated snow, as well as gas in the atmosphere**, they have been able to show that for two centuries after the start of the Industrial Revolution the proportion of methane containing ^{13}C increased.
- But since 2007, when **methane levels began to rise more rapidly again, the proportion of methane containing ^{13}C began to fall**. Some researchers believe that this suggests that much of the increase in the past 15 years might be due to microbial sources, rather than the extraction of fossil fuels.

Global Methane Pledge

- At COP26 in Glasgow, UK, more than 100 countries signed the **Global Methane Pledge to cut emissions by 30% from 2020 levels by 2030**.
- The emphasis must now be on action, including in **low- and middle-income countries** across the global south.
- Tackling methane is probably the best opportunity we have to buy some time to solve the much bigger challenge of **reducing the world's CO_2 emissions**.

Road Ahead:

NUCLEAR POWER MAY BE THE KEY TO LEAST-COST, ZERO-EMISSION ELECTRICITY SYSTEMS

Nuclear power generation can **play a crucial role** in helping the world **reach a key goal of zero carbon emissions** by the middle of the century, especially in countries with low wind resources, according to new work in Nature Energy from Lei Duan and Ken Caldeira of the Carnegie's Department of Global Ecology.

- According to the Intergovernmental Panel on Climate Change, to minimize catastrophic climate impacts, it's important that humanity work to keep the global mean temperature increase under 1.5 degrees Celsius relative to pre-industrial levels. To achieve this goal, the panel said carbon emissions from across the energy

- Even with present uncertainties on global methane trends, there have been a number of recent advances in measurement technology that have tremendous potential for opportunistic mitigation (i.e., reducing emissions at no net cost). A few notable examples include **identifying large fugitive leaks in oil and gas infrastructure and changing the diet of livestock**.
- Specifically, **remote sensing** has demonstrated the ability to identify anomalous, large emitters and focused programs to use aircraft- or space-based observations to identify and mitigate emissions could prove cost efficient and effective. Recent advances in **frequency-comb spectrometers and affordable, small ground-based sensors** may also provide a **mitigation opportunity for super emitters in oil/gas basins**.
- **Changes in the diet of livestock could reduce the production of methane in dairy cattle without reducing milk production** and, as such, could be an opportunity to reduce methane emissions from livestock. Implementation of these or other mitigation strategies could help to curb future increases in atmospheric methane and provide detectable changes in the global methane burden within decades.

system would have to reach zero by the middle of this century.

What is Nuclear Power?

- Nuclear power is the **use of nuclear reactions to produce electricity**.
- Nuclear power can be obtained from **nuclear fission, nuclear decay and nuclear fusion** reactions.
- Presently, the **vast majority of electricity from nuclear power is produced by nuclear fission of uranium and plutonium** in nuclear power plants.

- Nuclear decay processes are used in niche applications such as radioisotope thermoelectric generators in some space probes such as Voyager 2.
- Generating electricity from fusion power remains the focus of international research.
- Nuclear power is a **clean and efficient way of boiling water to make steam, which turns turbines to produce electricity.**
- Nuclear power plants use **low-enriched uranium fuel** to produce electricity through a process called fission—the splitting of uranium atoms in a nuclear reactor.

Benefits of Nuclear Power

- Nuclear Power plants **don't burn any materials so they produce no combustion by-products.** Additionally, because they **don't produce greenhouse gases**, nuclear plants help **protect air quality and mitigate climate change.**
- Nuclear power plants can continuously **generate large-scale, around-the-clock electricity** for many months at a time, without interruption.
- Although building nuclear power plants has a high initial cost, it's relatively **cheap to produce energy** from them and they have **low operating costs.**
- Nuclear power **doesn't experience the same kind of price fluctuations** that traditional fossil fuel energy sources like coal and natural gas do. Because of that, the **price of nuclear energy can be predicted well into the future.**
- It will open doors of **employment opportunities** for large number of people with required skill sets.
- The nuclear industry supports nearly **half a million jobs in the United States** and contributes an estimated **\$60 billion to the U.S. gross domestic product** each year.
- It is estimated that the **amount of energy released in a nuclear fission reaction is ten million times greater than the amount released when burning fossil fuels.**

Challenges of Nuclear Power

- Commercial nuclear power is sometimes viewed by the general public as a **dangerous or unstable process.** This perception is often based on **three global nuclear accidents**, its false association with nuclear weapons, and how it is portrayed on popular television shows and films.
- Many people view used fuel as a growing problem and are apprehensive about its **transportation, storage, and disposal.**
- Building a nuclear power plant can be discouraging for stakeholders. **Conventional reactor designs are considered multi-billion-dollar infrastructure projects. High capital costs, licensing and regulation approvals, coupled with long lead times and construction delays,** have also deterred public interest.
- Challenging market conditions have left the nuclear industry struggling to compete. **Strict regulations on maintenance, staffing levels, operator training, and plant inspections** have become a financial burden for the industry.

Road Ahead:

- Under strict greenhouse gas emission controls, reliable power generation provided by nuclear power has a lot of potential value in the electricity grid for most nations. Places with poor wind resources can benefit from nuclear earlier in the path to zero emissions, whereas places with very good wind resources would only need it to get rid of the last traces of carbon emissions.
- Our analysis looked at the cheapest way to eliminate carbon dioxide emissions assuming today's prices. We found that at today's price, nuclear is the cheapest way to eliminate all electricity-system carbon emissions nearly everywhere. However, if energy storage technologies became very cheap, then wind and solar could potentially be the least-cost path to a zero-emission electricity system

WASTEWATER, SEASONS, TIDES: HOW GANGA WATER QUALITY IN BENGAL CHANGES EVERY YEAR

Wastewater affects the quality of water in the Ganga in West Bengal, depending on the seasons and tidal currents, according to a new study published February 15, 2022.

- The researchers conducted a comprehensive water quality analysis between 2014 and 2018 to better understand the impact of tides and seasons on the Ganga.

Highlights of study

- The researchers selected five major outfalls, where city wastewater flowed into the Ganga.
 - **Circular Canal in Bagbazar**
 - **Ghusuri in Howrah**
 - **Dakshineswar Canal in North 24 Parganas**
 - **Ballykhal in Howrah**
 - **Khardah Khal** (also known as Titagarh Khal) in North 24 Parganas
- These included measurements known as **Dissolved Oxygen (DO) and Biochemical Oxygen Demand (BOD), heavy metals and total faecal coliform level**, an indicator of potential contamination by human faeces.
- **The Ganga in West Bengal, or Hooghly, is tidal in nature and this influences the dispersion of pollutants from different discharge points, draining into the Bay of Bengal.**
 - **High tide increases water levels** that reach above the invert level of drains. This results in a **backflow of river water into drains.**
 - **Low tide increases the chances of pollution** since there is no excess water to dilute pollutants.
- The analysis, which included **GIS mapping**, showed that **DO and BOD, as well as levels of nitrate nitrogen and chloride, were significantly higher** at each of the five sites in the pre-monsoon season, compared to the monsoon.
 - **During the monsoon** (August-September) and **post-monsoon** (November-December), the **pollution in water decreased** when excess rainwater mixed with river water.

- However, **during pre-monsoon** (March-April), the **level of pollution was high due to minimal volume of water.**

About Wastewater

- Wastewater is the **polluted form of water generated from rainwater runoff and human activities. It is also called sewage.** It is typically categorized by the manner in which it is generated—specifically, as domestic sewage, industrial sewage, or storm sewage (stormwater).

How is wastewater generated?

- **Domestic wastewater** results from water use in residences, businesses, and restaurants.
- **Industrial wastewater** comes from discharges by manufacturing and chemical industries.
- **Rainwater in urban and agricultural areas picks up debris, grit, nutrients, and various chemicals**, thus contaminating surface runoff water.

What are the common pollutants present in wastewater?

- Pollutants are typically categorized as **physical, chemical, and biological.**
- Common pollutants include **complex organic materials, nitrogen- and phosphorus-rich compounds, and pathogenic organisms (bacteria, viruses, and protozoa).**
- **Synthetic organic chemicals, inorganic chemicals, microplastics, sediments, radioactive substances, oil, heat, and many other pollutants** may also be present in wastewater.

How is wastewater processed at a sewage treatment facility?

- **Sewage treatment facilities use physical, chemical, and biological processes** for water purification.
- The processes used in these facilities are also categorized as preliminary, primary, secondary, and tertiary.
 - Preliminary and primary stages **remove rags and suspended solids.**

- Secondary processes mainly **remove suspended and dissolved organics**.
- Tertiary methods **achieve nutrient removal and further polishing of wastewater**.
- **Disinfection**, the final step, destroys remaining pathogens.
- The waste sludge generated during treatment is separately **stabilized, dewatered, and sent to landfills or used in land applications**.

Why is wastewater resource recovery important?

- Wastewater is a **complex blend of metals, nutrients, and specialized chemicals**.
- **Recovery of these valuable materials** can help to offset a community's growing demands for natural resources.
- **Resource recovery** concepts are evolving, and researchers are investigating and developing numerous technologies.
- **Reclamation and reuse of treated water for irrigation, groundwater recharge, or recreational purposes** are particular areas of focus.

Way forward

- Natural treatments, energy conservation, and carbon footprint reduction are some of the key considerations for communities facing energy

and electricity challenges. **Green technologies and the use of renewable energy sources, including solar and wind power, for wastewater treatment** are evolving and will **help minimize the environmental impacts of human activities**.

- Ecological and economical natural wastewater treatment and disposal systems have already gained importance in many places, especially in smaller communities. **The simplicity, cost-effectiveness, efficiency, and reliability** of these systems have provided potential applications for such environmentally friendly technologies.
- Given that **wastewater is rich in nutrients and other chemicals**, sewage treatment facilities have gained recognition as resource recovery facilities, overcoming their former reputation as mere pollution mitigation entities.
- Newer technologies and approaches have continued to improve the efficiency by which energy, nutrients, and other chemicals are recovered from treatment plants, helping create a sustainable market and becoming a revenue generation source for wastewater processing facilities.

INDIAN RESEARCHER TRACES TECTONIC EVOLUTION, NATURE OF GREATER MALDIVES RIDGE

In a recent study, an Indian researcher traced the **tectonic evolution** and the nature of the **Greater Maldives Ridge (GMR)** --- a very crucial geodynamic features in the western Indian Ocean whose origin has been the centre of many a scientific debate.

- The study can help reconstruct the original Gondwanaland break up and dispersal that led to present-day configuration of continents, continental fragments, and formation of ocean basins in the Indian Ocean.

Highlights of the study

- The study, based mainly on the **interpretation of gravity anomalies** (small differences in the pull of gravity caused by the lateral variations of density within the subsurface) with **broadband**

seismic and refraction seismic data, provided for the first time a three-dimensional picture of the variation of Moho along the Greater Maldives Ridge and the adjoining ocean basins.

- The depth to the **boundary between the earth's crust and the mantle or the Mohorovicic discontinuity (Moho) over the GMR was systematically mapped** along with the finer variation of effective elastic thickness (T_e) at the place.
- The research suggests that **Maldives Ridge might have formed in the close vicinity of the Mid-Oceanic Ridge** (where creation of a new ocean floor occurs due to divergent motion of lithospheric plates or spreading centre).

- Meanwhile, the **Deep Sea Channel (DSC) region was under a long transform fault** (offset between the spreading centres, which neither create nor destroy lithosphere), which hindered melt production and gave rise to gap between Chagos and Maldive Ridge during the Plume-ridge interaction.

About Maldives Ridge

- The Maldives Ridge is an **aseismic ridge** that is **not associated with earthquake** activities.
- This ridge, located in the **western Indian Ocean, southwest of India**, is not well investigated.
- It is of paramount importance to **gain knowledge on the structure and geodynamics of aseismic ridges**.
- The crustal architecture and the state of **gravitational equilibrium between Earth's crust and mantle (isostasy) of the Greater Maldive Ridge segment of the larger Chagos-Laccadive Ridge (CLR) system**.
- **Maldive Ridge and Deep-Sea Channel region** may probably be oceanic in nature with the presence of underplated materials associated with the Reunion hotspot volcanism.

Aseismic Ridge?

- Aseismic ridge, a **long, linear and mountainous structure that crosses the basin floor of some oceans. Earthquakes do not occur within aseismic ridges**, and it is this feature that distinguishes them from oceanic spreading centres.
- **Most aseismic ridges are constructed by volcanism** from a hot spot and are composed of coalescing volcanoes of various sizes.

- They are all considered **stable oceanic regions**. These are essentially **made up of basaltic** and other differentiated volcanics.
- Only a few aseismic ridges have been sampled, because of the **thick sediment cover** and the **difficulty in encountering steep outcrops** that would facilitate conventional methods of sampling.
- As **aseismic ridges comprise about 25% of the world's ocean floor**. Most aseismic ridges are **attached to the continental margin**.
- All of the aseismic ridges are **quite old and represent features** that were formed during the **early history of the creation of the ocean floor**.

Mid-ocean ridge?

- The mid-ocean ridge is the **most extensive chain of mountains on Earth**, stretching nearly 65,000 kilometres (40,390 miles) and with more than 90 percent of the mountain range lying in the deep ocean.
- Mid-ocean ridges occur **along divergent plate boundaries**, where new ocean floor is created as the Earth's tectonic plates spread apart.
- As the plates separate, **molten rock rises to the seafloor, producing enormous volcanic eruptions of basalt**.
- The **speed of spreading affects the shape of a ridge** – slower spreading rates result in steep, irregular topography while faster spreading rates produce much wider profiles and more gentle slopes.
- Two well-studied mid-ocean ridges within the global system are the **Mid-Atlantic Ridge and the East Pacific Rise**.

SIGNIFICANCE OF THE BIOLOGICAL DIVERSITY AMENDMENT BILL

The Biological Diversity (Amendment) Bill, 2021, that was tabled in Parliament in December aims to make scientific research and use of biological diversity for traditional medicines.

- Recently, the Indian government referred the Biological Diversity Act Amendment Bill (2021) to a Joint Parliamentary Committee (JPC). The

Bill was developed to amend certain provisions of the Biological Diversity Act (2002). India was one of the earliest countries to have a biodiversity legislation.

Significance of amendment:

- To **reduce the pressure on wild medicinal plants by encouraging the cultivation of**

medicinal plants, that is, **ex-situ conservation of medicinal plants, increasing the farming of medicinal plants**, increasing the scope of the AYUSH system.

- Facilitating **fast-tracking of research patent application process, transfer of research results by utilising the biological research resources available in India**, without compromising the objectives of the Nagoya Protocol.
- It allows people practising traditional Indian systems of medicine – **vaid, hakims, registered AYUSH practitioners, companies making medicinal products – to continue their business without needing to take permission from the National Biodiversity Authority (NBA)** for the use of biological resources.
- The Biological Diversity Act had created a three-tier structure:
 - the NBA;
 - 29 State Biodiversity Boards (SBBs); and
 - more than 250,000 Biodiversity Management Committees (BMC) set up at local self-governing bodies, i.e., gram panchayats and urban panchayats.
- The amendment Bill enables state governments to **constitute intermediate level biodiversity management committees at the district level**.
- One of the provisions in the amendment is that **if a seed company or a farmers' group has an approval or a right granted under the Protection of Plant Varieties and Farmers Rights Act, 2001 (PPVFR Act), then similar permissions are not needed under the Biodiversity Act**.
- The PPVFR Act gives **intellectual property protection for seed companies** for the seeds they have developed, and also gives rights to farmers for their traditionally conserved varieties.

What were the concerns raised?

- **Foreign companies might come to India and gain access to biological material or associated traditional knowledge, and then patent them**, effectively locking them away under intellectual property products. This was the time of the turmeric patent controversy.
- The bill also **exempts cultivated medicinal plants from the purview of the Act**. However, it is practically impossible to detect which plants are cultivated and which are from the wild.
- **Corporate or foreign interests could use the loophole of permissions given to traditional medicine and use it for commercial purposes**, without sharing of benefits with the conservers of biodiversity.
- The main focus of the bill is **to facilitate trade in biodiversity as opposed to conservation, protection of biodiversity and knowledge of the local communities**.

Why is the Biological Diversity Act important?

- It is umbrella legislation in that it **protects India's natural resources, flora and fauna, and the traditional knowledge** associated with them.
- It designed for **conservation, sustainable use and equitable sharing of benefits**.
- The Act also created the three-tier mechanism in the national biodiversity authority, state biodiversity boards and local panchayat-level biodiversity management committees. This structure was put in place to **give value to India's biological diversity and the associated traditional knowledge**.
- It facilitates **fast-tracking of research**, simplify the patent application process, decriminalises certain offences.

Road Ahead:

- This bill would have been an important opportunity to reconcile the domestic law with free prior informed consent requirements of the 2010 Nagoya Protocol on ABS. However, this has been a missed opportunity as the proposed amendments continue to marginalise biodiversity management committees (BMCs).

Their powers have not been enhanced, and the proposed amendments also allow for state biodiversity boards to represent BMCs to determine terms of benefit sharing.

Additional Information

Biological Diversity Act, 2002

- It provides for the **conservation of biological diversity, the sustainable use of its components, the fair and equitable distribution of benefits** arising from the usage of biological resources, and related matters.
- The Act refers to the Convention on Biological Diversity, adopted by the United Nations in 1992, which India is a signatory to.
- **Without the approval of the National Biodiversity Authority, no organisation or person** – an Indian citizen or otherwise – **shall obtain any biological resource occurring in India, or any associated knowledge for research or commercial utilisation.**
- **If the central government believes that an area rich in biological diversity and resources is being threatened by overuse, abuse or neglect, it shall issue directives to the concerned state government to take immediate measures** to tackle this.
- The central government may notify areas as **biological diversity sites; recognise any species on the brink of extinction as threatened; designate repositories** for different categories of biological resources; and **exempt biological resources from falling under the provisions of this Act.**

Nagoya Protocol

- Nagoya Protocol is formally known as **The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the Convention on Biological Diversity.**
- It is a **supplementary agreement to the Convention on Biological Diversity.** The Nagoya Protocol on ABS was adopted on 29 October 2010 in Nagoya, Japan and entered into force on 12 October 2014.
- The Nagoya Protocol also **covers traditional knowledge (TK) associated with genetic resources** that are covered by the CBD and the benefits arising from its utilization.
- Under the Convention of Biological Diversity, and the Nagoya Protocol on Access and Benefit Sharing to which India is a party, it is mandated that **benefits derived from the use of biological resources should be shared in a fair and equitable manner among the indigenous and local communities.**
- When an Indian or foreign company or individual accesses biological resources such as medicinal plants and associated knowledge, it has to take **prior consent from the national biodiversity board.**
- The board can **impose a benefit-sharing fee or royalty** or impose conditions so that the company shares the monetary benefit from commercial utilisation of these resources with local people who are conserving biodiversity in the region.

A KARNATAKA ACTIVIST IS PUSHING FOR DESIGNATED FOREST DESIGNATION FOR THE WESTERN GHATS

Social activist Gireesh Achar has asked the Karnataka Forest Department, the state revenue department and the Union environment ministry to accord deemed forest status to Kan, Jungle, Soppinabeta and Kumki.

- Kan, Jungle and Soppinabeta are patches of minor evergreen forests in the Western Ghat region of Karnataka. Kumki constitutes

government lands which are adjacent to agricultural lands.

Deemed Forests

- While the concept of deemed forests has not been clearly defined in any law including the Forest Conservation Act of 1980, the Supreme Court in the **case of T N Godavarman Thirumalpad**

(1996) accepted a wide definition of forests under the Act.

- “The word ‘forest’ must be understood according to its dictionary meaning. This description covers all statutorily recognised forests, whether **designated as reserved, protected or otherwise for the purpose of Section 2 (1) of the Forest Conservation Act,**” the Supreme Court said in its 1996 order.
- “The term ‘forest land’ occurring in Section 2 will not only include ‘forest’ as understood in the dictionary sense, but also any areas recorded as forest in the government record irrespective of the ownership.
- Those lands which had **50 naturally grown trees per hectare** will be considered as deemed forest.

Forest area of Karnataka

- Karnataka **ranks fourth** among the top five states in terms of increase in forest cover, starting with **Andhra Pradesh (647 sqkm), Telangana (632 sqkm), Odisha (537 sqkm), Karnataka (155 sqkm) and Jharkhand (110 sqkm).**
- **Karnataka’s forest area is about 22.61 per cent of the state’s geographical area.**
- The recorded forest area of Karnataka is 43,356.47 sqkm, as per the annual report of the state’s Forest Department for the year 2014-15.
- Based on satellite data, the report puts Karnataka’s total forest cover at 38,730 sqkm compared to 38,575 sqkm during the previous survey period, with a growth of 0.4%. Comparatively, India’s total forest cover is 7.13 lakh sqkm having recorded a 0.2% (1,540 sqkm) jump from 7.12 lakh sqkm previously.

Western Ghats

- The Western Ghats are **internationally recognized as a region of immense global importance for the conservation of biological diversity**, besides containing areas of high geological, cultural and aesthetic values.
- A chain of mountains running parallel to India’s western coast, approximately 30-50 km inland, the Ghats traverse the States of **Kerala, Tamil Nadu, Karnataka, Goa, Maharashtra and Gujarat.**
- These mountains cover an area of around 140,000 km² in a 1,600 km long stretch that is interrupted only by the **30 km Palghat Gap at around 11°N.**
- **Older than the Himalaya mountains**, the mountain chain of the Western Ghats represents geomorphic features of immense importance with unique biophysical and ecological processes.
- The site’s **high montane forest ecosystems influence the Indian monsoon weather pattern.** Moderating the tropical climate of the region, the site presents one of the best examples of the monsoon system on the planet.
- It also has an exceptionally **high level of biological diversity** and endemism and is recognized as **one of the world’s eight ‘hottest hotspots’ of biological diversity.**
- The forests of the site include some of the best representatives of **non-equatorial tropical evergreen forests** anywhere and are home to at least **325 globally threatened flora, fauna, bird, amphibian, reptile and fish species.**

PM INAUGURATES MUNICIPAL SOLID WASTE BASED GOBAR-DHAN PLANT IN INDORE

Prime Minister Shri Narendra Modi will inaugurate “Gobar-Dhan (Bio-CNG) Plant” in Indore on 19th February.

- Prime Minister recently launched the Swachh Bharat Mission Urban 2.0, with the overall vision of creating “Garbage Free Cities”. The Mission is being implemented under the overarching

principles of “waste to wealth”, and “circular economy” for maximising resource recovery – both of which are exemplified in the Indore Bio-CNG plant.

Gobar-Dhan (Bio-CNG) Plant

- The plant has a capacity to treat 550 tonnes per day of segregated wet organic waste. It is

expected to produce around 17,000 kg per day of CNG, and 100 tonnes per day of organic compost.

- The plant is based on **zero landfill models**, whereby **no rejects would be generated**. Additionally, the project is expected to yield multiple environmental benefits, viz. **reduction in greenhouse gas emissions, providing green energy along with organic compost as fertiliser**.
- Indore Clean Energy Pvt Ltd, a Special Purpose Vehicle created to implement the project, was set up by Indore Municipal Corporation (IMC) and Indo Enviro Integrated Solutions Ltd. (IEISL) under a Public Private Partnership model, with 100% capital investment of ₹150 crores by IEISL.
- Indore Municipal Corporation will purchase a minimum 50% of CNG produced by the plant and in a first-of-its kind initiative, run 400 city buses on the CNG. The balance quantity of CNG will be sold in the open market. The organic compost will help replace chemical fertilisers for agricultural and horticultural purposes.

Municipal Solid Waste

- Municipal solid waste (MSW) is defined as waste collected by the municipality or disposed of at the municipal waste disposal site and includes **residential, industrial, institutional, commercial, municipal, and construction and demolition waste**.
- With rising urbanization and change in lifestyle and food habits, the amount of municipal solid waste has been increasing rapidly and its composition changing.

How to manage municipal waste?

Collection:

- Organizing **house-to-house collection** of municipal solid wastes through any of the methods, like community bin collection (central bin), house-to-house collection, collection on regular pre-informed timings and scheduling by using musical bell of the vehicle.
- **Wastes from slaughter houses, meat and fish markets, fruits and vegetable markets,**

which are biodegradable in nature, shall be managed to make use of such wastes.

- **Construction or demolition wastes or debris shall be separately collected and disposed off following proper norms.**

Storage:

- Storage facilities shall be created and established by **taking into account quantities of waste generation in a given area and the population densities**. A storage facility shall be so placed that it is accessible to users.
- Storage facilities or **'bins' shall have 'easy to operate' design for handling, transfer and transportation of waste**. Bins for storage of bio-degradable wastes shall be painted green, those for storage of recyclable wastes shall be painted white and those for storage of other wastes shall be painted black.
- **Manual handling of waste shall be prohibited**. If unavoidable due to constraints, manual handling shall be carried out under proper precaution with due care for safety of workers.

Processing:

- The biodegradable wastes shall be processed by **composting, vermicomposting, anaerobic digestion or any other appropriate biological processing for stabilization of wastes**.
- Mixed waste containing recoverable resources shall follow the **route of recycling**.
- **Incineration with or without energy recovery** can also be used for processing wastes in specific cases.

Methods of Treatment and Disposal of solid waste

Landfills

- Landfills are generally located in urban areas. It is a pit that is dug in the ground. The **garbage is dumped and the pit is covered with soil everyday thus preventing the breeding of flies and rats**. Thus, every day, garbage is dumped and sealed. After the landfill is full, the area is covered with a thick layer of mud and the

site can thereafter be developed as a parking lot or a park.

Pyrolysis

- It is a process of **combustion in absence of oxygen or the material burnt under controlled atmosphere of oxygen**. It is an alternative to incineration. The gas and liquid thus obtained can be used as fuels.
- Pyrolysis of **carbonaceous wastes like firewood, coconut, palm waste, corn combs, cashew shell, rice husk paddy straw and saw dust, yields charcoal along with products like tar, methyl alcohol, acetic acid, acetone and a fuel gas.**

Composting

- Composting is a biological process in which **micro-organisms, mainly fungi and bacteria, decompose degradable organic waste into humus like substance in the presence of oxygen.**

Vermiculture

- It is also known as **earthworm farming**. In this method, Earth worms are added to the compost. These worms break the waste and the added excreta of the worms makes the compost very rich in nutrients.

What can you do to reduce solid waste?

- **Say no to all plastic bags** as far as possible.
- **Segregate the waste in the house** – keep two garbage bins and see to it that the biodegradable and the non-biodegradable is put into separate bins and disposed off separately.
- **Community storage/collection of waste mechanisms** to be made available in flats, multi-storied buildings, societies, commercial complexes, etc.
- **Pay adequately** for the services provided.
- **Create awareness** among your community.

WILDFIRES WILL BE MORE FREQUENT, LARGER AND INTENSE DUE TO CLIMATE CHANGE: UNEP

Wildfires are predicted to worsen in the coming years and decades, the United Nations Environment Programme (UNEP) has warned in its annual Frontiers report released February 17, 2022.

- Wildfires are a natural phenomenon, but are becoming more dangerous and affecting larger areas. The UN report has attributed this to climate change and human activities.

What is Wildfire?

- A wildfire is an unplanned fire that burnt in a natural area such as a forest, grassland, or prairie.
- Wildfire, also called wildland fire, **uncontrolled fire in a forest, grassland, brushland, or land sown to crops**. The terms forest fire, brush fire, etc., may be used to describe specific types of wildfires; their usage varies according to the characteristics of the fire and the region in which it occurs.

Causes of wildfire

- Wildfires are often **caused by human activity or a natural phenomenon** such as lightning, and they can happen at any time or anywhere.
- Fire danger in a wildland setting varies with weather conditions: **drought, heat, and wind participate in drying out the timber or other fuel, making it easier to ignite.**
- Species rich forests have better resistance to fire.
- Different trees have **varying degree of fire resistance depending on the thickness of bark.**
- Bushfire triggers explosive storm called **Pyro Cumulonimbus** and it inject particles as high as 10 miles in the air.

Why more Wildfires in present times?

- The trends towards more dangerous fire-weather conditions are likely to increase due to **rising concentrations of atmospheric greenhouse gases** and the attendant escalation of wildfire risk factors.

- There has been a **rapid expansion of cities towards forest areas** in many regions in recent decades. This **wild land-urban interface** is the area where wildfire risks are most pronounced.
- Wildfires seldom spread to **humid tropical forests** in the past. But these forests are **now more vulnerable due to deforestation and forest fragmentation**.
- **Extreme weather events** such as hotter temperatures and more droughts lead to longer fire seasons and increase the likelihood of fire weather condition.
- **Lightning strikes** are projected to increase in frequency in some parts of the world as the climate changes. Lightning ignition is the predominant driver of massive wildfires in the boreal forests of North America and northern Siberia.

Benefits from wildfire

- Wildfires also help **keep ecosystems healthy**.
- They can **kill insects and diseases** that harm trees.
- By clearing scrub and underbrush, **fires can make way for new grasses, herbs, and shrubs that provide food and habitat for animals and birds**.
- At a low intensity, **flames can clean up debris and underbrush on the forest floor, add nutrients to the soil, and open up space to let sunlight through to the ground**. That sunlight can nourish smaller plants and give larger trees room to grow and flourish.

Impact of Wildfires

- Wildfires **increase air pollution** in surrounding areas and can affect regional air quality.
- The effects of smoke from wildfires can range from eye and respiratory tract irritation to more serious disorders, including **reduced lung function, bronchitis, exacerbation of asthma and heart failure, and premature death**.
- Many **native species can be pushed to threatening level** as species lost their lives.

- Wildfires simultaneously **impact weather and the climate** by releasing large quantities of **carbon dioxide, carbon monoxide and fine particulate matter into the atmosphere**.

How to tackle wildfires?

- **Wildfire prevention, response and management calls for improved planning and policies coupled with practices**. It is important to enhance fire-fighting capabilities and strengthen community resilience-building programmes.
- **A preventive approach**, rather than reactive approach by engaging vulnerable groups, will help adapt to the wildfires.
- **Appreciating and adopting indigenous fire management techniques**. Focus on long-range **weather forecasting**.
- Focus on **remote-sensing capabilities** such as satellites, ground-based radar, lightning detection as well as data handling.
- **Firefighting forces** specially trained to deal with wildfires are maintained by public and private owners of forestlands. Such a force may attack a fire directly by spraying water, beating out flames, and removing vegetation at the edge of the fire to contain it behind a fire line.

Road Ahead:

- **Backfiring** is used only as a last resort. Prescribed fires, in which controlled fires are intentionally set to decrease the fuels in a given area and to promote the health of fire-adapted ecosystems, can be used to prevent or mitigate wildfires. Airplanes and helicopters are primarily used for dumping water, for observation, and occasionally for assisting in communication and transporting personnel, supplies, and equipment.
- In this era of warmer, drier summers and longer fire seasons, there are no fire- or smoke-free solutions. The current approach to fire management poses unnecessarily high stakes for Western forests. There is no doubt that the future of Western forests is a fiery one.

GREEN FINANCING CRITICAL TO DECARBONIZING THE INDIAN TRANSPORT SECTOR

NITI Aayog and World Resources Institute (WRI), India, with the support of GIZ India, conducted a virtual consultation workshop on 'Financing for Decarbonization of Transport' as part of the NDC-Transport Initiative for Asia (NDC-TIA) project.

- The Government of India is actively working towards the decarbonization of transport, with a major focus on the adoption of sustainable mobility.

Why 'Financing for Decarbonization of Transport'?

- The aim of the workshop is to **identify actionable strategies and bring together financing institutions and transport organizations** to collectively work towards furthering innovative financing policies for the decarbonization of transport.
- Green financing will **enable low interest cost** financing of electric vehicles.
- We need **more such financial instruments** to provide a further impetus to clean mobility in India. This is why we **need to bring states, domestic and international financial institutions, manufacturers and operators on the same page**.
- Our overarching aim should be to **balance the needs and aspirations of our citizens, improve liveability and productivity by improving connectivity, bring down the cost of logistics and accelerate clean mobility** while taking an approach which is climate-centric and sustainable—not just from an environment point of view, but also from a financial perspective.
- It is also the **most rapidly growing sector** in the country. Therefore, moving towards a low carbon future would necessarily include accelerated decarbonizing of the transport sector.

Challenges in Financing for Decarbonisation of Transport

- The lack of **availability of financing** is one of the biggest impediments towards the decarbonization of the transport sector.

- **Transport, the third-most greenhouse-gas-emitting sector** in India, accounts for 14% of our energy-related CO₂ emissions.
- Lack of **proper infrastructure** such as charging stations for e-vehicles, etc.
- Lack of **technological advancement**.
- Lack of **public awareness** creates one of the biggest hurdles.

Steps taken

- **Strategic investments and innovative financial solutions** can kickstart an accelerated transition to 100% zero-emission motor vehicles, which is an essential takeaway from the COP26 declaration.
- **Tools such as the GRA can help inform governments' investment** and policy choices to achieve sustainable mobility based on data and evidence.
- **Government leaders and transport stakeholders** also need to be proactive in adapting to changing demands and needs.
- We must **foster shared mobility by leveraging private sector investments** and unlocking financing for e-buses, which form the core of public transportation in our cities.
- Measures to decarbonise transport: **Avoid, shift, improve**. Transport decarbonisation measures aim to avoid unnecessary travel, shift necessary travel to sustainable modes and improve vehicle and energy technologies.

Way Forward

- India requires a robust roadmap for the electrification of transport. Financing plays a crucial role here. Mobilization of capital is possible through multi-stakeholder collaborations. The NDC-TIA initiative brings together a wide spectrum of participants to facilitate peer-to-peer learning and information exchange on various themes, including "Financing the Decarbonization of Transport".

Invasive alien species (IAS) of plants, animals and microbes lead to losses running up to billions of dollars annually in every part of the world, particularly in sub-Saharan Africa, according to a new report. The region has seen the arrival of many IAS in recent years.

- Africa may lose about **\$3.66 trillion annually** from the impact of the IAS on agriculture and other vital food production programmes, a 2021 study showed.

Highlights of the study

- The new study was conducted in Ghana on **nearly 200 potentially harmful alien plant species that can affect agriculture, forestry and biodiversity.**
- The objective of the study was to **employ horizon scanning to establish a list of potentially invasive alien plant pests** that may be harmful to Ghana's agriculture, forestry or biodiversity if introduced.
- The aim of the study was to **enable prioritisation of actions, including pest risk analysis, prevention, surveillance and contingency plans.** It can serve as a model for future projects on plant pests' prioritisation in Africa and elsewhere.
- Among the **top arthropods prioritised by researchers were the pink hibiscus mealybug (Maconellicoccus hirsutus Green) and melon thrips (Thrips palmi Karny).** The top pathogens highlighted include cassava brown streak virus and Maize lethal necrosis disease.

Invasive Alien Species

- The International Union for the Conservation of Nature defines an alien species as a species **introduced outside of its natural range.** They may be brought in by people accidentally or intentionally into regions where they do not exist.
- An invasive species can be **introduced to a new area via the ballast water of oceangoing ships, intentional and accidental releases of aquaculture species, aquarium specimens or bait,** and other means.

- There are around **18,000 invasive alien species around the world,** according to another study by an international team of scientists from 13 countries.

Impact of Invasive Species

- Invasive species can **harm both the natural resources in an ecosystem as well as threaten human use of these resources.**
- Invasive species are capable of **causing extinctions of native plants and animals, reducing biodiversity, competing with native organisms for limited resources, and altering habitats.** This can result in huge economic impacts and fundamental disruptions of coastal and Great Lakes ecosystems.
- The direct threats of invasive species include **preying on native species, outcompeting native species for food or other resources, causing or carrying disease, and preventing native species from reproducing or killing a native species' young.**
- Invasive species can **change the food web** in an ecosystem by **destroying or replacing native food sources.** The invasive species may provide little to no food value for wildlife.
- Invasive species can also **alter the abundance or diversity of species** that are important habitat for native wildlife.

Curbing the Spread of IAS

- One way to curb the spread of invasive species is to **plant native plants and remove any invasive plants in your garden.** There are many good native plant alternatives to common exotic ornamental plants.
- **Learn to identify invasive species in your area,** and report any sightings to your county extension agent or local land manager.
- **Regularly clean your boots, gear, boat, tires, and any other equipment you use outdoors to remove insects and plant parts** that may spread invasive species to new places.
- When camping, **buy firewood near your campsite (within 30 miles) instead of**

bringing your own from home, and leave any extra for the next campers. Invertebrates and plants can easily hitch a ride on firewood you haul to or from a campsite—you could inadvertently introduce an invasive to a new area.

- Invasive species can spread like wildfire. You can do your part by **volunteering at a local removal effort, or just taking the time to pluck the invasives** from your own yard.

IS INDIA 's DRAFT RESOLUTION TO TACKLE PLASTIC POLLUTION PRACTICAL

India released a draft resolution to address **plastic pollution** January 28, 2022, ahead of the **fifth United Nations Environment Assembly (UNEA 5.2)** to be held in **Nairobi**. India's draft, with the proposed title **Framework for addressing plastic product pollution** including single use plastic product pollution, recalled its resolution made during UNEA-4 in 2019. **Plastic pollution and marine litter mostly originate in land-based sources**, India mentioned.

India 's draft resolution to tackle plastic pollution

- India's framework **proposed a voluntary approach rather than a legally binding one**, unlike drafts presented by some other countries.
- The draft also addressed concerns about increased use of single-use plastic (SUP) and the role of packaging in the increase in the volume of disposable SUP.
- India emphasised the need for **all the relevant stakeholders to get involved**.
- India's draft resolution **encouraged member states to improve resource efficiency, implement extended producer responsibility (EPR), develop sustainable packaging products and develop policies for promoting recycling**.
- India also invited member states to prepare national / regional action plans to reduce use of single-use plastic, enhance cooperation in scientific research for SUP alternatives and provide statistical data to UNEP for help preparing **Legal and policy forum, Technology forum, Finance forum and Monitoring and reporting forum**.

- **India has notified phasing out of selected single-use plastic items from July 1, 2022**. It has also notified the draft EPR regulations in the subcontinent, which focus on collection targets, recycling targets, reuse and use of recycled content in packaging.

Other draft resolutions in consideration

- **Rwanda and Peru jointly** had presented a resolution at the Ministerial Conference on Marine Litter and Plastic Pollution in September 2021. **Japan** also presented a resolution in December 2021.

Convergences in Rwanda-Peru and Japan resolutions:

- **Call for quick negotiation**
- **Call for a legally binding instrument**
- **Call for Intergovernmental negotiating committee**
- **Propose common elements** like national plans, technical support, capacity building and considerations for economies in transition

Differences in scope of Rwanda-Peru and Japan resolutions

- The Rwanda-Peru resolution **seeks to address plastic pollution in all the compartments of the environment (land, air and water)**, whereas the Japan resolution focuses specifically on marine plastic pollution.
- The Rwanda-Peru resolution promotes a **full lifecycle approach with interventions at upstream, midstream and downstream**. The Japan resolution mentions a "lifecycle" but emphasises heavily on downstream interventions like **monitoring and**

reducing discharge into the marine environment by 2050.

- The **Japan resolution also has deleted** at least a couple of operative paragraphs on **sustainable production and consumption and product design**, both of which are important interventions at an upstream level.

Road Ahead:

- The plastic treaty has to be legally binding and not voluntary as suggested by the draft

resolution presented by India. Moreover, the entire plastic life cycle right from extraction to dumping has to be taken into consideration.

- Developing a treaty that just focuses on marine litter and micro-plastics should be avoided, due to the fact that both marine litter and micro-plastics are both sourced from plastic waste generated by post-consumer use primarily from land-based sources.

ACCELERATING MELT RATE MAKES GREENLAND ICE SHEET WORLD'S LARGEST 'DAM'

For the past seven years, a science team from the University of Cambridge has been studying **meltwater lakes pooled atop the Greenland Ice Sheet**, seeking to better understanding the role they play in the behaviour of the massive body of ice as a whole.

- The latest findings reveal that meltwater is falling to the base through cracks in the surface with such force, the power produced is comparable to that generated by the world's largest hydroelectric power station, creating a melting effect at the bottom that is "completely unprecedented."

Highlights of the Study

- The **sources of heat like friction, geothermal energy, latent heat released where water freezes and heat losses into the ice above.**
- The **heat generated by the draining meltwater itself.**
- There's a lot of **gravitational energy stored in the water that forms on the surface and when it falls, the energy has to go somewhere.**

Causes of Melting Ice Glaciers

- The **burning of fossil fuels** has resulted in the build-up of greenhouse gases in the environment thus influencing the warming trend because they trap heat in the atmosphere.
- The **oil and gas extraction** process also emit Methane, which is the main constituent in natural gas. Plus, the gas is more damaging to the environment than carbon dioxide, locking in heat more efficiently and escalating global warming.

- **Deforestation** has a lot of negative effects such as the rising in the sea levels. Also, there is an increase in the release of carbon dioxide while less of it is being absorbed by trees because they are constantly reduced in number owing to deforestation.
- During the months of summer, **icebreaking ships head to the north into the Arctic Ocean**, breaking through the ice at sea, the ships end up leaving trails of open waters. The Arctic Sea ice is able to reflect most of the heat thus aiding in keeping the Arctic and the rest of the Northern Hemisphere cool.

Effects of Melting Ice Glaciers on Humans and the Environment

- **Reducing or stopping the flowing of water will mean stopping the production of electricity.**
- The melting is causing an **abrupt rise in water input to other water bodies such as the rivers, lakes, and seas.** The excess water may lead to the creation of new lakes that will continue growing in size.
- With the **increasing water temperatures and water levels, this will start affecting aquatic plants.** In consequence, the fish species will reduce and so will be the survival of the birds and animals that are dependent and adapted to the glacier habitats.
- **When water levels increase due to glacier melting, sufficient sunlight will not be able to reach the corals.** This will weaken their

quality, and probably end up killing them in the long run.

- **A lot of chemical pollutants and pesticides** became airborne and finally got deposited in the chilly places that contain glaciers, and for some time, the harmful chemicals stayed trapped in the layers. The **rapid melting of glaciers is now discharging the chemicals back into the surroundings and water bodies.**

Road Ahead:

- Glaciers play a significant role in **reflecting and absorbing the heat on earth.** This means that as glaciers keep on melting, temperatures all over the world will at the same rate keep on increasing. In some places, small ice glaciers have already disappeared, exposing the earth. The

earth is not able to deflect as much heat as glaciers can thus heat will keep on increasing, more glaciers continue melting and water levels keep on increasing.

- Rapid glacial melt in Antarctica and Greenland also influences ocean currents, as massive amounts of very cold glacial-melt water entering warmer ocean waters is slowing ocean currents. And as ice on land melts, sea levels will continue to rise.
- Ice acts like a **protective cover over the Earth and our oceans.** These bright white spots reflect excess heat back into space and keep the planet cooler. In theory, the Arctic remains colder than the equator because more of the heat from the sun is reflected off the ice, back into space.

BETTER LATE THAN NEVER: EXPERTS ON TAMIL NADU'S DECISION TO GO AHEAD WITH DUGONG RESERVE IN PALK BAY

The Tamil Nadu government had announced September 3, 2021 that a dugong conservation reserve would be established in the Gulf of Mannar, Palk Bay between India and Sri Lanka, for the conservation of the animals.

Dugongs

- The dugong is a **marine mammal. It is one of four living species of the order Sirenia, which also includes three species of manatees.**
- It is the **only living representative of the once-diverse family Dugongidae; its closest modern relative, Steller's sea cow (Hydrodamalis gigas), was hunted to extinction in the 18th century.**
- The dugong (Dugong dugon), also called the **sea cow, is a herbivorous mammal.** They can grow up to three meters long, weigh about 300 kilograms, and **live for about 65 to 70 years,** grazing on seagrass and coming to the surface to breathe.
- They are **found in over 30 countries and in India are seen in the Gulf of Mannar, Gulf of Kutch, Palk Bay, and the Andaman and Nicobar Islands.**

- The dugong is **largely dependent on seagrass communities** for subsistence and is thus **restricted to the coastal habitats which support seagrass meadows,** with the largest **dugong concentrations typically occurring in wide, shallow, protected areas such as bays, mangrove channels, the waters of large inshore islands and inter-reefal waters.**
- Dugongs are listed as **Vulnerable on the IUCN Red List of Threatened Species.**
- Dugongs are protected under **Schedule I of the Wildlife (Protection) Act, 1972.**
- Internationally, dugongs are listed in **Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES),** which prohibits the trade of the species and its parts.

Threats to Dugongs

- Fishing communities **hunt dugongs for meat and oil.**
- The **loss of seagrass habitats, water pollution and degradation of the coastal ecosystem**

due to developmental activities have made life tough for these slow-moving animals.

- Dugongs are also **victims of accidental entanglement** in fishing nets and collision with boats, trawlers.
- **Oil spills are a danger to dugongs** in some areas, as is land reclamation.

Steps to be taken for their Conservation.

- **Banning trawling and gill nets** in the area and only allowing the local communities to continue their fishing activities in the traditional way.
- **Awareness programmes** can be conducted for fishing communities.
- **The fisheries and forest departments can work together to conduct regular patrols and inspections** in the region.

CLIMATE CHANGE MAY REDUCE CARBON DIOXIDE UPTAKE BY FORESTS

Climate change may reduce carbon dioxide uptake by forests. The study was led by the University of Arizona. The researchers combined tree ring data with census data from the United States Forest Service. This helped them assess the size of trees in a given year.

Study Highlights

- Combining the data sets also helped them understand how the trees responded to climate variables, such as **variation in rainfall and temperature yearly, as well as ecological characteristics such as competition with other trees, soil quality and tree diameter.**
- **A strong negative effect of fall–spring maximum temperature and a positive effect of water-year precipitation on tree growth** was found.
- **Tree growth will decline 22-117 per cent under future climatic conditions**, the researchers forecast. The combined effect of climate and size-related trends can result in a 56-91 per cent decline.
- **The growth declines we're forecasting will mean less uptake of atmospheric carbon dioxide** in the future by Arizona's forests.
- **Fewer ponderosa pines grew in Arizona as temperature increased**, the researchers wrote. This was especially true for the largest trees. **Taller trees were found to be more vulnerable to droughts** driven by high temperatures, according to the report.
- **The smaller trees were more vulnerable to drought driven by lack of water**, it added. Their smaller roots, which covered a smaller area

than the roots of larger trees, struggled to extract moisture from the soil, the scientists noted.

Climate Change is impacting the planet's flora?

- As summers become hotter, vegetation must adapt its growth patterns for survival. **They grow taller to cool themselves off.** As they grow upward, their stalks become longer, their leaves shrink, and they grow farther away from other plants.
- As the amount of these human-induced air pollutants rises, the growth of vegetation increases. **Air composition alterations may stimulate the development of allergens and poisonous plant species.**
- **Poison ivy grows at high rates in warmer, carbon dioxide-rich environments.** Around 80% of civilians are allergic to this plant, so overgrowth may negatively affect human health.
- Climate change causes warmer summer temperatures and inconsistent precipitation patterns. **These environmental alterations affect the flowering periods of plants globally.**
 - As the global temperature increases, plants will flower earlier in the season. Earlier bloom times reduce the plant's ability to withstand the entire season.
- **As precipitation decreases, flowers may bloom later in the season.** This affects the species which rely on this bloom for food, shade, and more.
- **Actions taken to slow global warming and limit the impact on plants**
 - Utilizing alternate forms of transportation

- Reducing meat consumption
- Limiting energy use
- Community awareness about adopting sustainable practices
- Deforestation must be reduced

Road Ahead:

- Global warming is the major issue among all climate change challenges; it is well known fact

that to completely address global warming, we have to reduce the quantity of heat-trapping harmful emission emissions from the atmosphere. Fortunately, awareness and technology in terms of practical solutions is now available. Individual to Individuals, action is required to reduce the carbon emissions.



BEIJING 2022: CAN CHINA DELIVER CLEAN WINTER OLYMPIC GAMES

- The promise of a 'green and clean' winter Olympics by China is one that looks increasingly unlikely with the start of the Games looming closer.
- A combination of global warming and poor water conservation policies have cast a shadow on not just Beijing's attempt at holding the Winter Olympics.

How artificial Snow is produced:

- The basic principle of snow-making systems was discovered by chance at the end of the 1940s: an American researcher **sprayed water into a wind tunnel at low temperatures** to investigate the icing of jet engines.
- This caused it to produce snow unexpectedly. Since then, this effective principle for snow generation has been used successfully in winter tourism.
- The snow gun's core element is a large propeller, which is supplied with water and electricity and generates a strong flow of air.

- The water is sprayed through nozzles in front of the propeller and transported from the compressed air stream to the cold, dry winter air.
- Depending on the weather conditions, the size of the water droplets can be adjusted to produce the best possible artificial snow.

Environmental concerns of creating Artificial Snow

- The issue of creating such large amounts of artificial snow has raised the hackles of environmentalists.
- They have raised concerns over the **environmental sustainability** of this process, as man-made snow requires thousands of litres of water and kilowatts of energy.
- This more troubling for China as a 2020 study warned that groundwater depletion in northern China was a "critical issue" and among the highest globally, due to intensive agricultural irrigation, rapid urbanisation, and a dry climate.

- Environmentalists have also raised concerns about the proximity to the 4,600-hectare Songshan National Nature Reserve.

BEIJING OLYMPICS: WHAT ARE SLALOM AND GIANT SLALOM, EVENTS IN WHICH INDIA'S ARIF KHAN WILL COMPETE?

Punishing on the knees and rewarding for an athlete who is flexible, **slalom and giant slalom** are two **Winter Olympic skiing sports** that require successfully completing an obstacle course in the least possible time.

How did slalom and giant slalom skiing evolve as a sport?

- **Alpine skiing** is a type of **ski sport** that is made up of **five different events** – the **downhill, Super G, Alpine combined, slalom and giant slalom**.
- Various iterations of the sport have existed in history – be it the 1767 Norwegian military competition that involved skiing downhill with trees as obstacles or the evolution to 'hill races' in the late 1800s where skiers would take part in cross-country, slalom, and other events with the same skis.
- The **modern-day iteration of slalom skiing** was ratified in **1922 by Arnold Lunn** for the British National Ski Championships. Fourteen years later, these changes were brought into the 1936 Winter Olympics in Germany.

What does slalom skiing entail?

- A cascading slope of snow is fixed with highly flexible red and blue plastic poles (gates) across a fixed course.
- The course has anywhere between 55-75 gates for men and 40-60 for women. The height from

top to bottom of the course is usually between 180-220 m for men.

- Skiers are supposed to start at the top of the hill and in the shortest time, navigate their way between the poles to reach the finish line.
- In both events, the skier has a chance to put up a time that enters them in the Top 30 and post this, gets another chance to put up a winning time.

Difference between slalom and giant slalom?

- While **slalom is the shorter of the two events**, it is the more technically challenging one since the gates are smaller and skiers have to focus on their zigzagging technique rather than their speed in this event.
- Usually that technique is dependent on tension. Core muscles need to remain tense while the skier flies downhill.
- The best slalom skiers in the world have a tendency to show extreme discipline with their arms – the lesser the movement, the more one's body can be streamlined to zigzag through the course.
- Giant slalom on the other hand combines the technical aspect of slalom with the speed of downhill skiing events.
- The giant slalom event sees skiers reach up to 80 kilometres an hour. The increase in speed means that the 'gates' have to be larger.