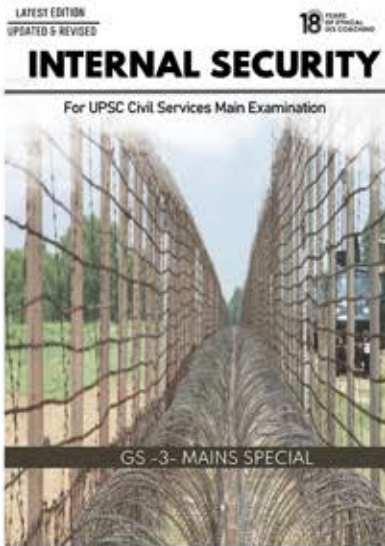


# MONTHLY EDITORIALS

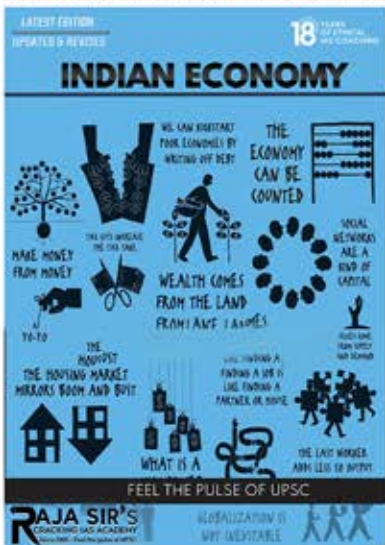


## The horizon for India beyond the G-20, SCO summits

India's year-long presidency of the G-20 and leadership of the Shanghai Cooperation Organisation (SCO) should not create unrealistic expectations about the dividends ..

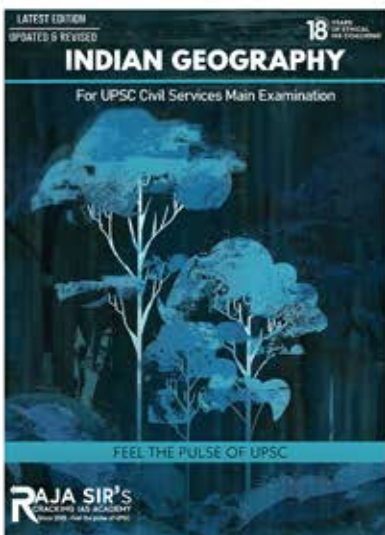
## Karnataka sovereignty row and India's Constitution

A massive political storm broke out over sovereignty remarks in the run-up to the Karnataka Assembly election 2023. The twitter handle of a prominent political party of India mentioned that it will not allow anyone to pose a threat to Karnataka's .....



## Global warming: Why India is heating up slower

The annual mean temperature of the world is known to have increased by 1.1 degree Celsius from the average of the 1850-1900 period. But this increase, as can be expected, is not uniform. It varies in different regions and also at different times of the year. This single number denoting global



## CONTENTS

- [Legalization of same-sex marriage](#)
- [India's hunger paradox: Self-sufficiency in production does not necessarily mean food security](#)
- [European Powers That Came To India](#)
- [India, its SDG pledge goal, and the strategy to apply](#)
- [India's Persian history](#)
- [Science and Tech of Guptas Reign](#)
- [India's intriguing trade ties with China](#)
- [Mnemonics For UPSC Civil Services Preliminary Exam](#)
- [Making India an influential nation in the world.](#)
- [Biosphere Reserves](#)
- [Drip irrigation needs further push](#)
- [Why Indian start-ups have accused the Internet and Mobile Association of India of spreading 'Big Tech propaganda'?](#)
- [WTO needs to look at farm subsidy issue with open mind](#)
- [Switching on India's smart electricity future](#)
- [Buddhist diplomacy by India](#)
- [Buddhist Diplomacy: India's soft power projection tool](#)
- [The horizon for India beyond the G-20, SCO summits](#)
- [Karnataka sovereignty row and India's Constitution](#)
- [Global warming: Why India is heating up slower](#)
- [A ground view of the Indian Space Policy 2023](#)
- [A New Arabian Tale](#)
- [India's new 'multi-alignment'](#)
- [Strategic convergence between US, UAE, Saudi Arabia and India](#)
- [A ground view of the Indian Space Policy 2023](#)
- [Central Bank Digital Currency - The 'digital rupee' in India](#)
- [India's nuclear policy: Evolution and Challenges](#)
- [Carbon Colours](#)
- [This strategic-economic bloc will only tighten the leash](#)
- [India can guide G20's disaster management initiatives](#)
- [India's trade and economic ties with the EU are set to strengthen](#)
- [The promise in India's National Quantum Mission](#)
- [Tracking SDG progress the Bhopal way](#)
- [India as a Quad-led biomanufacturing hub](#)

- [Economic abuse and Domestic Violence](#)
- [Resolving the tribal health challenge](#)
- [India at G7: myth of multipolarity](#)
- [India needs to bolster the Andaman and Nicobar Command](#)
- [A funding solution for developing nations' climate challenge](#)
- [Menstrual health is a public health issue](#)
- [National Population Register - All you need to know](#)
- [Better nutrition, fewer emissions](#)

## Legalization of same-sex marriage

- Recently, the Supreme Court of India began hearing a series of petitions seeking solemnisation of same-sex marriage under the Special Marriage Act. The Special Marriage Act of 1954 provides a civil form of marriage for couples who cannot marry under their personal law.
- In the proceedings the center advised the Supreme Court to defer the case to Parliament on the matter, stating that the law cannot be revised to permit same-sex marriage again.

### Against the Same Sex Marriage

- **Religious Definitions of Marriage:** Marriage has traditionally been between a man and a woman in many religions. The **Special Marriage Act, 1954** was created to overcome the limitations of religious personal laws, not to create a new institution of marriage.
- **'Legitimate' Interest of State:** The state has a legitimate interest in regulating marriage and personal relationships, as seen in laws regarding age of consent, prohibited degrees of marriage, and divorce. The right to marry is not absolute and subject to state laws. Just like a parent cannot claim absolute control over their child's education, individuals cannot claim absolute control over their personal relationships.
  - The state can claim legitimate interest to regulate, when to marry, how many times to marry, whom to marry, how to separate, and law on bestiality or incest.
- **The Right to Privacy:** In 2017, the Supreme Court recognized the right to privacy as a fundamental right and stated that sexual orientation is a crucial part of one's identity that must be protected without discrimination.
  - However, **privacy** exists but it **cannot be extended to marriage, which has a necessary public element**. Consenting sexual relationships between adults are private, but marriage has a public aspect that cannot be ignored.
- **Legislation by Parliament:** Only Parliament has the authority to decide on same-sex marriage as it is a matter of democratic right and court should not legislate on the issue. There could be potential unintended consequences in law and the complexity of dealing with the various permutations and combinations of genders falling under the LGBTQIA+ community (which has 72 categories).
- **Interpreting the Law:** The Special Marriage Act (SMA) cannot be interpreted to include same-sex marriage because the Act's entire architecture would need to be examined, not just a few words. For example, the Act provides specific rights to a wife, and it's unclear who would have these rights in a same-sex marriage.

Additionally, allowing one party in a same-sex marriage to have a specific right could create a problem for heterosexual marriages.

- Law provides specific rights to a wife like “the law says that the wife acquires the domicile of the husband upon marriage. So, who will be the wife in a same-sex marriage?”
- Issue of divorce, under the SMA, a wife may seek divorce on the ground that her husband has been guilty of rape, sodomy, or bestiality.
- **Issues with Adoption of Childrens:**When queer couples adopt children, it can lead to societal stigma, discrimination, and negative impacts on the child's emotional and psychological well-being, especially in Indian society where acceptance of the LGBTQIA+ community is not universal.
- **Gendered terms:**Argument that gendered terms like "mother" and "father", "husband" and "wife" would be problematic in same-sex marriages.

#### Favour of Same Sex Marriage

- **Threat to Human Race:**Opposing same-sex marriage by saying it will end the human race is unreasonable because adoption is a solution for queer couples who want to raise children.
- **Elitist Concept:**The demand for marriage equality comes from less economically privileged people who need legal protection. Claiming that it's a matter for urban elites is deceptive. E.g. The story of Leela and Urmila, two policewomen who were suspended and locked up for getting married in 1987, shows the discrimination faced by **LGBTQIA+** people in society.
- **Extend Special Marriage Act to Queer Indians:**The Special Marriage Act should be extended to include queer Indians by using gender-neutral language like "spouse" instead of "husband" or "wife". This would grant them the right to marry without asking for special rights.
  - The Special Marriage Act allowed for a Bengali Hindu and an Anglo-Indian Roman Catholic to marry in 2006, and they hope this legislation will be extended to queer Indians.
- **Cohabitation as a Fundamental Right:**The Chief Justice of India (CJI) acknowledged that **cohabitation is a fundamental right**, and it is the government's obligation to legally recognize the social impact of such relationships.
  - The justices suggested that recognition is needed for such relationships to receive certain benefits, but not necessarily as marriage. The CJI emphasized the importance of providing a sense of security and social welfare for people in such relationships.
  - The court suggested **labels like "contract" or "partnership" instead of "marriage"**.The government said there is no fundamental right to seek recognition of same-sex relationships as marriage.



- The Supreme Court of India discussed the recognition of cohabitation as a fundamental right for same-sex couples, which would entitle them to benefits without being equated to marriage.
- **Assimilation of same-sex couples:**The CJI has emphasized the need to assimilate same-sex couples into society rather than ostracizing them. The **decriminalization of Section 377 of the IPC** has recognized the existence of same-sex relationships.
  - Government should address the practical issues faced by same-sex couples, such as joint bank accounts and entitlement to pension and gratuity.
- **Indian Culture and Value System:**In culturally rich India, where social norms and obligations wield significant influence, the acceptance of same-sex relationships still poses a challenge, even after legal recognition.
  - It goes against the traditional values and beliefs of the Indian society. However, the **recognition of same-sex marriage adds to the diversity of relationships that exist in society.**
- **Human Dignity: In Navtej Singh Johar vs. Union of India**, the Supreme Court granted same-sex couples the freedom to lead a dignified private life.
- **Biological gender is not 'absolute':**The Supreme Court of India says that biological gender is not absolute, and that gender is more complex than just one's genitals. There is no absolute concept of a man or a woman.
- **'Bouquet of rights' being denied:**The **LGBTQIA+** community is being denied important legal benefits like tax benefits, medical rights, inheritance, and adoption by not being allowed to marry. Marriage is not just about dignity, but also a collection of rights.

#### Looking ahead

- **Raise awareness:**The purpose of awareness campaigns is to promote equality and acceptance of all sexual orientations and expand public opinion about the **LGBTQIA+**
- **Legal reforms:**Amends in the special marriage Act to allow same-sex couples to legally marry and enjoy the same rights and benefits as opposite-sex couples. Meanwhile bring the contract like agreement so the homosexual people can enjoy similar rights like heterosexuals.
- **Dialogue and engagement:**Engaging in a dialogue with religious leaders and communities can help bridge the gap between traditional beliefs and modern attitudes towards same-sex relationships.
- **Legal challenges:**The Indian **LGBTQIA+** community can challenge the constitutionality of the current laws that prevent same-sex marriage in court. Such legal challenges can help establish a legal precedent that will pave the way for the legalization of same-sex marriage.

- The legalization of same-sex marriage requires a concerted effort from all stakeholders, including the **LGBTQIA+** community, the government, civil society, and religious leaders. By working together, we can create a more inclusive society where everyone has the right to love and marry whomever they choose, regardless of their gender.

### **India's hunger paradox: Self-sufficiency in production does not necessarily mean food security**

- The **Sustainable Development Goal 2- Zero Hunger** aims to end hunger and ensure year-round access to safe, nutritious, and sufficient food **by 2030**.
- India has made many efforts such as **Mission Poshan 2.0, National Food Security Act (NFSA), Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY)** etc, to achieve SDG 2.
- However, the data of the **National Family Health Survey (NFHS-5)** raises serious concerns related to food security of India.

#### **Zero Food Prevalence in India**

##### **NFHS-5 Data:**

- As per the National Family Health Survey (NFHS-5), among mothers with a child between **ages 6-23 months, 18 percent** reported that their child **did not eat any food**, referred to as **“zero-food”**, in the **24 hours** preceding the survey.
- **Zero-food prevalence:**
  - **30 percent** for infants aged **6-11 months**.
  - **13 percent** among the **12-17 months old**.
  - **8 percent** among the **18-23 months old**.
- **An estimated 60 lakh** zero-food children of 6-23 months of age in India **not getting to eat every day** lies **substantial deprivations in specific food groups**.
- More than **80 percent** had **not** consumed any **protein-rich foods** for an entire day (**“zero-protein”**).
- **40 percent** did **not** eat any **grains (roti, rice, etc)** for an entire day.
- **6 out of 10** children do **not** consume milk or dairy of any form every day (**“zero milk”**).

#### **Daily minimum calorie intake for a child as per the World Health Organisation (WHO):**

- At **six months** of age, **33 percent** of the daily calorie intake is expected to come from food.

- At **12 months** of age, **61 percent** of the daily calorie intake is expected to come from food.
- It is presumed that the child obtains the remaining calories through **breastfeeding**, meaning the child is breastfed whenever they need it throughout the day and night, and not solely when the mother can provide it.
- **Percentage of food-sourced calories** only increases further when a child **cannot** receive breast milk when needed.

#### **What needs to be done?**

- It is time to **elevate food intake** among young children to be of primary importance, as opposed to being referred to as **“complementary”** in policies and guidelines related to **maternal, infant, and young child nutrition**.
- Access to **adequate and affordable nutritious food** is equally necessary for mothers for healthy breastfeeding.
- A national effort to establish **routine dietary and nutritional assessments** for the entire population is the need of the hour.
- Measuring the **availability, accessibility and affordability of nutritious food**, especially for **disadvantaged and vulnerable populations** such as **young children**, constitutes the foundation for any **evidence-based policy** to end hunger and improve nutritional security among Indians

#### **SDG 2 and India**

##### **Sustainable Development Goal (SDG) 2:**

- Goal 2- Zero hunger, which aims to **end hunger** and ensure year-round access to **safe, nutritious, and sufficient food by 2030**.

##### **India's efforts toward achieving SDG 2:**

##### **Mission Poshan 2.0**

- Mission Poshan 2.0, the overarching flagship programme dedicated to maternal and child nutrition.
- It has evolved in the right direction by targeting **SDG 2 “zero hunger”**.
- It is focusing on **food-based initiatives**, including its flagship supplementary nutrition programme service as mandated by the 2013 National Food Security Act (NFSA).
- **Need:** to effectively monitor and assess the performance of Poshan 2.0, there is an immediate need to develop **appropriate food-based metrics**.
  - The **zero-food metric** provides a good start.

##### **Swachh Bharat Mission (SBM)**

- Swachh Bharat Mission (SBM) increased access to improved toilets among Indian households from 48 percent to 70 percent between 2016 and 2021.
- It offers valuable **insights for Poshan 2.0**, in its strategic use of **directly trackable metrics**, as well as a strong **political commitment at the highest levels**.



### **Other Initiatives by the Government:**

Rashtriya Poshan Maah

Poshan Abhiyaan

Saksham Anganwadi

### **Global Scenario:**

- Global food production and distribution systems are disrupted due to **Covid-19 and the Ukrainian-Russian conflict**.
- United States (US) recently prioritized **ending hunger by 2030** and launched a high-level **White House initiative on hunger, nutrition, and health**.

To achieve the SDG of zero hunger, and building on the Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY), India should consider a strategic initiative led by the **Prime Minister's Office** aimed at eliminating food insecurity in India and ensuring affordable access to **sufficient quantity and quality of nutritionally diverse food**, with a special and immediate focus on India's youngest children.

## **European Powers That Came To India**

- The **English East India Company** defeated the Nawab of Bengal in the **Battle of Plassey in 1757**, marking the beginning of British rule in India.
- However, Europeans had arrived in India by the early sixteenth century.
- Their initial plan was to obtain pepper, cinnamon, cloves, and other spices for European markets while also participating in Indian Ocean trade.
- The Portuguese were the first Europeans to colonise India.
- At the end of the fifteenth century, Vasco da Gama discovered a direct sea route from Europe to India around the Cape of Good Hope.
- In 1510, the Portuguese conquered Goa on India's west coast.
- Goa then became the Portuguese political headquarters in India, as well as further east in Malacca and Java.

### **Start of Trade by Portuguese**

- The Portuguese perfected a pattern of controlling the Indian Ocean trade through a combination of political aggressiveness and naval superiority.
- Their forts at Daman and Diu allowed them to control shipping in the Arabian Sea with their well-armed ships.
- Other European nations that arrived in India nearly a century later, particularly the Dutch and the English, followed the Portuguese model.
- Thus, we must understand the arrival of European trading companies as an ongoing process of engagement with Indian political authorities, local merchants, and society, culminating in the British conquest of Bengal in 1757.

## **Advent of Europeans in India**

### **The Portuguese (1505 - 1961)**

#### **Advent of Portuguese**

- Vasco da Gama discovered a direct sea route to India in 1498, making the Portuguese the first Europeans to visit India.
- In Cannanore, he established a trading factory. Calicut, Cannanore, and Cochin gradually became important Portuguese trading centres.
- Goa was captured in 1510 by Alfonso de Albuquerque, governor of the Portuguese possessions in India. By the end of the 16th century, they had taken control of Daman, Diu, and a vast coastal region.
- Their monopoly on trade with India, however, did not last long because they were unable to compete with more powerful European powers—the Dutch and the British—who came with the same motive as the Portuguese.

#### **Decline of Portuguese**

- By the 18th century, the Portuguese had lost their commercial influence in India, though some of them continued to trade on their own, and many turned to piracy and robbery.
- In fact, some Portuguese used the Hooghly as a base for piracy in the Bay of Bengal. Several factors contributed to the Portuguese decline.
- The Portuguese's local advantages in India were eroded by the rise of powerful dynasties in Egypt, Persia, and North India, as well as the turbulent Marathas as their immediate neighbours. (The Marathas took Salsette and Bassein from the Portuguese in 1739.)
- Political fears were raised by the Portuguese religious policies, such as the activities of the Jesuits.
- Apart from their animosity toward Muslims, Hindus were also resentful of the Portuguese policy of conversion to Christianity. Their dishonest business practises elicited a strong reaction as well.
- The Portuguese gained a reputation as sea pirates.
- Their arrogance and violence earned them the ire of small-state rulers as well as the imperial Mughals.
- The discovery of Brazil diverted Portugal's colonial activities to the West.
- The union of the two kingdoms of Spain and Portugal in 1580-81, which dragged the smaller kingdom into Spain's wars with England and Holland, had a negative impact on the Portuguese trade monopoly in India.
- The Portuguese's earlier monopoly on knowledge of the sea route to India could not last forever; soon enough, the Dutch and English, who were learning ocean navigation skills, learned of it as well.

- As new European trading communities arrived in India, a fierce rivalry developed. The Portuguese had to give way to more powerful and enterprising competitors in this struggle.
- The Dutch and English had more resources and compulsions to expand overseas, and they overcame Portuguese opposition. The Portuguese possessions fell to its opponents one by one.
- Goa, which remained in Portuguese hands, had lost its importance as a port after the fall of the Vijayanagara empire, and it soon didn't matter who owned it.
- The spice trade was taken over by the Dutch, and Goa was surpassed as the economic centre of Portugal's overseas empire by Brazil. After two naval assaults, the Marathas invaded Goa in 1683.

### **The Dutch (1602 - 1759)**

#### **Advent of Dutch**

- In 1605, the Dutch (people from the Netherlands) arrived in India and established their first factory in Masaulipatam, Andhra Pradesh.
- They not only threatened Portuguese possessions in India, but also the commercial interests of the British, who desired a trade monopoly over India.
- A compromise between the British and the Dutch was reached in 1623. As a result, the Dutch withdrew their claim to India, while the British withdrew their claim to Indonesia.

#### **Decline of Dutch**

- The Dutch became involved in the Malay Archipelago trade.
- Furthermore, during the third **Anglo-Dutch War (1672-74)**, communications between Surat and the new English settlement of Bombay were severed, resulting in the capture of three homebound English ships in the Bay of Bengal by Dutch forces.
- The English retaliation resulted in the Dutch defeat at the Battle of Hooghly (November 1759), dealing a crushing blow to Dutch ambitions in India.
- The Dutch were not interested in establishing an empire in India; their primary concern was trade.
- In any case, their main commercial interest was in the Spice Islands of Indonesia, where they made a fortune through business.

### **The English (1599 - 1947)**

#### **Advent of English**

- In 1600 AD, **Queen Elizabeth** granted the East India Company, founded by a group of English merchants, exclusive trade rights in the East.
- Jahangir granted the Company permission to establish factories along the western coast in 1608.

- The Company was granted free trade throughout the Mughal Empire in 1615. The Company's commercial activities were rapidly expanding.
- However, its continuous rise was constantly challenged by the Portuguese and Dutch, and later by the French.
- Over time, the Company gained a foothold in Western and Southern India, and later in Eastern India.
- Taking advantage of political instability, the insecurity of Indian rulers, and the decline of the Mughal Empire, the East India Company transformed itself from a commercial to a political entity.

### **The French (1664 - 1760)**

#### **Advent of French**

- The French were the last to arrive in India looking for trade opportunities. The French East India Company established its first factory in Surat, Gujarat, in 1668.
- The French Company gradually established factories in various parts of India, particularly along the coast.
- The French East India Company's important trading centres included Mahe, Karaikal, Balasor, Qasim Bazar, and others.
- The French, like the English, began to seek political dominance in Southern India. As a result, the English East India Company and the French East India Company were constantly at odds.
- The rivalry lasted many years, and three long battles were fought between the British and the French over a 20-year period (1744-1763) with the goal of gaining commercial and territorial control.
- The French dream of political dominance over India was dashed in 1763 with their defeat at the **Battle of Wandiwash**. The English East India Company had no rivals in India after defeating the French.

#### **Decline of French**

- Because of its trade superiority, the English East India Company was the wealthier of the two.
- **EIC possessed superior naval strength.** They could bring in soldiers from Europe as well as supplies from Bengal. The French had no such means of replenishing resources.
- Its possessions in India had been held for a longer period of time, and they were better fortified and more prosperous.
- The French Company was heavily reliant on the French government.
- **Dupleix's Mistakes:** Dupleix did not pay attention to improving the company's finances, did not concentrate his efforts in one place, and did not seek support from the French government to carry out his plans.

- The English had three important ports, namely Calcutta, Bombay, and Madras, which gave them an advantage in almost every aspect, be it trade or naval power, whereas the French had only one port, namely Pondicherry.
- The British gained access to a rich area, Bengal, after winning the Battle of Plassey.
- The British army had many capable soldiers, including Robert Clive, Stringer Lawrence, and Sir Eyre Coote.

### **Reasons for Success of English against Other European Powers**

#### **1. Nature and Structure of Trading Companies**

- The English East India Company was governed by a board of directors, whose members were elected on an annual basis, and the company's shareholders wielded considerable power.
- France and Portugal's trading companies were largely owned by the state, and their nature was feudalistic in many ways.

#### **2. Naval Supremacy**

- The Royal Navy of the United Kingdom was not only the largest, but also the most advanced at the time.
- Because of the strength and speed of their naval ships, the British were able to defeat the Portuguese and the French in India as well.
- The English learned the importance of an efficient navy from the Portuguese and technologically improved their own fleet.

#### **3. The Industrial Revolution**

- The Industrial Revolution began in England in the early 18th century, with the invention of new machines such as the spinning jenny, steam engine, power loom, and others.
- These machines significantly increased productivity in textile, metallurgy, steam power, and agriculture.
- The industrial revolution arrived late in other European nations, allowing England to maintain its hegemony.

#### **4. Military Competence and Discipline**

- The British soldiers were disciplined and well-trained. The British commanders were strategists who experimented with new military tactics.
- The military was well-equipped due to technological advancements.
- All of this combined to allow smaller groups of English fighters to defeat larger armies.

#### **5. Government Stability**

- With the exception of the Glorious Revolution of 1688, Britain experienced a stable government with efficient monarchs.
- Other European nations, such as France, experienced a violent revolution in 1789, followed by the Napoleonic Wars.

- Napoleon's defeat in 1815 significantly weakened France's position, and the Dutch and Spain were also involved in the 80-year war in the 17th century, which weakened Portuguese imperialism.

#### 6. **Less Religious Enthusiasm**

- When compared to Spain, Portugal, or the Dutch, Britain was less religiously zealous and less interested in spreading Christianity.
- As a result, its rule was far more acceptable to the subjects than that of other colonial powers.

#### 7. **Using the Debt Market**

- One of the major and innovative reasons why Britain succeeded between the mid-eighteenth and mid-nineteenth centuries, while other European nations failed, was its use of debt markets to fund its wars.
- The Bank of England, the world's first central bank, was established to sell government debt to money markets in exchange for a decent return on Britain's defeat of rival countries such as France and Spain.
- As a result, Britain was able to spend far more on its military than its competitors.
- Britain's rival France could not match the English expenditure; between 1694 and 1812, France simply went bankrupt with its outdated methods of raising money, first under monarchs, then under revolutionary governments, and finally under Napoleon Bonaparte.

In India, a fierce national resistance against British imperialism arose in the second half of the nineteenth century and the first half of the twentieth century. This conflict arose from a misalignment of interests between the Indian people and the British rulers. The nature of foreign control sparked nationalistic feelings among Indians, ripening the material, moral, intellectual, and political conditions for the emergence and development of a great national movement.



## India, its SDG pledge goal, and the strategy to apply

- Global progress and the sheer population size of India means that realizing **Sustainable Development Goals (SDGs)** at a global scale is intrinsically **tied to the success of India**.
- There is considerable confidence in India becoming the **third largest economy in the world** over the next decade.
- Translating this **growth** into progress in **social and human development** must be equally valued.

### Sustainable Development Goals (SDG) and India

- **United Nations sustainable development goals** framework sets targets for **231 unique indicators** across **17 SDG goals**.
- Goals are related to **economic development, social welfare, and environmental sustainability**, to be met **by 2030**.

### India's performance:

#### 'On Target':

- India is 'On-Target' to meeting **14 of the 33 SDGs**.
  - It includes indicators such as **neonatal and under-five mortality indicators, full vaccination, improved sanitation, and electricity access**, all of which have substantially improved in the last five years.
- National 'On-Target' designation **does not apply equally across all districts**.
- **Neonatal and under-five mortality** both are 'On-Target' for the country, **286 and 208 districts** (out of 707 districts), respectively.
- **Access to improved sanitation** excludes **129 districts** that are not on course to meet this SDG indicator.
- **Eliminating adolescent pregnancy, reducing multidimensional poverty, and women having bank accounts** have improved across the majority of the districts between the years **2016 and 2021**.

#### 'Off Target'

- For **19 of the 33 SDG indicators**, the current pace of improvement is **not enough to meet SDG targets**.
- Despite a **national policy push for clean fuel for cooking**, more than **two-thirds (479)** of districts remain 'Off-Target'.
- Some **415 and 278 districts** are 'Off-Target' for **improved water and handwashing facilities**.
- **Child Marriage: No district in India** has yet succeeded in eliminating the **practice of girl-child marriage** before the **legal age of 18 years**.
  - More than **three-fourths (539) of districts** will **not** be able to reduce the prevalence of girl **child marriage to the SDG target of 0.5% by 2030**.

- **Teenage pregnancy (15-19 years) and partner violence (physical and sexual)** are issues that India needs to escalate as priorities.
- **Mobile phone access:** Only **56% of women** report owning a mobile phone, with **567 districts** remaining 'Off-Target'.

#### **India's "optimisation" approach**

- India adopted an "optimisation" approach to the COVID-19 pandemic and thus, it was given the focus and resources necessary to succeed.
- There are **lessons from this strategy** that can inform and optimize India's approach to its SDG targets.

#### **Political-administrative synergy:**

- **Strong and sustained political leadership** supported by a **responsive administrative structure** at all levels was critical to the success of **India's COVID-19 vaccination program and relief package.**
- Creating a similar **mission-oriented ethos** that is assessment-oriented and which provides adequate support for accomplishing India's **district-level SDGs** is now urgently needed.

#### **Digital Infrastructure and indigenous initiatives:**

- India's success with COVID-19 was largely possible both because of the existing digital infrastructure and indigenous initiatives such as the **Co-WIN data platform**, and the **Aarogya Setu application.**
- India must put in place a coordinated, **public data platform for population health management**, by consolidating its many **siloed platforms into an integrated digital resource** for district administrators, as well as **State and national policy makers.**

#### **Targeted SDG strategy:**

- It must be executed with the same timeliness as India's COVID-19 relief package.
- The Government of India had put in place the ₹1.70 lakh crore **Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY)**, later augmented to nearly ₹6.29 lakh crore, which included the **Pradhan Mantri Garib Kalyan Anna Yojana** (₹3.91 lakh crore until December 2022) covering **800 million people.**
- Key to this relief program was a mix of spending to provide **direct in-kind and economic support**, as well as measures aimed at **revitalizing the economy, small businesses, and agriculture.**
- This was critical in **blunting the adverse effects of COVID-19**, especially for **vulnerable and socio-economically disadvantaged groups.**
- It also measurably demonstrated the **value of a proactive, government-supported program** specifically aimed at improving **people's well-being.**

In the COVID-19 pandemic, India has proved that it is possible to deliver real-time response at scale in such an ambitious and comprehensive manner. To succeed in

meeting its SDG targets, especially those related to population health and well-being, basic quality infrastructure, and gender equality, India needs a similar concerted, pioneering nationwide effort.

### India's Persian history

- The Persian and Greek invasion of India was an important event in Indian history which had far reaching consequences. The Persian and Greek invasion of India began in the Sixth Century B.C. when the North-west region of India was fragmented and small principalities such as Gandhara, Kamboja were fighting over each other. Since it was easy to enter India via the passes in Hindukush, many foreign invasions began to happen in the Northwest Frontier of India.
- The Persians were the first to invade India and were followed by the Greeks. The Persian invasion of India took place in two phases. The first phase was carried out by Cyrus around 535 BCE and the second phase by Darius in 518 BCE. The Greek invasion of India was carried out by a famous ruler, Alexander.

#### Persian Invasion of India

- In the Sixth Century B.C. the Persians began their eastward and westward invasions.
- The North western part of India which was wealthy did not have any powerful kingdom like Magadha to bring the entire region under one organised Kingdom. There were many small principalities who were fighting with each other.
- The Achaemenid rulers of Iran (Persians) took advantage of the political disunity in the region and began their invasions.

#### Cyrus

- Cyrus was the founder of the Achaemenid empire in Iran.
- The Persian invasion of India was first led by him.
- He invaded the Indian borderland and captured the Gandhara region.
- Cyrus invaded as far as the river Indus and the Indian tribes living to the west of the river submitted to him.
- Behistun Inscription mentions that all the region conquered by Cyrus in India was brought under the satrapy of Gandhara. (Satrapy means province and Satrap was the provincial governor in ancient Persian empire)

#### Darius

- Cyrus' son Cambyses paid no attention towards India. Thus the grandson of Cyrus, Darius I conquered the Indus valley in 516 B.C.

- Punjab, West of Indus and Sindh were annexed by Darius and these areas constituted the 20th satrap of Iran. This area became the most fertile area of the Persian empire.
- 360 talents of gold was paid as a tribute to the Persian empire which constituted one third of their revenue from Asian provinces.
- The Indians were employed in the Persian army
- Darius explored the Indus by sending a naval expedition under Skylax.

### **Xerxes**

- Indian Provinces were used by him to strengthen his positions
- Indian Cavalry and Infantry who were sent to Greece to fight his opponents retreated after the defeat of Xerxes.
- With this failure, the forward policy of Persians was hampered in India.

### **Effects of the Persian Invasion**

- This contact lasted for about 200 years and thus resulted in the Indo – Iranian trade and commerce. It is evident from the Iranian coins found in the northwest Frontier of India.
- The Kharoshthi script which was written from right to left was an Iranian form of writing and was introduced in India by the Iranian scribes.
- Mauryan sculptures and monuments, particularly those of Ashoka's time were heavily influenced by the Iranian models.
- The idea of issuing edicts and the terms used on them traced to have the Persian influence.
- The Greeks came to know about India and its wealth from the Persians which paved the way for the Greek invasion of India.

### **Greek Invasion of India**

#### **Alexander's Invasion**

- Alexander succeeded his father Philip to the throne in 334 B.C.
- In the Fourth century B.C. the Persians got into war with the Greeks.
- The Greeks under the leadership of Alexander of Macedonia defeated the Persian empire and conquered Asia, Iran and Iraq.
- In the Battle of Arbela, he defeated Darius III and conquered the entire Persia.
- He was attracted by the wealth of India.
- It was also believed that there was a continuation of sea to the East of India which made him believe that by conquering India, the Eastern boundary of the world would be Conquered.
- Thus from Iran he moved towards Kabul and from there via Khyber pass he marched into India.
- The entire North India was divided into so many independent monarchies and tribal republics which favoured the intentions of Alexander.
- **Battle of Hydaspes:**

1. Porus refused to submit his kingdom to Alexander and this led to a battle between them.
  2. The Battle of Hydaspes was fought on the plains of Karri and Porus lost the battle.
  3. Alexander was impressed by the courage of Porus and restored him back to his throne.
- He marched and conquered the areas as far as the river Beas.
  - The soldiers grew tired of war and refused to fight. Thus Alexander was forced to retreat and he decided to return home with his soldiers.
  - Most of the states were restored back to the rulers who accepted his sovereignty. The remaining areas of his possessions were divided into three and were placed under three Greek governors.
  - On his way back, he fell ill and died at Babylon in 323 B.C.

### Science and Tech of Guptas Reign

The famous Gupta Empire was an ancient empire in India. Existing from the early 4th century CE to the late 6th century CE, it covered the Indian subcontinent significantly. Historians consider the Gupta period as the Golden Age of India. King Sri Gupta founded the ruling dynasty of the empire, and some of the most notable rulers of the Gupta dynasty were Chandragupta I, Samudragupta, and Chandragupta II. Chandragupta II was also popularly known as Vikramaditya.

The renowned Sanskrit poet Kalidasa credited the Guptas to have conquered about 21 kingdoms. These 21 kingdoms were from both in and outside of India. The period is also appreciated for finding various ways to flourish **factory production**.

#### The Gupta Empire

The origin-country of the Guptas is not yet certain. According to one hypothesis, they started in the present-day lower-Doab locale of Uttar Pradesh, where the more significant part of the engravings and coins of the early Gupta rulers were discovered. This hypothesis is additionally upheld by the Purana, as contended by the proponents, that notice the region of the early Gupta rulers as Prayaga, Saketa, and Magadha regions in the Ganges basin.

The Gupta records don't specify their varna (social class). Few historians, like A.S. Altekar, has guessed that they were of Vaishya class, as specific antiquated Indian texts recommend the name "Gupta" for the individuals from the Vaishya varna. Whereas some, like S.R. Goyal hypothesizes that the Guptas were Brahmanas since they had wedding relations with Brahmanas, others reject this proof as inconclusive.

#### Contributions in the Fields of Science and Technology

Development in Science and technology was immensely appreciated in ancient India. The scientists and astronomers of the Gupta period made numerous significant contributions to the field. Although undoubtedly it is one of the most exemplary contributions that they **discovered that there were seven planets in the solar system**, it is not the only appreciable one. The scientists in the Gupta empire made numerous other contributions to Mathematics, astronomy, medicine, astrology, chemistry, zoology, botany, and metallurgy.

· **Mathematics**

The Gupta Period scientists made some of the most notable contributions to the field of Mathematics. The most significant of these contributions was the decimal system of notation discovery. Based on the principle of the place value of the first nine numbers, this notation system also depended upon the use of zero. This ancient Indian empire also saw Geometry attaining great heights. It was because of the numerous theorems related to circles and triangles. Still, the most appreciated work in Mathematics was by the Aryabhatta scientists in the Gupta Empire. In 499 AD, the Aryabhatta scientists in the Gupta Empire wrote the Aryabhattiyam. It was majorly about algebra, geometry, and mathematics. The list of achievements of the Gupta empire in the field of Mathematics does not end here, as the period also witnessed the cultivation of Trigonometry. The period is also said to have witnessed the rise of Indians over the Greeks as far as Mathematics is concerned.

· **Medicine**

When it comes to medicine, the most important works were the Charaka Samhita by Charaka and the Sushruta Samhita by Susruta. The two placed high ideals for physicians and suggested that a physician must be a yogi and not charge high for his prescriptions. They suggested that a physician should be kind and support mankind, i.e., he must not be partial to people based on their social class or economical status. During the Gupta period, the process of distillation and the use of disinfectants was discovered by Nagarjuna. By now, the smallpox vaccination was also introduced. The surgical field also noticed a rise as the doctors could amputate and improve deformed ears and noses. Numerous surgical instruments were developed.

· **Astronomy**

The principal astronomers of this period were Varahamihira and Aryabhatta. One of the notable discoveries by Aryabhatta was that the moon comes over the shadow of the earth or between the earth, which caused the eclipses. He is known to be much more advanced than the astronomers of Europe, and he soon began composing his work Panchasiddhahtikain 505 AD. The astronomers and scientists of the Gupta period are also credited with the achievement they **discovered that there were seven planets in the solar system**.

· **Astrology**

The Vriddhi Garga Samhita, an assortment of old-fashioned Indian learning and sciences, is the leading work before Varahamihira's Brihat Samhita. Other than the



areas on astrology in the Brihat Samhita, Varahamihira likewise made four different works related to astrology, which manage favourable muhurtas for marriage, and propitious omens for the endeavours of lords and the hour of man's birth to the world, and its effect on his future.

### · **Chemistry and Metallurgy**

Although no books from the Gupta age are found related to Chemistry and metallurgy, Nagarjuna is considered a great chemist. Also, the Iron Pillar near Qutub Minar from the Gupta period depicts the metallurgical skills of the people of that time.

The Gupta Empire was an ancient Indian empire known for the great rulers of the Gupta dynasty. But, the Gupta period is also significant to study due to its numerous contributions to the world of Science, technology, art, and architecture. The period also witnessed the flourishing of **factory production**. Hence, not only the rulers of the Gupta dynasty are worth studying; the scientists, astronomers, physicians, artists, architects, astronomers, and astrologists must also be appreciated for their significant contributions to their respective fields.

## India's intriguing trade ties with China

- Despite the ongoing trade war between China and the US and the **COVID-19 pandemic**, China's role in global merchandise trade has not been affected. China is India's biggest source of imports, and its share in total Indian imports is more than double. India's dependence on China for non-oil imports can be as high as 25% or more.
- India's trade relations with China are significant as China has been India's largest source of imports for the past 15 years. Despite India's efforts to reduce its dependency on China through import substitution and **free trade agreements (FTAs)** with Asian countries, China's share in India's imports has increased over the years. Due to increasing trade deficit with China India needs to look closely its trade relations with China.

### India-China Trade Relations

- **Import from China:**
  - The slowdown in China and supply disruptions have not reduced China's share in India's total imports, and in absolute terms, India's imports from China in 2021-22 are significantly higher than its pre-Covid level of imports.
  - In 2020-21 and 2021-22, **China's share** in India's imports **reached a record high** of **53% and 15.43%**, respectively, while the UAE was the

second-largest source of imports for India with an **import share of 6.7% and 7.31% in 2020-21** and 2021-22, respectively.

- China's dominance in **total non-oil merchandise** imports is even more pronounced as India's dependence on China for non-oil imports can be as high as **25% or more**.
- **Items of Import:**
  - India primarily imports **electrical and electronic goods, organic chemicals including pharmaceuticals, and plastic items** from China.
  - These items **account for more than 70% of India's imports** from China.
- **India's Exports to China:**
  - **According** to data from the **Ministry of Commerce and Industry**, India's **exports to China** have been **growing** steadily in recent years.
    - In the financial year 2020-21, India's exports to China were worth \$21.2 billion, up from \$16.7 billion in 2019-20.
  - **Items of Export:**
    - The major items that India **exports to China** include **organic chemicals, cotton yarn, copper, and ores**.
    - However, India's exports to China are still much lower than its imports from China, resulting in a large trade deficit.
  - **Bilateral Trade Deficit:**
    - India's bilateral trade deficit with China is large and growing. In 2021-22, India's trade deficit with China was around \$73.3 billion, and it is expected to cross \$100 billion in FY23.
    - India's **trade deficit with China accounts for 38-40%** of India's total merchandise trade deficit in the post-Covid era.

#### Reasons for Intriguing Trade Relations

- **China's Domestic Consumption Policy:**
  - India's increasing trade imbalance with China is intriguing for some special policy reasons.
  - China's **GDP growth rate has slowed down** since the **Covid crisis**, and the country has shifted its policies more towards domestic consumption.
  - However, this policy shift has not affected Chinese exports to India.
- **India's Withdrawal from RCEP:**

- India has signed FTAs with several East and Southeast Asian nations, which should have taken some market share away from China, but this has not happened.
- India withdrew from the **Regional Comprehensive Economic Partnership (RCEP)**, which puts India at a disadvantage compared to other FTA partners of China.

#### Heavy Import Reliance on China Imply

- From the perspective of the government, the political and security challenges are deepened when the state is dependent on importing products and services from an unfriendly country.
- India imports most of the **Active Pharmaceutical Ingredients (APIs)** it uses in its pharmaceutical industry from China. The **cost of Chinese APIs is cheaper than the Indian ones** even on the Indian market.
  - The depth of the problem was revealed during the Covid-19 pandemic when due to travel restrictions, exports of Chinese APIs to India were temporarily restricted and consequently India had to cut its exports of APIs too.
- Approximately **24% of coal energy generated in India** may be coming from plants that are using **critical equipment imported from China**. This, therefore, may not necessarily be considered a strategic dependence, but is certainly a form of a security challenge.
  - While there are demands to limit or even block such imports from China, this would simply mean forcing private Indian power companies to suffer higher costs.

#### Factors Responsible for the Trade Imbalance between India and China

- **China's manufacturing dominance:**
  - China has **become a manufacturing hub for the world**, with a vast industrial base that enables it to produce goods at a lower cost than India.
  - This has led to China exporting a wide range of products to India, from electronic goods to textiles.
- **India's dependence on Chinese goods:**
  - India is heavily dependent on Chinese goods, as it imports a significant amount of raw materials and finished products from China.
  - This includes items such as **machinery, electronics, and chemicals**.
- **Non-tariff barriers:**
  - There are several non-tariff barriers to trade between India and China, including complex regulatory requirements, intellectual property rights violations, and lack of transparency in business dealings.

- These barriers can make it difficult for Indian businesses to access the Chinese market and compete with Chinese firms.
- **Infrastructure and Logistics:**
  - India's inadequate infrastructure and logistics facilities result in higher transaction costs for exporters, making Indian goods less competitive in the Chinese market.
- **Currency exchange rates:**
  - The exchange rate between the Indian rupee and the Chinese yuan also plays a role in the trade imbalance.
  - The **Indian rupee has been weaker than the Chinese yuan**, which makes **Indian exports more expensive** for Chinese buyers and Chinese imports cheaper for Indian buyers.
  - This further exacerbates the trade imbalance between the two countries.

Looking ahead

- **Diversify Imports:**
  - India needs to **reduce its dependence on Chinese imports** by diversifying its imports from other countries such as **Vietnam, South Korea, Japan, Taiwan, and Indonesia**.
- **Boost Exports:**
  - India can focus on increasing its exports to China.
  - India should focus on exporting high-value products like **engineering goods, electronics, pharmaceuticals, and chemicals**.
  - These products **have a higher profit margin** and will help to increase India's **foreign exchange earnings**.
- **Develop Domestic Industries:**
  - India needs to **develop its domestic industries** to reduce its reliance on imports. The government can **provide incentives to domestic companies** to manufacture goods that are currently imported.
  - This will not only help reduce the trade imbalance but **also create employment opportunities** in India.
- **Review FTAs:**
  - India needs to review its free trade agreements with other countries to ensure that they are not hurting domestic industries.
  - India should also **consider signing an FTA with China** to increase exports and reduce the trade deficit.

**Mnemonics For UPSC Civil Services Preliminary Exam**

**Parts of the Constitution**

**You Can Fly Directly From United States Using Para Military Special Rocket.**

- U**= Union and its territories (1)
- C**= Citizenship (2)
- F**= Fundamental Rights (3)
- D**= DPSPs (4)
- F**= Fundamental Duties (4A)
- U**= Union (5)
- S**= States (6)
- U**= Union Territories (8)
- P**= Panchayats (9)
- M**= Municipalities (9A)
- S**= Scheduled and Tribal areas (10)
- R**= Relation b/w Union and States (11)

**Schedules of the Constitution**

**TEARS OF OLD PM**

- T**= Territory (I)
- E**= Emoluments (II)
- A**= Affirmations and Oaths (III)
- R**= Rajya Sabha (IV)
- S**= Scheduled areas (V)
- O**= Other Scheduled areas (VI)
- F**= Federal provisions, 3 lists (VII)
- O**= Official languages (VIII)
- L**= Land reforms (IX)
- D**= Defection (X)
- P**= Panchayats (XI)
- M**= Municipalities (XII)

**Famous places and Lakes and Seas and their adjoining countries.**

- Horn of Africa: **SEED**(Somalia, Ethiopia, Eritrea, Djibouti)
- 5 Great lakes of America: **HOMES**(Huron, Ontario, Michigan, Erie, Superior)
- Victoria Lake: **KUTta** (Kenya, Uganda, Tanzania)
- Caspian Sea: **TARIK**(Turkmenistan, Azerbaijan, Russia, Iran, Kazakhstan)
- Aral Sea: **KyU** (Kazakhstan & Uzbekistan)
- Black Sea: **Tea& BURGeR** (Turkey, Bulgaria, Ukrain, Russia, Georgia, Romania)
- Red Sea: **DESSEY** (Djibouti, Eritrea, Saudi Arabia, Sudan, Egypt, Yemen)

- North Sea: **No BeG FrENDS**(Norway, Belgium, Germany, France, England, Netherland, Denmark and Scotland)
- Baltic Sea: **RuDe Germany SELL Poland & Finland** (Russia, Denmark, Germany, Sweden, Estonia, Latvia, Lithuania, Poland, Finland)
- Adriatic Sea: **ISC-MBA** (Italia, Slovenia, Croatia, Montenegro, Bosnia, Albania)
- Malacca Strait Patrols: **MIST**(Malaysia, Indonesia, Singapore, Thailand)
- Mediterranean Sea
- Asian Part: **SILCy**(Syria, Israel, Lebanon, Cyprus)
- African Part: **TAMEL** (Tunisia, Algeria, Morocco, Egypt, Libya)
- European Part: **BOSS ki SASTI MoMo in Greece and FranC**(Bosnia, Spain, Albania, Slovenia, Turkey, Italy, Montenegro, Monaco, Greece, France, Croatia)
- Countries bordering Syria: **TIJIL** (Turkey, Israel, Jordan, Iraq, Lebanon)

#### International Organisations

- Permanent members of UNSC: **FRACE** (France, Russia, America, China, England)
- Official languages of UN: **FACERS**(French, Arabic, Chinese, English, Russian, Spanish)
- G20 group: **GURU JI SITA AB SSC FCI ME** *job karti hai* (Germany, USA, Russia, United Kingdom, Japan, India, Saudi Arabia, Indonesia, Turkey, Australia, Argentina, Brazil, South Africa, South Korea, Canada, France, China, Italy, Mexico, European Union)
- G7 group: **JUICE with GF**(Japan, USA, Italy, Canada, England, Germany, France)
- G8 group: **JUICE with Russian GF** (Japan, USA, Italy, Canada, England, Russia, Germany, France)
- G4 group: **BIG Japan**(Brazil, India, Germany, Japan)
- Nordic Council: **DIFSweno**(Denmark, Iceland, Finland, Sweden, Norway)
- Arctic Council: **DIFSweno+RUSC** (Russia, USA, Canada)
- Gulf Council: **BOQSUK**(Bahrain, Oman, Qatar, S. Arabia, UAE, Kuwait)
- **ASEAN** countries: **MBBS CLIP TV** (Malaysia, Burma, Brunei, Singapore, Cambodia, Laos, Indonesia, Phillipines, Thailand, Vietnam)
- Mekong Ganga Cooperation: **LIMCa TV**( Laos, India, Myanmar, Cambodia, Thailand, Vietnam)
- **BIMSTEC** countries: **MBBS NIT** (Myanmar, Bangladesh, Bhutan, Sri Lanka, Nepal, India, Thailand)
- **APTA** countries: **CBI-KLS** (China, Bangladesh, India — Korea, Laos, Sri Lanka)
- **SASEC** countries: **MBBS NIM** (Myanmar, Bangladesh, Bhutan, Sri Lanka, Nepal, India, Maldives)

Below mentioned three groupings **SAARC, SACEP, SAWEN** are same. Note it.



- **SAARC** countries: **MBBS PAIN** (Maldives, Bangladesh, Bhutan, Sri Lanka, Pakistan, Afghanistan, India, Nepal)
- **SACEP** countries: **MBBS PAIN** (Maldives, Bangladesh, Bhutan, Sri Lanka, Pakistan, Afghanistan, India, Nepal)
- **SAWEN** countries: **MBBS PAIN** (Maldives, Bangladesh, Bhutan, Sri Lanka, Pakistan, Afghanistan, India, Nepal)
- India's border with neighboring countries (Largest to smallest): **BaChPaN MBA** (Bangladesh, China, Pakistan, Nepal, Myanmar, Bhutan, Afghanistan)
- 5 missiles developed under "Integrated Guided Missile Development Project": **PATNA** (Prithvi, Aakash, Trishul, Nag, Agni)
- 3 already commissioned Scorpene class submarines under **Project 75: Kal-KarKhana** (INS Kalvari, INS Karanj, INS Khandari) *remaining 3 are Vela, Vagir and Vagsheer*. **INS Vela** recently inducted in to the Navy.
- **The Equator passes through:**
  - In Asia: **KIM** (Kiribati, Indonesia, Maldives)
  - In South America: **ECB** (Equador, Columbia, Brazil)
  - In Africa: **SDG SUCK** (S. Princep, DR Congo, Gabon, Somalia, Uganda, Congo, Kenya)

#### **Ganga River tributaries**

- Left bank: **Ramne Gomat me Ghaghra pahen kar Ganda dance kiya, Koso se log dekhne aaye kyunki wo Mahan aadmi hain** (Ramganga, Gomti, Ghaghra, Gandak, Kosi, Mahananda)
- Right bank: **YaSoDa Ka Putra Chandan** (Yamuna, Son, Damodar, Karamnasa, Punpun, Chandan)

#### **Indus River**

- **Inspector John Chale Ravi Bhai ke Sath** (Indus, Jhelum, Chenab, Ravi, Beas, Satluj) First 3 are in control of Pak and later 3 with India.

#### **Trick to remember Man And Biosphere (MAB) reserve of UNESCO**

- **Achanak Sunder Kanchanapni Nanand ke sath Aagayi, Panje se Knock karke Smile kiya aur Nili Car me Mannar chali gayi.** (Achanakmar-Amarkantak, Sunderbans, Kanchenzonga, Nandadevi, Agasthasyamalai, Panchmarhi, Nokrek, Similipal, Nilgiri, Carnicobar, gulf of mannar)

#### **Trick to remember discontinuities in various part of earth**

- **Conrad Mohan ki Report Gulmarg se Leh** gayi (Conrad, Mohorovicic, Rappitti, Gluttenberg, Lehman). *The sequence is from upper crust to the inner core.*

#### **Other Important additions**

- States with Bicameral Legislature: **KAMBUJ-T** (Karnataka, Andhra, Maharashtra, Bihar, UP, J&K, Telangana)
- Delhi Sultanate: **Sab Khao Tamatar Sab Lo Maze** (Slave, Khilji, Tughlaq, Sayyid, Lodhi, Mughals)

- Chronology of Mughal Emperors: **BHAJSA** read like (BJP) Bhajpa (Babur, Humayun, Akbar, Jahangir, ShahJahan, Aurangjeb)
- 7 different field of Rainbow Revolution: **AFSPA Fauran Hatao** (Agriculture, Forestry, Sugarcane, Poultry, Animal Husbandry, Fishery, Horticulture)
- 8 Core Industries of India: CCC FRENS (Coal, Crude, Cement, Fertilizers, Refinery, Electricity, Natural gas, Steel)

### **Making India an influential nation in the world.**

Recently, an annual report on the Ministry of External Affairs (MEA) 2022 was presented in Parliament. In accordance with this, the parliamentary committee has made several recommendations to make India an influential nation in the world.

#### Issues Highlighted

- **Lacking in Personnel:** The country's diplomatic service is most short-staffed when compared to many other nations whose economy and stature were lower than that of India, with 1,011 Indian Foreign Service (IFS) officers accounting for only 22.5% of the foreign ministry's total strength.
- **Insufficient Officers to Present India:** The parliamentary committee has suggested that there are not enough "IFS A" officers to properly represent India's interests at international headquarters and foreign missions.
  - This is due to India's expanding involvement in international affairs and changes in foreign policy, which demand a rise in the number of officers.
- **Inadequate Budget Allocation:** The ministry had a 0.64% share of the government's total budget in 2019-20. Despite the committee's recommendation that the allocation should be at least 1% of the overall budget in view of India holding the G20 presidency, the allocation in 2023-24 dropped by 0.04% from 0.44% in 2022-23.
  - Despite the challenging mandate of making India a leading power and influential entity on the world stage, the MEA remains one of the least funded central ministries.
- **Need for Cadre Review:** There is a growing need for manpower in the diplomatic cadre to establish missions in all UN member countries. The ministry should conduct a cadre review promptly to build capabilities and enhance the capacity of its existing personnel to handle the expanded mandate effectively.
  - Such a review should be based on a comparative analysis of the strength of the diplomatic corps of major developing countries and countries in the neighbourhood.

- **A New Organisational Structure:**The panel urged the foreign ministry to frame a roadmap for enhancing its capacities and capabilities, including a structural change or a complete revamp of its organisational structure.
- **Aid Programmes:**The government needs to recognise the importance of aid programs and the role they play in advancing India's diplomatic objectives. Unlike other countries where aid programs and foreign ministries have separate budgets, in India, they are often the same.
  - This makes it even more critical to allocate sufficient funds to the foreign ministry to enable it to carry out its mandate effectively.
- **Lack of Flexibility in Democratic Structure:**The way the government is structured in the United States, with the different branches and bureaucrats moving in and out of the private sector, works well there as it creates a level of flexibility in the system that allows for adaptation to changing circumstances.
  - However, in India, the government needs to be more flexible and adaptable to respond to the diverse needs of its people and foster economic growth.

#### Looking ahead

- **Capacity Building:**The foreign ministry needs to enhance its capacities and capabilities, including a structural change or a complete revamp of its organisational structure. This can be achieved through investment in training, technology, and infrastructure.
- **Recruitment:**The recruitment process for the IFS needs to be streamlined to attract the best candidates and to ensure that the diplomatic corps reflects the diversity of Indian society.
- **Collaboration:**The ministry should collaborate with other government departments, civil society, and the private sector to leverage resources and expertise to advance India's foreign policy objectives.
- **Connectivity:** Aid programs will become increasingly important in the future, and the Indian foreign ministry needs to focus on building connectivity and developing infrastructure in other countries.
- **Focus on Indian Diaspora:**The Indian diaspora is growing, and the foreign ministry needs to be involved in engaging with them to advance India's interests and promote its values.
  - Overall, the Indian foreign ministry needs to be adequately resourced and equipped to advance India's interests on the world stage effectively.
- **Bureaucratic System:**The British and European bureaucratic systems may offer valuable lessons on addressing the challenge of flexibility. However, it is crucial to strike a balance between a permanent democratic structure and the ability to adapt to changing circumstances.

- The Indian government needs to work out a system that allows for this flexibility while maintaining the integrity of the bureaucratic system.
- Lateral Entry: The advantage of lateral entry is that it can bring in individuals with specialized knowledge, expertise, and experience in fields such as diplomacy, international relations, and strategic affairs. These individuals can provide new perspectives and innovative ideas to the ministry, which can help address complex foreign policy issues effectively.
  - Additionally, lateral entry can help bridge the gap between academia, civil society, and the government, which can enhance the ministry's outreach and engagement with external stakeholders.

### Indian Foreign Service (IFS)

Origin:

§ The Indian government established the Indian Foreign Service for India's diplomatic, consular and commercial representation overseas on 9th October 1946.

§ With independence, there was a near-complete transition of the Foreign and Political Department into what then became the new Ministry of External Affairs.

§ The origin of the Indian Foreign Service can be traced back to British rule when the Foreign Department was created to conduct business with the "Foreign European Powers".

Offices under IFS:

§ Ambassador, High Commissioner, Consul General, Permanent Representative of India to the United Nations and Foreign Secretary are some of the offices held by the members of the Indian Foreign Service.

## Biosphere Reserves

- Biosphere Reserve (BR) is an international designation by **United Nations Educational, Scientific and Cultural Organization (UNESCO)** for representative parts of natural and cultural landscapes **extending over large areas of terrestrial or coastal/marine ecosystems** or a combination of both.
- Biosphere Reserves **tries to balance economic and social development** and maintenance of associated cultural values along with the preservation of nature.
- Biosphere Reserves are thus special environments for both people and nature and are **living examples of how human beings and nature can co-exist** while respecting each other's needs.

### Criteria for Designation of Biosphere Reserve

- A site must contain a **protected and minimally disturbed core area** of value of nature conservation.
- The core area must be a **bio-geographical unit** and should be large enough to sustain a viable populations **representing all trophic levels**.
- The **involvement of local communities** and use of their knowledge in biodiversity preservation.
- Area's potential for preservation of **traditional tribal or rural modes of living** for harmonious use of the environment.

### Three Main Zones of Biosphere Reserve

- **Core Areas:**
  - It is the **most protected area of a biosphere reserve**. It may contain **endemic plants and animals**.
  - They conserve the wild relatives of economic species and also **represent important genetic reservoir** having exceptional scientific interest.
  - A core zone is a protected region, like a **National Park or Sanctuary**/protected/regulated mostly under the **Wildlife (Protection) Act, 1972**. It is kept **free from human interference**.
- **Buffer Zone:**
  - The buffer zone **surrounds the core zone**, and its activities are managed in this area in ways that help in the protection of the core zone in its natural condition.
  - It includes restoration, limited tourism, fishing, grazing, etc., which are **permitted to reduce its effect on the core zone**.

- **Research and educational activities** are to be encouraged.
- **Transition Zone:**
  - It is the **outermost part of the biosphere reserve**. It is the **zone of cooperation** where human ventures and conservation are done in harmony.
  - It includes settlements, croplands, managed forests and areas for intensive recreation and other economic uses characteristic of the region.

#### Functions of Biosphere Reserve

- **Conservation:**
  - Managing Biosphere Reserve's genetic resources, endemic species, ecosystems, and landscapes.
  - It may **prevent man-animal conflict**, death of tiger Avni who was shot dead when she turned man-eater
  - Along with the wildlife, culture and customs of tribals are also protected
- **Development:**
  - Promoting economic and human growth that is sustainable on a sociocultural and ecological level. It **seeks to strengthen the three pillars of sustainable development**: social, economic and protection of the environment.
- **Logistic support:**
  - Promoting research activities, environmental education, training and monitoring in the context of local, national and international conservation and sustainable development.

#### Biosphere Reserves are in India

- **There are 18 biosphere reserves in India:**
  - Cold Desert, Himachal Pradesh
  - Nanda Devi, Uttarakhand
  - Khangchendzonga, Sikkim
  - Dehang-Debang, Arunachal Pradesh
  - Manas, Assam
  - Dibru-Saikhowa, Assam



- Nokrek, Meghalaya
- Panna, Madhya Pradesh
- Pachmarhi, Madhya Pradesh
- Achanakmar-Amarkantak, Madhya Pradesh-Chhattisgarh
- **Kachchh, Gujarat (Largest Area)**
- Similipal, Odisha
- Sundarban, West Bengal
- Seshachalam, Andhra Pradesh
- Agasthyamala, Karnataka-Tamil Nadu-Kerala
- **Nilgiri, Tamil Nadu-Kerala (First to be Included)**
- Gulf of Mannar, Tamil Nadu
- Great Nicobar, Andaman & Nicobar Island
  - International Status of Biosphere Reserve
- UNESCO has introduced the designation 'Biosphere Reserve' for natural areas to minimize conflict between development and conservation.
- Biosphere Reserves are **nominated by national government** which meets a minimal set of criteria under the **Man and Biosphere Reserve Program of UNESCO**.
- There are **currently 738 biosphere reserves in 134 countries, including 22 transboundary sites**.
- There are total 12 biosphere reserves of India which have been recognized internationally under Man and Biosphere Reserve program:
  - **Nilgiri (First to be included)**
  - Gulf of Mannar
  - Sunderban
  - Nanda Devi
  - Nokrek
  - Pachmarhi
  - Similipal
  - Achanakmar - Amarkantak
  - Great Nicobar
  - Agasthyamala
  - **Khangchendzonga (Added under Man and Biosphere Reserve Program in 2018)**
  - **Panna, Madhya Pradesh (The latest included BR)**

#### Man and Biosphere Programme

- **Launched in 1971**, UNESCO's Man and the Biosphere Programme (MAB) is an intergovernmental scientific programme that **aims to establish a scientific**

**basis for the improvement of relationships between people and their environments.**

- MAB combines natural and social sciences, economics and education to improve human livelihoods and the equitable sharing of benefits, and to safeguard natural and managed ecosystems, thus **promoting innovative approaches to economic development** that are socially and culturally appropriate, and environmentally sustainable.

Biosphere Conservation

- A scheme called Biosphere Reserve is being **implemented by the Government of India since 1986**, in which financial assistance is given in 90:10 ratio to the **Northeastern** Region States and three Himalayan states and in the ratio of 60:40 to other states for maintenance, improvement, and development of certain items.
- The State Government prepares the **Management Action Plan which is approved and monitored by the Central MAB Committee.**

Looking ahead

- Land rights of tribals which depend on the forest resources in transition areas must be secured.
- Resources like spices from the reserves of Kerala should be marketed with "**Biosphere Reserve Tags**" which will increase their value.
- Munnar declaration which suggests that biosphere reserves can be carved out of the desert and **Gangetic plain bio-geographic zones should also be implemented.**
- As the biosphere reserve concept was aimed at sustainable development, the term, reserve, should be replaced with a suitable word.
- The government must take strict steps against alien species invading various biosphere reserves e.g., Nilgiri Biosphere Reserve.

### **Drip irrigation needs further push**

- Two major problems India's farmers face during summer are a **reduced supply of electricity** for pump sets and **scarcity of water for irrigation**.
- Farmers cultivating high-value crops such as **bananas, sugarcane, cotton, paddy, etc.**, using groundwater are unable to supply water adequately to crops due to frequent load-shedding.
  - This leads to **crop losses** on many occasions.
- Studies show that crop cultivation can be done profitably by adopting drip irrigation even in periods of **water scarcity and load-shedding**.

#### **Benefits of Drip Irrigation over Conventional Flood Method**

- Drip Irrigation is a different method for growing crops profitably while **saving resources**.
- **Less water and energy are required** compared to the flood method.
- **Reduced time for irrigation per hectare** due to the flood method's **high evaporation, conveyance & distribution losses**.
- Water delivery via a **pipe/emitter system** direct to the plant's root zone **prevents water waste**.
- **Yield increase** potential of **30-70%** in comparison to the flood method.

#### **Example:**

- An acre of **sugarcane or banana crop** needs only **one hour** for each turn of **irrigation by the drip method**.
- Same crops require **10-15 hours** to irrigate **using the flood method**, because of which the consumption of both power and water increases.

#### **Key findings of the Studies on drip irrigation**

- Agriculture Ministry's study shows about **1,065 kWh of electricity per hectare** can be saved by adopting the drip method in **sugarcane cultivation**.
- 2014 study by the Agriculture Ministry, covering **13 States**, reveals drip irrigation can increase crop yield by **42-53 %**, reduce irrigation costs by **20-50 %** and fertilizer use by **7-43 %**.
- Using the drip method, farmers in **Andhra Pradesh, Maharashtra, Gujarat and Tamil Nadu** are growing various crops profitably even under **highly deficient water and power situations**.
- Research shows that most farmers in **Jalgaon, Maharashtra**, who are cultivating **cotton, banana, onion and other crops** have **switched to drip irrigation due to severe power cuts**.

#### **Report of the Task Force on Micro-Irrigation:**

- It was set up by the **Central Government in 2004**.
- It states that **water and electricity can be saved** to a large extent by increasing the area under drip irrigation.

**Government efforts in promoting drip irrigation**

- Centre has been promoting drip irrigation **since 1990-91** by providing a **50-100 % subsidy** on the capital cost to farmers adopting it.
- To achieve the goal of '**more crop per drop**', the Pradhan Mantri Krishi Sinchayee Yojana was launched in 2015, with a **higher allocation of funds** to increase the area under drip irrigation.
  - As a result, the area under drip has increased from just **70,589 hectares in 1991-92** to **63.21 lakh hectares in 2020-21**.
- **Maharashtra, Gujarat, Karnataka, Andhra Pradesh and Tamil Nadu**, among other States, have announced various schemes with hefty subsidies to popularise this irrigation system among the farmers.
- But **India's drip irrigated area** was only **6 %** of the **total irrigated area in 2020-21**.

**Reasons for the shift to Drip Irrigation:**

- Besides horticultural crops, more than **80 crops** including **cotton, groundnut, sugarcane, banana, and tur** can be cultivated through drip irrigation.
- Task Force estimated that **270 lakh hectares of cultivated land** are suitable for drip irrigation.
- Number of blocks facing groundwater risk has increased from **1,645 in 2004** to **2,538 in 2020** due to **over-exploitation**.
- The main reason for this is the cultivation of water-intensive crops such as **sugarcane, banana, wheat and vegetables** through the **flooding method**.

**Suggestions:**

- Measures should be taken to **gradually bring sugarcane cultivation entirely under drip** with the support of sugarcane mills.
- Government should guarantee **interest-free bank loans and immediate electricity connection for pump sets** to farmers cultivating only through drip irrigation.

There are reports that a rapidly changing climate may cause changes in rainfall and increase water scarcity. The sooner a larger area is brought under drip irrigation the faster can the goal of 'more output per drop of water' be achieved.

## Why Indian start-ups have accused the Internet and Mobile Association of India of spreading 'Big Tech propaganda'?

- The term '**Big Tech**' is used to refer to a handful of large, globally **significant technology** companies, such as Google, Facebook, Amazon, Apple and Microsoft.
- Big Tech is better understood as a concept, rather than a static set of companies. New companies **may enter this category just as existing ones** may drop out of it.
- Some start-ups have accused the **IAMAI (Internet and Mobile Association of India)** of favoring Big Tech companies over smaller ones, which highlights the Issue of **Anti-Competitive Practices by Big Tech Companies**.
- IAMAI is a not-for-profit industry body registered under the **Societies Act, 1896**. Its mandate is to expand and enhance the online and mobile value-added services sector.

### Genesis

- The **Parliamentary Standing Committee** on Finance proposed **new regulations to prevent anti-competitive practices** by big tech companies.
  - These included ex-ante regulations that require companies to follow certain standards of behavior **before engaging in certain practices** and designating big tech companies as **Systemically Important Digital Intermediaries (SIDIs)**.
  - The SIDIs would be the leading **entities with the potential to negatively impact competition** in the digital ecosystem based on their revenue, market capitalization, and number of active users.
- However, the IAMAI argued that these **regulations could stifle innovation and competition**.
  - Other big tech companies like Meta, Apple, Amazon, Twitter, and Google among its members, **submitted similar comments**.
- This move has drawn criticism from some Indian startups, who accuse IAMAI of promoting views that favor foreign big tech companies and influencing the **Competitive Conduct in the Digital Ecosystem**.

### Role of Big Techs India's Digital Space

- **Revenue Source:** They play a prominent role in the **fintech market**, an attractive revenue source particularly because of **low per user ad revenues in India**.
- **Overcoming Literacy Barriers:** Voice-based and **regional language** interfaces are offered by Big Tech companies to reach new users and overcome literacy barriers.

- **Bridging Infrastructural and Employment Gaps:** New business verticals that bridge existing infrastructural and employment gaps by providing warehousing, delivery facilities and job opportunities are **helping India to serve Indian markets better.**
- **Social and Political Progress:** Most Indian internet users rely on one or more Big Tech platforms to access information, communicate, **and participate in political and social life.** This is also democratising the exercise of the **constitutional right of free speech.**

### How does Big techs Influence the Competitive Conduct in the Digital Ecosystem?

- **Acquisitions and Mergers:**
  - Large firms buying highly **valued start-ups without being subject to merge control rules** is a problem in digital markets.
  - The Committee noted that **CCI (Competition Commission of India)** is not able to capture certain mergers and acquisitions because **they do not meet the thresholds of assets and turnover required** for combinations.
- **Self-Preferencing:**
  - Self-preferencing happens when **a company promotes its own services** or those of its subsidiaries on its platform, while also competing with other service providers on the same platform.
    - For example, a company may give **priority in rankings to its own applications** in an app store. This lack of neutrality can harm other businesses and reduce their profits.
  - **Data Usage:**
    - Digital companies collect a lot of customer data **which can give them an advantage and make it hard for new companies** to compete.
    - This data can also be misused to **track and profile customers.**
  - **Restricting Third-Party Applications:**
    - Some companies **restrict the use of third-party applications** on their platforms, which can limit user choice.
      - For instance, an operating system **may prevent users from utilizing services** of an application other than its own, such as Apple not allowing any third-party applications to be installed on the I-phone.
    - **Adjacency:**
      - Digital firms sometimes force customers to **buy additional services linked to their main product**, which reduces competition and creates pricing asymmetry.
    - **Anti-Steering:**



- Anti-steering provisions are used by entities to **prevent business users from using other alternatives**, thereby reducing competition.
  - For example, application stores mandating the use of their own payment systems. These practices result in anti-competitive exclusionary practices.

### India's Current Approach to Regulate Big Tech

- **Competition Act, 2002:** In India, antitrust issues are **governed by the Competition Act, 2002**, and the CCI checks upon **monopolistic practices**.
  - In 2022, the CCI imposed a penalty of Rs 1,337.76 crore on Google for abusing its dominant position in multiple markets for "anti-competitive practices".
- **Competition Amendment Bill, 2022:** The government has proposed amendments to the competition law in the **Competition Amendment Bill, 2022**. The Bill receives Presidential Assent in April 2023.
  - The CCI shall frame regulations to prescribe the requirements for assessing whether an enterprise has substantial business operations in India.
  - It will strengthen the **Commission's review mechanism, particularly in the digital and infrastructure space**, a majority of which were not reported earlier, as the asset or turnover values did not meet the jurisdictional thresholds.

### Looking ahead

- To address the unique characteristics of digital markets **that do not have a turnover**, the Parliamentary Standing Committee on Finance proposes a system based on the value of deals.
- They also recommend that any concentration involving entities that provide digital services or collect data should be reported to the **CCI before implementation, regardless of whether it meets the notification**
- The government needs to take adequate steps to **promote internet awareness, such as checking the authenticity of websites** before any transactions are made, and not granting access to unauthorized applications.

**WTO needs to look at farm subsidy issue with open mind**

**World Trade Organization (WTO)**

- The World Trade Organization (WTO) is a global organization that promotes and regulates global trade.
- It was established in 1995 and includes the European Union among its 164 members.
- It gives member nations a place to negotiate and enforce trade agreements, settle disputes, and encourage economic development and growth.
- Geneva, Switzerland, is where it is headquartered.

**The WTO's origins:**

- The WTO is the replacement to the Overall Settlement on Duties and Exchange (GATT), which was made in 1947.
- The WTO was established as a result of the GATT's Uruguay Round (1986–1994).
- WTO operations began on January 1, 1995.
- The Arrangement Laying out the WTO, generally known as the “Marrakesh Understanding”, was endorsed in Marrakesh, Morocco in 1994.
- India was one of the founding members of the 1947 GATT and its successor, the WTO.
- Principal contrast among GATT and WTO was that GATT for the most part managed exchange products, the WTO and its arrangements couldn't cover merchandise yet in addition exchange administrations and other scholarly properties like exchange manifestations, plans, and developments.

In light of the COVID-19 pandemic and the war between Russia and Ukraine, India's finance minister has urged the World Trade Organization (WTO) to examine the issue of farm subsidies with an open mind because it affects the food security needs of emerging economies.

**WTO subsidies**

**Amber Box:**

- Subsidies that can sway international trade by making a nation's goods cheaper than those of other nations are known as amber box subsidies.
  - **Examples:** Endowments for data sources like manures, seeds, power, water system, and Least Help Value (MSP).
- As indicated by the WTO, horticulture's golden box is utilized for all homegrown help estimates that are considered to contort creation and exchange.
  - Consequently, signatories to the trade agreement are obligated to reduce domestic supports that fall under the amber box and distort trade.

- Members who fail to fulfill these commitments are required to keep their amber box support within five to ten percent of their production value. (Di Minimus Clause) 10 percent for developing nations and 5 percent for developed nations
- **Blue box:**
  - It is the “amber box with conditions,” which refers to conditions that are intended to lessen distortion.
  - Any help that would ordinarily be in the golden box is put in the blue box assuming it expects ranchers to restrict creation.
  - By imposing production quotas or requiring farmers to reserve a portion of their land, these subsidies aim to restrict production.
  - At present there are no restrictions on spending on blue box endowments.
- **Green Box:**
  - Domestic support measures that do not cause trade distortion or at most minimal distortion are referred to as the “Green Box.”
  - There is no price support for crops in the Green Box subsidies, which are funded by the government.
  - Programs for regional development and environmental protection are also included.
  - Therefore, there are no restrictions on “Green Box” subsidies (with the exception of certain circumstances).

#### **Why are new guidelines for subsidies required?**

- **Disparate Opportunities for the South:**
  - There has been a complaint about the export of agricultural goods ever since the WTO was established.
  - In general, the perspectives of the Global South and emerging markets have not been given the same weight in trade discussions as those of developed nations.
  - The majority of countries in Asia, Africa, and South America are referred to as the “Global South.”
- **Problems with the Food Subsidy Cap:** A WTO member country's food subsidy bill should not exceed the limit of 10% of the value of production based on the reference price of 1986-88.
  - This is an issue with the reference price that was adopted under global trade norms.
  - The World Trade Organization (WTO) froze subsidies for poor farmers and agriculture in developing nations because they were not counted at all.
  - Due to the unbalanced nature of trade agreements, developed nations have a greater level of food security than developing nations.

- **Food insecurity is rising:** The challenges to food security posed by the COVID-19 pandemic and the conflict between Russia and Ukraine have reaffirmed the need to reevaluate the subsidy norms, as food and fertilizer security has increased in importance.
- **Demand from India:** India has requested changes to the formula for calculating the food subsidy cap and the inclusion of programs implemented after 2013 under the “Peace Clause” as part of a permanent solution.

#### **Peace Clause of the WTO**

- As a break measure, the WTO individuals settled on a component called the ‘Harmony Statement’ in December 2013 and swore to arrange a long-lasting arrangement.
- Members of the WTO agreed, as part of the Peace Clause, not to challenge any developing nation’s breach of the prescribed ceiling in the WTO’s dispute resolution forum.
- This clause will remain till a super durable arrangement is found to the food storing issue.

#### **Agreement on Fisheries Subsidies (Agreement)**

- The **Agreement on Fisheries Subsidies (Agreement)** agreed at the recently concluded WTO Ministerial meeting **will prohibit subsidies from being provided for Illegal, Unreported and Unregulated (IUU) fishing and overfished stocks.**
- Under the **Special and Differential Treatment (S&DT), Developing Countries and Least Developed Countries (LDCs) have been allowed a transition period of two years** from the date of entry into force of this Agreement.
- The Agreement also **prohibits providing subsidies for fishing on high seas, which are outside the jurisdiction of coastal countries and Regional Fisheries Management Organizations/ Arrangements (RFMO/As).**
- As per the Agreement, **no prohibition has been imposed on a WTO Member regarding granting or maintaining subsidy to its vessel or operator as long as it is not carrying out IUU.**
- Similarly, **no prohibition on providing subsidies has been imposed for fishing regarding overfished stocks as long as such subsidies are implemented to rebuild the stock to a biologically sustainable level.**

#### **■ Significance**

- The Agreement **will eliminate the subsidies** granted to fishing vessels or fishing operators engaged in IUU fishing.
- Such disciplining will **check large-scale IUU fishing** which deprives coastal countries like India of fisheries resources, thereby significantly impacting the livelihoods of our fishing communities.

- This Agreement also provides flexibility to extend subsidies concerning overfished stocks if measures are taken to rebuild fish stocks to a **biologically sustainable level, which supports our fishing communities.**
  - **Fisheries Sector in India**
- India is the **second largest fish producing country** in the world accounting for 7.56% of global production and contributing about **24% to the country's Gross Value Added (GVA)**
- India is the **4th largest exporter** of fish in the world as it contributes 7.7% to the global fish production.
- Currently, this sector provides **livelihood to more than 2.8 crore people** within the country. Nevertheless, this is a sector with untapped potential.
- The fisheries sector has **demonstrated double-digit average annual growth of 10.87 %** since 2014-15 with record fish production of 145 lakh tons during 2020-21 as per the Economic Survey for 2021-22
- Indian Fisheries and Aquaculture sector registering an average annual growth of 7.53% during the last 5 years.
  - **Challenges faced by Fisheries in India**
- The FAO points out that **nearly 90% of the global marine fish stocks have either been fully exploited or overfished** or depleted to the extent that recovery may not be biologically possible
- In the Tropical regions, multiple varieties of fishes occur, but in smaller groups, which is not good for large scale commercial exploitation.
- Sector suffers from **Lack of a reliable database** relating to aquatic & fisheries resources.
- Aquatic pollution, destruction of fish habitats & frequent occurrence of **Dead Zones/Hypoxic zones** leading to shifting or permanent loss of Fishing zone.
- Lack of **access to quality seed & feed, inadequate availability of credit.**
- Increased use of **Fibre Reinforced plastic (FRB), & poor-quality boats** leading to ill effects on marine culture
- **Poor infrastructure** such as cold storage facilities, leading to an estimated 15-20% post-harvest loss.
- **Issue of Formalin leads to negative branding of Indian fisheries.**
  - **Steps taken to improve the fisheries sector**
- Foreseeing the vast resource potential & possibilities in the fisheries sector, a **separate Department of Fisheries was created in February 2019.**
- The Government has **merged all the schemes of fisheries Sector into an umbrella scheme of 'Blue Revolution: Integrated Development & Management of Fisheries'**.
- **Fisheries & Aquaculture Infrastructure Development Fund (FIDF)** was approved with a total fund size of Rs 7522.48 crore.

- FIDF provides **concessional finance to the eligible entities, cooperatives, individuals & entrepreneurs** for development of identified fisheries infrastructure.
- **Pradhan Mantri Matsya Sampada Yojana (PMMSY)**
- Rs 11,000 crore for activities in Marine, Inland fisheries, & Aquaculture & Rs. 9000 crores for Infrastructure – **Fishing Harbours, Cold chain, Markets etc shall be provided.**
- There are provisions of Ban Period Support to fishermen
- **Kisan credit cards for Fishermen**
- Kissan Credit Cards (KCC) to fishers & fish farmers to help them in meeting their working capital needs.
- **GEMINI: Gagan Enabled Mariner's Instrument for Navigation & Information**
- For **dissemination of information on disaster warnings, Potential Fishing Zones (PFZ) and Ocean States Forecasts (OSF)** to fishermen, GOI launched GEMINI device and mobile application.
- GOI has issued an advisory to all coastal States & UTs to make mandatory the use of Automatic Identification System (AIS) & Vessel Monitoring Systems (VMS) in fishing vessels for safe navigation.
  - **Looking Forward**
- The Fishing Sector has been **instrumental in sustaining the livelihoods of over 28 million people in India** especially for **marginalized and vulnerable communities** and has contributed **towards encourage socio-economic development.**
- In order to face these above challenges, the fisheries sector must **develop the capacity to build and run effective quality assurance systems to comply with increasing stringent international standards of international markets** as well as extending these to the domestic markets.
- Similarly, it should **promote efforts to improve selective fishing gears to minimize by-catches of juveniles and non-target species** and to **develop technologies to make economical utilization of unavoidable by-catches.**

India's long coastline has the potential of becoming the strength of the economy particularly through the exploitation of the Blue Revolution. India needs to develop more scientifically its fishing system and related infrastructure aspects.



## Switching on India's smart electricity future

- Installed Smart electric meters in India are **5.5 million**, and over **100 million are sanctioned**.
- Target is to replace **250 million** conventional electric meters with prepaid smart meters by **2025-26**.
- India is supporting this initiative through a **results-linked grant-cum-financing** to help power **distribution companies (discoms)** become financially **sound and efficient** to deliver **better services to consumers**.
  - However, there are also on-ground challenges.

### **What is Smart Electric Meter or Smart Meter?**

- It is an electronic device that records information such as **consumption of electric energy, voltage levels, current, and power factor**.
- It records energy near **real-time**, and reports **regularly, at short intervals** throughout the day.
- It enables **two-way communication** between the **meter and the central system**.

### **Study on Smart Electric Meters**

- It was conducted by the Council on Energy, Environment and Water (CEEW).
- It covered **2,700 urban households** that use prepaid or postpaid smart meters across **six States**.

### **Key Findings of the Study on Smart Electric Meters:**

- Half the users reported **improvements in billing regularity, and two-thirds** said paying bills had become easier.
- **40%** of users alluded to multiple co-benefits such as:
  - Greater sense of control over their electricity expenses,
  - Drop in instances of electricity theft, and
  - Improved local power supply.
- **70%** of users would **recommend the technology** to their friends and relatives.
- These findings give confidence that **India's smart metering transition** is heading in the **right direction**.

### **Challenges:**

- Half the users were **not** using the **smart meter mobile app**.
- Many users were **unable to access** detailed electricity bills, leaving them doubtful about their bill computation and deductions.
- Solving these will help bring a smart-meter revolution in India.

### **Suggestions**

#### **User Satisfaction and Smart Meter apps**

- **Ministry of Power** should educate consumers about **smart meter benefits** and improve the uptake of **smart meter apps**.

- Apps should be **accessible to users** from diverse **socio-economic backgrounds** and provide **actionable tips and information**.
- User satisfaction with smart meters is linked to **their ability to access and decipher online bills and perceived technology benefits**.
- High user satisfaction in **Assam** and high uptake of the mobile app in **Bihar** indicate learning opportunities on how to **scale smart meter usage for discoms** in other States.

### **Distribution Companies (Discoms)**

- Discoms must **co-own the programme** and take the driving seat.
- Majority of smart meters in India are being deployed by the **Advanced Metering Infrastructure Service Providers (AMISPs)**.
  - AMISPs responsible for installation and operation of the AMI system for the **project lifetime (10 years)**.
- Discoms must closely **work with AMISPs** to ensure users' **smooth installation and recharge experience**.
  - It will **leverage smart meter data** for revenue protection and consumer engagement.
- For this, Discoms will need to **strengthen their internal capacity** through suitable staffing and training interventions.

### **Smart Meter Data**

- Discoms system integrators and technology providers should collaborate to **devise innovative and scalable data solutions**.
- **Effective use of smart meter data** is fundamental to unlocking their true value proposition.
- This would require an ecosystem that fosters innovation in **analytics, data hosting, and sharing platforms** and enables key actors to collaboratively test and scale new solutions.

### **Regulations**

- Policymakers and regulators must **strengthen regulations** to empower consumers to unlock new retail markets.
  - Currently, important provisions concerning the phase-out of paper bills, arrear adjustment, frequency of recharge alerts, buffer time, rebates, and data privacy are scattered across different regulatory orders or simply missing.
- Regulation's incorporation within **existing State frameworks** will be crucial.
- Regulators must also **enable simplification and innovation in tariff design** and open the retail market to **new business models and prosumagers** (producers, consumers, and storage users).
- Ministry of Power has proposed **amendments to the Electricity Rules** to enable **time-variable tariffs** for all smart meter users.

India is on a journey of meeting its **growing electricity demand** while **decarbonising** its generation sources. Smart meters comprise a critical part of the transition toolbox, by way of enabling **responsible consumption, efficient energy management, and cost-effective integration of distributed energy resources**. A user-centric design and deployment philosophy will be crucial for the success of India's smart metering initiative.

### **Buddhist diplomacy by India**

- India hosted the Global Buddhist Summit 2023 in New Delhi, which was organised by the **Ministry of Culture** in collaboration with the **International Buddhist Confederation**.
- The summit was attended by key figures from the global Buddhist community, including the Dalai Lama.
- The Delhi summit saw a diverse group of 171 foreign delegates from **South Korea, Thailand, Cambodia, Japan, and Taiwan**, along with 150 delegates from **Indian Buddhist organisations**.
  - It was also attended by **prominent scholars, sangha leaders, and dharma practitioners**.
- The summit was a way for India to **project and connect with the Buddhist population** around the world and to increase its soft power.

#### ***Buddhist diplomacy by India***

##### **India's efforts in promoting Buddhist Diplomacy**

- The Indian Government has been actively investing in its Buddhist diplomacy efforts with a focus on **promoting tourism** through the development of the Buddhist circuit.
- Prime minister of India has made it a point to visit **Buddhist sites** during his **Southeast and East Asian visits**.
- By hosting the Global Buddhist Summit 2023, the Indian government hopes to demonstrate its commitment to **preserving and promoting Buddhist culture and heritage**, as well as strengthening ties with the global Buddhist community.
- India recognises the importance of Buddhism as a means of **conducting public diplomacy** and has utilised it to its advantage.
- Buddhist diplomacy has the potential to showcase India as a responsible global power committed to **peaceful cooperation and regional stability**.

- India promotes **greater understanding and cooperation** between nations for shaping the region's future.
  - However, to maintain its edge over China, more action is needed.

### **Panchamrit principles**

- The government's Panchamrit principles include **"Sanskriti Evam Sabhyata"** which means cultural and civilizational links.
- These principles were also highlighted during the **Delhi summit**.

### **Buddhist Diplomacy in Asia**

- **97%** of the global Buddhist population is based in **Asia**.
- **India and China** compete to dominate the **Buddhist heritage as a tool for soft power**.
- India holds an advantage due to the **faith's origins in the country**.
  - However, despite being home to many key Buddhist sites, such as Bodhgaya, Sarnath, and Kushinagar, India has struggled to attract **Buddhist tourists**, who tend to favour sites in **Thailand and Cambodia**.

### **Buddhist Diplomacy by China:**

- China effectively used Buddhist diplomacy to engage with its neighbouring countries **during the cold war**.
- China is still using it to gain legitimacy for its One Belt One Road (OBOR) Initiative.
- In addition to that, it is continuously seeking to take control over the **appointment of the next Dalai Lama**, which would be a **blow to India's efforts** to project its soft power through Buddhism.

### **Suggestions to Improve Buddhist Diplomacy**

- India should continue **promoting Buddhism at the highest levels of government**, while also organising **cultural events to showcase the country's rich Buddhist history**.
- **The Indian Council for Cultural Relations (ICCR)** could play a significant role in promoting such events within and outside India.
- India should work to strengthen its ties with **key Buddhist institutions and leaders** around the world.
- India also needs to utilise the **reach of Bollywood** in promoting its Buddhist heritage.
  - China, with its influence over **Hollywood**, has completely dominated the **narrative around Buddhism through cinema**.
  - India is behind in this domain, there have not been any efforts made through cinema.

Buddha (Siddhartha Gautam) was the **first diplomat of peace**, his teachings of peace and cooperation in these tough times can become the guiding light of Indian diplomacy on the world stage. India's G-20 presidency could be used to promote **Buddhist**

**diplomacy** on a bigger scale through various cultural meetings, especially as Buddhist teachings align with the motto of India's G-20 presidency, **'One Earth, One Family, One Future'**.

### **Buddhist Diplomacy: India's soft power projection tool**

- India hosted the Global Buddhist Summit 2023 in New Delhi, which was organised by the **Ministry of Culture** in collaboration with the **International Buddhist Confederation**.
- The summit was attended by key figures from the global Buddhist community, including the Dalai Lama.
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1. **India's efforts in promoting Buddhist Diplomacy**
  - The Indian Government has been actively investing in its Buddhist diplomacy efforts with a focus on **promoting tourism** through the development of the Buddhist circuit.
  - Prime minister of India has made it a point to visit **Buddhist sites** during his **Southeast and East Asian visits**.
  - By hosting the Global Buddhist Summit 2023, the Indian government hopes to demonstrate its commitment to **preserving and promoting Buddhist culture and heritage**, as well as strengthening ties with the global Buddhist community.
  - India recognises the importance of Buddhism as a means of **conducting public diplomacy** and has utilised it to its advantage.
  - Buddhist diplomacy has the potential to showcase India as a responsible global power committed to **peaceful cooperation and regional stability**.
  - India promotes **greater understanding and cooperation** between nations for shaping the region's future.
    - However, to maintain its edge over China, more action is needed.

1. **Panchamrit principles**

- The government's Panchamrit principles include **"Sanskriti Evam Sabhyata"** which means cultural and civilizational links.
- These principles were also highlighted during the **Delhi summit**.
- 1. **Buddhist Diplomacy in Asia**
  - **97%** of the global Buddhist population is based in **Asia**.
  - **India and China** compete to dominate the **Buddhist heritage as a tool for soft power**.
  - India holds an advantage due to the **faith's origins in the country**.
    - However, despite being home to many key Buddhist sites, such as Bodhgaya, Sarnath, and Kushinagar, India has struggled to attract **Buddhist tourists**, who tend to favour sites in **Thailand and Cambodia**.
- 1. **Buddhist Diplomacy by China:**
  - China effectively used Buddhist diplomacy to engage with its neighbouring countries **during the cold war**.
  - China is still using it to gain legitimacy for its One Belt One Road (OBOR) Initiative.
  - In addition to that, it is continuously seeking to take control over the **appointment of the next Dalai Lama**, which would be a **blow to India's efforts** to project its soft power through Buddhism.

#### **Suggestions to Improve Buddhist Diplomacy**

- India should continue **promoting Buddhism at the highest levels of government**, while also organising **cultural events to showcase the country's rich Buddhist history**.
- **The Indian Council for Cultural Relations (ICCR)** could play a significant role in promoting such events within and outside India.
- India should work to strengthen its ties with **key Buddhist institutions and leaders** around the world.
- India also needs to utilise the **reach of Bollywood** in promoting its Buddhist heritage.
  - China, with its influence over **Hollywood**, has completely dominated the **narrative around Buddhism through cinema**.
  - India is behind in this domain, there have not been any efforts made through cinema.

Buddha (Siddhartha Gautam) was the **first diplomat of peace**, his teachings of peace and cooperation in these tough times can become the guiding light of Indian diplomacy on the world stage. India's G-20 presidency could be used to promote **Buddhist diplomacy** on a bigger scale through various cultural meetings, especially as Buddhist teachings align with the motto of India's G-20 presidency, **'One Earth, One Family, One Future'**.



### The horizon for India beyond the G-20, SCO summits

- India's year-long **presidency of the G-20** and leadership of the Shanghai Cooperation Organisation (SCO) should not create unrealistic expectations about the dividends India can reap from these summits.
- The current geopolitical climate is characterized by a **high level of distrust and tensions** running high, and the threat of conflict looms large.
- Priorities listed by India as signifying its presidency, viz., **climate change, clean energy, sustainable developmental programmes, and reform of multilateral institutions**, are likely to take a back seat, given the deteriorating global situation.
- India also needs to be aware that the **importance of the G-20 appears to be declining** in today's world, while the **SCO seems to have somewhat greater traction**.
- During its presidency of the two institutions, India may well be called upon to chart a course that balances the contradictory demands of the **G-20 and the SCO**.

#### Distrust between United States and China

- The United States & its allies and China & Russia have **distrust between them**.
- This leaves little room for **countries like India**, which have not declared their allegiance to either camp, to maneuver.
- **The U.S. and its allies** are in a position to provide Ukraine with an arsenal of the most **sophisticated weaponry available**, alongside provision for **training Ukraine troops**.
- Ukraine presents a **spectacle of possessing substantial quantities of sophisticated modern weaponry**.
- Russia is also clandestinely **receiving equipment and material from its allies**, China not excluded.
- The two sides are thus positioning themselves to demonstrate which **set of modern weaponry is superior**.
- **The U.S. and European nations** such as **Germany, and** many nations elsewhere are **participating** in what is turning out to be **Europe's war with a global impact**.
- Even **South Korea** is becoming a potential supplier of military equipment to Ukraine.

#### Growing threat from China

- China has displayed its naval prowess in the seas around much of **East and Southeast Asia** and flexed its military muscle in the **Ladakh and Arunachal sectors** of the Sino-Indian border.

- India's Defence Minister's **'vanilla' laced response** is unlikely to deter China.
- China is launching several other regional initiatives to checkmate India in the Indian Ocean region, such as the **China-Indian Ocean Region Forum**.
- China is seeking to widen the **arc of conflict with India**.
- Currently, China is targeting India for going **closer to the U.S. and the Western bloc**, for its partnership in the **Quad**, as well as its participation in maritime surveillance exercises with the **U.S., Japan, and Australia**.
- China is seeking new partnerships in **India's extended neighbourhood**.
- West Asia is yielding to China's **muscular and diplomatic offensive**.
- The new China-brokered **Iran-Saudi Arabia entente** is setting the stage for major diplomatic shifts across the region, marginalizing India and certain other nations.
- India is aware of China's ability to embark on **hybrid warfare**, including the **adoption of cyber tactics**, and engage in the "politics of water" by **redirecting the Himalayan rivers**.

#### Challenges with neighbourhood (South Asia)

- The situation in **Afghanistan** appears to be steadily worsening.
- Events in Afghanistan country are now beginning to **affect nations on its periphery**.
- India lost **all traction** with the Taliban in Afghanistan.
- Pakistan and Sri Lanka, to different degrees, represent **'worst case' scenarios**.

#### Challenges in India-Russia Relations

- India's relations with Russia also appear to be entering a prolonged **phase of uncertainty**.
- Russian ties in defence cooperation have been a key factor in cementing their relations.
- As India looks **more to the West, especially the U.S.**, for state-of-the-art weaponry, the inevitability of the relationship can **no longer be guaranteed**.
- With the **Russia-China strategic relationship** getting stronger, **strains are inevitable in India-Russia relations**.
- Russia's unequivocal attack **on the Quad** during the **SCO Defence Ministers meeting** in New Delhi recently, is a pointer to the winds of change that are becoming evident.
- Other pacts involving Russia, such as the **Tripartite Russia-India-China platform and BRICS**, have lost much of their dynamism.
- The economic content of the **bilateral relationship is limited**, and for the present linked to **trading in oil**.

India has managed to emerge from the **COVID-19 pandemic and the resultant economic crisis** without much damage. India is widely seen as a **prospective global**

**power**, but many obstacles have to be overcome before it can achieve its predetermined goal. Despite its fortuitous position of helming both the G-20 and SCO simultaneously, India should not claim to have attained its goal.

### **Karnataka sovereignty row and India's Constitution**

- A massive political storm broke out over sovereignty remarks in the run-up to the Karnataka Assembly election 2023.
- The twitter handle of a prominent political party of India mentioned that it will not allow anyone to pose a threat to Karnataka's reputation, sovereignty or integrity.
- The other political party claimed that any call to protect the sovereignty of a member state of the Union of India amounts to a call for secession.
  - It has filed a complain against this statement to the Election Commission of India.
  - In its complaint, this political party invokes section **29A (5) of the Representation of People Act 1951**.
  - This section states that an association or body registered under the Act shall adhere to the Constitution and uphold the sovereignty, unity and integrity of India.
    - All registered political parties have to comply with these conditions.

#### **'Sovereignty' mean**

- Sovereignty is simply the idea of having supreme authority over a defined territory. It means the country has its own independent authority and is not under control of any external entity.
- Western philosophers used the concept to describe the supremacy of the state — along with its institutions such as the government, the judiciary, and parliament — over the people being governed.
- E.g., English philosopher **Thomas Hobbes** believed that in exchange for the protection offered by the government to its people, and its role in keeping society cohesive and at peace through its control over law and order, the state had a legitimate claim to sovereignty.

#### **How does the Constitution use the word 'sovereignty'?**

- The word sovereignty appears in the beginning of the Preamble to the Constitution of India, as the first attribute of the independent republic of India.

- Its placement as the first among the core principles of the republic underlines its importance in the Constitution.
- The word 'sovereignty' is invoked in the Indian Constitution to declare the ultimate sovereignty of the people of India and that the Constitution rests on their authority.
- This is illustrated in the fact that India was totally independent (declared Republic) on January 26, 1950, while Pakistan continued to be a British Dominion till 1956, meaning it still had the British monarch as the Head of State.
- Sovereignty is mentioned in the Constitution under Fundamental Duties.
  - **Article 51A(c)** states that it is the duty of all citizens to uphold and protect the **sovereignty**, unity and integrity of India.
- It is also mentioned in the oaths for positions like the Chief Justices, Union Ministers and Members of Parliament under the Third schedule.

#### **What is the relationship of the Indian states with the sovereign Union?**

- Article 1(1) of the Constitution sets out the fundamental relationship between the states and the Centre: "India, that is Bharat, shall be a Union of States."
- Dr Ambedkar explained this to mean that:
  - The Indian federation is not a result of an agreement by the units, and
  - The component units have no freedom to secede or break away from it.
- In its structural composition, the Indian political system is described as "quasi-federal".
  - The political theorist **K C Wheare** described it as "a Unitary State with subsidiary federal features rather than a Federal State with subsidiary unitary features."
- The choice of a unitary bias that the Constitution makers made was possibly rooted in the turmoil of the Partition, and the difficulty in getting around 600 princely states to accede to India.

#### **What provisions of the Constitution attest to the superior position of the Centre?**

- As per political experts, except in a few specified matters affecting the federal structure, the States need not even be consulted in the matter of **amendment to the bulk of the Constitution.**
- The **Governors in states**, seen as representatives of the Union in the States, are appointed "during the pleasure" of the President.
- The **right to alter the boundaries of states and to create new states** lies with Parliament alone.
  - The Constitution offers no guarantee to the States against their territorial integrity without their consent since it was not a result of an 'agreement' between the States.

## Global warming: Why India is heating up slower

- The **annual mean temperature of the world** is known to have **increased by 1.1 degree Celsius** from the **average of the 1850-1900 period**. But this increase, as can be expected, is not uniform. It **varies in different regions** and also at different times of the year. This **single number denoting global temperature increase**, very effective for communicating the dangers of climate change, is built on top of several layers of averages.
- **Temperature rise over land is much higher than over oceans. Over land**, the annual mean temperatures have risen by as much as **1.59 degree Celsius** since preindustrial times, according to the latest report of the **Intergovernmental Panel on Climate Change**. **Oceans**, in contrast, have **warmed by about 0.88 degree Celsius**.
- The **warming trends over the Indian region are very different**. An assessment of climate change over the Indian subcontinent, published by the **Ministry of Earth Sciences in 2020**, said **annual mean temperatures had risen by 0.7 degree Celsius from 1900**. This is **significantly lower than the 1.59 degree Celsius rise** for land temperatures across the world. It could give the impression that **the problem of climate change over India was not as acute as other parts of the world**. But that is not entirely accurate.

### Why is warming over India lower?

- The **relatively lower rise in temperatures over India is not a surprise**. Also, India is not a special case. The **increase in temperatures is known to be more prominent in the higher altitudes**, near the **Polar Regions**, than **near the equator**. This is attributable to a complex set of atmospheric phenomena, including heat transfers from the tropics to the poles through prevailing systems of air circulation. **India happens to be in the tropical region**, quite close to the equator.
- **A substantial part of the difference** between the temperature rise over India and that **over the entire world** can be explained by understanding **what the different numbers represent**.
- The **planet as a whole has warmed by 1.1 degree Celsius** compared with preindustrial times. But, as mentioned earlier, this is just the average. Different regions have seen very different levels of warming. **The Polar Regions**, particularly the **Arctic**, have seen **significantly greater warming**. The IPCC report says the **Arctic region has warmed at least twice as much as the world average**. Its current annual mean temperatures are **about 2 degrees Celsius higher than pre-industrial times**. Some other studies suggest the Arctic could be warming even faster.
- Again, this happens because of a **variety of reasons**, including the processes mentioned earlier. Another prominent cause is what is known as the **albedo**

**effect**, or **how much sunlight a surface reflects**. The **ice cover in the Arctic is melting**, because of which **more land or water is getting exposed to the Sun**. Ice traps the least amount of heat and reflects most of the solar radiation when compared with land or water. More recent research suggests that **the higher warming in the polar region could be attributed to a host of factors**, including the **albedo effect, changes in clouds, water vapour and atmospheric temperatures**.

- The warming in the **Polar Regions account for a substantial part of the 1.1 degree Celsius temperature rise** over the entire globe.

#### **Higher warming over land than oceans**

- However, the **0.7 degree Celsius temperature rise over India** has to be compared with the **warming seen over land areas**, not the entire planet. As mentioned, land areas have become warmer by 1.59 degree Celsius.
- **Land areas have a tendency to get heated faster**, and **by a larger amount**, than oceans. **Daily and seasonal variations in heating over land and oceans** are usually explained in terms of their different heat capacities. **Oceans have a higher capacity to cool themselves down** through the **process of evaporation**. The warmer water evaporates, leaving the rest of the ocean relatively cooler.
- However, **longer-term enhanced heating trends over land** have to be attributed to other, more complicated, physical processes involving **land-ocean-atmospheric interactions**.

#### **Impact of aerosols**

- **Aerosols** refer to **all kinds of particles suspended in the atmosphere**. These particles have the **potential to affect the local temperature in multiple ways**. Many of these **scatter sunlight back**, so that **lesser heat is absorbed by the land**. Aerosols also affect **cloud formation**. Clouds, in turn, have an impact on how much sunlight is reflected or absorbed.
- **Aerosol concentration over the Indian region is quite high**, due to natural as well as man-made reasons. Due to its location in the tropics and the **arid climate**, India is no stranger to dust. But **it also happens to be experiencing heavy pollution right now**. Emissions from **vehicles, industries, construction**, and other activities add **a lot of aerosols in the Indian region**. A reduction in warming could be an unintended but positive side-effect.

#### **Tropical location key**

- A **major part of India's relatively lesser warming** can be attributed to its location in the **lower latitudes**. As Bala Govindasamy, professor at the Centre for Atmospheric and Oceanic Sciences at the Indian Institute of Science in Bengaluru, said, the fact that **higher latitudes experience greater warming** is now fairly well established in science.



- **A majority of the global landmass** is concentrated in the **northern latitudes**. In **the tropics** and **along the equator**, it is **mostly oceans**. Land areas are also prone to faster, and greater, heating. Because of both these reasons — that **lands heat up more**, and **most of the land is located in northern latitudes** — the average warming over global land areas has become more pronounced. For a country like **India, located in the tropics**, the **deviation in temperature rise** from the global average is not surprising.
- **Aerosols could also be playing a role**, but the extent of the impact is not very clear right now. As M Rajeevan, former Secretary in the Ministry of Earth Sciences, put it, **aerosols have the potential to avoid 0.1 to 0.2 degree Celsius of warming over the Indian region**. Tragically, this would mean that as we clean up our air, temperature rise could be faster.
- Incidentally, while **the maximum temperatures over India have shown a significant increase since 1900**, the **rise in minimum temperatures** has not been much. The rise in annual mean temperatures, therefore, has been mainly due to the **increases seen in the maximum temperatures**. The reasons for this are not very well understood. The climate system operates at a global level, and modelling it on **regional scales introduces a lot of uncertainties**.

### A ground view of the Indian Space Policy 2023

- The Indian Space Research Organisation (ISRO) recently released the Indian Space Policy 2023 which had been in the works for some years.
- However, it needs to be followed up with **suitable legislation, accompanied by clear rules and regulations**.

#### **India's space industry and space economy**

- Until the early 1990s, India's space industry and space economy were **defined by ISRO**.
- Private sector involvement was **limited to building to ISRO designs and specifications**.
- The Second Space Age began with the licensing of private TV channels, the explosive growth of the Internet, mobile telephony, and the emergence of the smartphone.
- Now, ISRO's budget is approximately **\$1.6 billion**, and India's space economy is over **\$9.6 billion**.

- Broadband, OTT and 5G promise a **double-digit annual growth** in satellite-based services.
- It is estimated that with an enabling environment, the Indian space industry could grow to **\$60 billion by 2030**,
  - It will directly create **more than two lakh jobs**.

#### **Satellite Communication Policy**

- The **first satellite communication policy** was introduced in **1997**, with guidelines for **foreign direct investment (FDI)** in the satellite industry that were further liberalised but never generated much enthusiasm.
- Now, more than **half the transponders beaming TV signals** into Indian homes are **hosted on foreign satellites**, resulting in an annual outflow of over **half a billion dollars**.

#### **Remote sensing data policy:**

- A remote sensing data policy was introduced in **2001**, which was amended in **2011; in 2016**,
- It was replaced by a **National Geospatial Policy** that has been further liberalised in 2022.
- Yet, **Indian users** spend nearly a **billion dollars annually** to procure earth observation data and imagery from foreign sources.

#### **Draft Space Activities Bill**

- A draft Space Activities Bill was brought out in **2017**, which went through a **long consultative process**.
- It lapsed in **2019** with the outgoing **Lok Sabha**.

#### **Indian Space Policy 2023 is different**

- Indian Space Policy 2023's Vision is to **enable, encourage and develop** a flourishing commercial presence in space.
- The vision suggests an acceptance that the **private sector is a critical stakeholder** in the entire value chain of the space economy.
- The Indian Space Policy 2023 makes **five key points** that define its role in India's "socio-economic development and security, protection of environment and lives, pursuing peaceful exploration of outer space, stimulation of public awareness and the scientific quest".

#### **First**

- **Space-based intelligence, reconnaissance, surveillance, communication, positioning and navigation capabilities** are increasingly seen as mission-critical by the defence services.
  - India conducted a **successful A-SAT (anti-satellite)** direct ascent test in March 2019.
- India set up the **Defence Space Agency and the Defence Space Research Organisation** in the same year.

- A **defence-oriented space security policy document** will be a separate document.
- **The White House Office of Science and Technology Policy, National Aeronautics and Space Administration (NASA), and the Departments of Commerce and Transportation** put out a space policy in the United States.
  - On the other hand, the **Department of Defense and the Director of National Intelligence** are responsible for the **space security strategy**.

### **Second**

- The Indian Space Policy lays out a strategy and defines the roles of the Department of Space, ISRO, Indian National Space Promotion and Authorisation Centre (IN-SPACe), and NewSpace India Limited (NSIL).

### **Third**

- The Indian Space Policy states that ISRO will transition out of the existing practice of being present in the **manufacturing of operational space systems**.
  - Hereafter, **mature systems shall be transferred** to industries for commercial exploitation.
- ISRO shall focus on **R&D in advanced technology, proving newer systems and realisation of space objects** for meeting national prerogatives.
- ISRO's new policy includes **sharing technologies, products, processes, and best practices** with Non-Government Entities (NGEs) and/or Government companies.
- This means that ISRO will use its **qualified and talented manpower** to focus on **cutting-edge research and development** and long-term projects such as **Chandrayaan and Gaganyaan**.
- **NSIL** will become the interface for interacting with the industry, undertaking commercial negotiations and providing hand-holding support to ensure smooth and efficient transfer of technologies.

### **Fourth**

- The NGEs are allowed to undertake end-to-end activities in the space sector through the **establishment and operation of space objects, ground-based assets and related services**, such as communication, remote sensing, navigation, etc.
- The Indian Space Policy allows satellites to be **self-owned, procured, or leased**, and communication services to be over India or outside.
- Remote sensing data can be disseminated in **India or abroad**.
- NGEs can design and operate launch vehicles for space transportation and establish their infrastructure.
- NGEs can make filings with the **International Telecommunication Union (ITU)** and engage in commercial recovery of asteroid resources.

- Security agencies can task NGEs for procuring **tailor-made solutions** to address specific requirements.
- The activities of the NGEs will be in keeping with **guidelines and regulations** to be issued by **IN-SPACe**.

#### **Fifth**

- IN-SPACe is expected to create a **stable and predictable regulatory framework** that will ensure a level playing field for the NGEs.
- It will **act as a promoter** by setting up industry clusters and as the regulator, issue guidelines on liability issues.

#### **Gaps in Indian Space Policy 2023**

##### **Lack of Timeline**

- The policy sets out an ambitious **role for** IN-SPACe but provides no time frame for the necessary steps ahead.
- Neither is there an indicative timeline for ISRO's transitioning out of its current practices nor is there a schedule for IN-SPACe to create the regulatory framework.
- The policy framework needs clear rules and regulations regarding **FDI and licensing**, government procurement to sustain new **space start-ups, liability in case of violations, and an appellate framework for dispute settlement**.

##### **Legislative Authority**

- A regulatory body needs legislative authority.
  - **Examples:**
    - Reserve Bank of India was set up by 1934 RBI Act,
    - Securities and Exchange Board of India (SEBI) by 1992 SEBI Act, and
    - Telecom Regulatory Authority of India (TRAI) by 1997 TRAI Act.
- IN-SPACe is expected to authorise space activities for **all, both government and non-government entities**.
- Currently, it is functioning under the purview of the **Department of Space**.
- The Secretary (Space) is also the **Chairman of ISRO**, the government entity to be regulated by IN-SPACe.

The Space Policy 2023 is reflecting good intentions and a vision. But it is necessary to provide the necessary legal framework to translate this vision into reality, to successfully launch India into the Second Space Age.

## A New Arabian Tale

- The meeting between the **Saudi Crown Prince and the national security advisers of the US, UAE, and India** in Riyadh highlights the growing strategic convergence between India and the US in the Gulf.
- The meeting also underlines India's new possibilities in the **Arabian Peninsula**.
- The new India-US warmth on the Gulf is a significant departure from the traditional approaches to the Middle East in both India and the US.

### *India's Traditional foreign policy in the Gulf*

- It was the proposition that India must either **oppose the US** or keep its distance from it in the Middle East.
- India withdrew from its historic geopolitical role in the Middle East under **Nehruvian foreign policy**.

### **Impact of Nehruvian foreign policy:**

- Pakistan became the lynchpin of the **Anglo-American strategy** to secure the "wells of (oil) power" in the Gulf.
- Pakistan was a key part of the **Baghdad Pact** created in **1955** along with **Britain, Iraq, Iran, and Turkey** to counter the Communist threat.
  - After Iraq withdrew in 1958, the pact became the **Central Treaty Organisation (CENTO)** and moved to **Turkey**.
  - The regional members of CENTO, Pakistan, Iran, and Turkey, formed a forum on **Regional Cooperation for Development (RCD) in 1964**.
  - CENTO was dissolved in **1979**.
- However, Pakistan did not figure in the current strategy to connect the Gulf with the Subcontinent.

### **Decline of Pakistan in the Gulf**

- In the 1950s, Pakistan was considered a **moderate Muslim nation** with significant prospects for economic growth.
  - However, Pakistan's continuing strategic decline has made it **less relevant to the changing geopolitics of the Gulf**.
- Pakistan has locked itself into a self-made trap of violent **religious extremism**, and its political elite is **unprepared to lift the nation economically**.
- Pakistan has drifted too **close to China**, which has made matters more complicated.
- As the US-China confrontation sharpens, Pakistan is tempted to align with **China and Russia** in the region to boost its "**all-weather partnership**" with **China**.

### *China's Influence in the Gulf*

- China's **diplomatic and political influence** in the Gulf region will continue to rise, but it is nowhere near displacing the US as the principal external actor in the Gulf.
- However, the **Anglo-American connection** to the Arabian Peninsula dates back to the late **16th century**, and the **Anglo-Saxon powers** have no intention of **ceding the Gulf to China**.

#### **Rising power of the Arabian Peninsula**

- The Gulf kingdoms have undergone an **ambitious economic transformation** that will reduce their **dependence on oil over the long term**.
- They have also started to diversify their **strategic partnerships, promote religious tolerance at home, develop nationalism** as the political foundation for their states, and **initiate social reform**.

#### **Current Indian foreign policy in the Gulf**

- India rejected the notion that it can't be **visibly friendly to Israel**.
- India turned its uneasy relations with Saudi Arabia and the UAE, into **solid strategic partnerships**.
- India became a part of a four-nation grouping, unveiled in October 2021 called I2U2 that brought the **US, India, Israel, and the UAE together**.
- Not only the US, but **France** also has emerged as an important partner in the **Gulf and the Western Indian Ocean**.
  - India now has a trilateral dialogue with **UAE and France**.

#### **India's Possibilities in Arabia**

- The New Arabian Tale presents new possibilities for India's **economic growth and productive involvement** in promoting connectivity and security within Arabia and between it and other connected regions, including **Africa, the Middle East, Eastern Mediterranean, and the Subcontinent**.
- India's engagement in the Arabian Tale should also help overcome the dangerous forces of **violent religious extremism** within the Subcontinent.

The emerging possibilities for partnership with the **US and the West**, along with the new opportunities in Arabia, position India to rapidly elevate its standing in the region. However, to seize these opportunities, India needs to **modernize its strategic discourse on the Gulf** and make concerted **efforts to change the outdated narratives** on the Arabian Peninsula.



## India's new 'multi-alignment'

- While the **Cold War (US-USSR)** was raging and shaking **international politics**, in the initial two decades following India's independence, **India's foreign policy** was heavily determined by the policy of **non-alignment**, which later became a full-fledged movement and forum of discussion in 1961 (**Non Alignment Movement**).
- But today, **India skillfully maneuvers** between China-led or Russia-led groupings such as the **BRICS** and the **Shanghai Cooperation Organization (SCO)**, along with its involvement in US-led groupings such as the **Quadrilateral Security Dialogue (Quad)**, in which **Japan** and Australia are also members.

### Non-Alignment in India

- The **Non-Aligned Movement (NAM)** was created and founded during the collapse of the colonial system and the independence struggles of the peoples of **Africa, Asia, Latin America** and other regions of the world and at the height of the Cold War.
- In 1960, it was at the fifteenth ordinary session of the **United Nations General Assembly** that the **Movement of Non-Aligned Countries** was created, resulting in the **admission of 17 new African and Asian members**.
  - **The then Prime Minister Jawahar Lal Nehru** also promoted the concept of '**non-alignment**', or equidistance of the '**third world**' from the two superpowers of the Cold War. These concepts found their way to the **Bandung Conference of 1955**.
    - The primary objectives of the non-aligned countries focused on the **support of self-determination, national independence and the sovereignty and territorial integrity of States, non-adherence to multilateral military pacts**.
  - **By the end of the 1980s**, the Movement was facing the great **challenge brought about by the collapse of the socialist block**. The end of the clash between the two antagonistic blocks that was the reason for its existence, name and essence was seen by some as the **beginning of the end for the Movement of Non-Aligned Countries**.

### India's New Multi-Alignment Approach

- **Multi-Alignment:** It is a **series of parallel relationships** that strengthen **multilateral partnerships** and seek a **common approach among the grouping towards security, economic equity and the elimination of existential dangers like terrorism**. Below are a few forums where India's Multi-Alignment Approach is clearly evident:

- **International North-South Transport Corridor (INSTC):** A 7,200-kilometer multi-modal transport corridor that combines road, rail and maritime routes, connecting Saint Petersburg (Russia) to Mumbai.
  - **International North-South Transport Corridor** offers a platform for India **to collaborate with Russia, Iran, and the Central Asian Republics** towards fostering a Eurasian Free Trade Area.
  - Once fully operational, INSTC is **expected to reduce freight costs by 30%** and the journey time by 40% compared to the deep-sea route via the **Suez Canal**.
- **BRICS:** BRICS is an acronym for the grouping of the world's leading emerging economies, namely **Brazil, Russia, India, China and South Africa**, seeks for **economic, political and security cooperation including people-to-people exchange** through a well-planned mechanism.
  - India was instrumental in co-founding the **New Development Bank (NDB)**, a new multilateral initiative **expected to rival the World Bank**.
- **Shanghai Cooperation Organization: SCO** is a **Eurasian political, economic and military organization** aiming to maintain peace, security and stability in the region.
  - **Membership:** Kazakhstan, China, Kyrgyzstan, Russia, Tajikistan, Uzbekistan, India and Pakistan.
    - **Iran and Belarus** are likely to be the two newest additions.
  - From SCO, **China and Russia are looking to counter the West**, especially the **expansion of NATO (North Atlantic Treaty Organization)**.
- **Quadrilateral Security Dialogue: QUAD** is the informal strategic dialogue between **India, USA, Japan and Australia** with a shared objective to ensure and support a **“free, open and prosperous” Indo-Pacific region and counter China**.

#### **India's Current Foreign Policy**

- **Sammaan:** Respect for every nation's sovereignty
- **Samvaad:** Greater engagement with all countries.
- **Suraksha:** Security; India is a responsible power-neither aggression nor adventurism exists in its DNA
- **Samriddhi:** Shared prosperity
- **Sanskriti and Sabhyata:** The persuasive reach of cultural values anchored in a philosophy which believes that the world is a family.

### **Problems with India's New Multi-Alignment**

- India's **multi-alignment strategy** allows it to maintain good relations with both Russia and Ukraine.
- This has given India some diplomatic space to play a **role in mediating the conflict**.
- However, India's **material resources are not sufficient** to match China's economic and military potential.

### ***China's Approach to Ukraine Crisis***

- China has blamed **NATO's eastward expansion for the war**.
- It has accused the **United States** of being the **biggest obstacle to a ceasefire**.
- It has exploited differences among **Western countries** about how much **support to give Ukraine**.
- It has further **cemented its relationship with Russia**.
- It has ensured the **survival of the Vladimir Putin regime**.
- It has positioned itself in **opposition to the American approach to the conflict**.

### ***India's Approach to Ukraine Crisis***

- In contrast to the Chinese President's first outreach to **Ukraine**, the Indian Prime Minister has spoken to the Ukrainian counterpart many times.
- India had expressed **solidarity with Ukraine** while extending **support for peace efforts**.
- Indian Prime Minister publicly told the Russian President "**Today's era is not of war**", a remark that seemed to be a **reprimand to Russia**.
- Despite Western criticism of India's continued **energy imports from Russia** and export of excess refined **Russian fuel to the European market**.
- This is seen as underscoring **India's rising stature** and recognition of its unique position in the emerging global order.

### ***India as Vishwaguru***

- During Ukraine's Deputy Foreign Minister's recent visit to India, she remarked that "India wants to be the **Vishwaguru**, the global teacher and arbiter. Ukraine is the only right choice for true Vishwaguru."
- **Vishwaguru** is at the core of the Current government's **nationalist foreign policy discourse**.
- Vishwaguru builds on historical trends in India's political thought that emphasize the distinctiveness of the country's **cultural ethos and civilizational values**.
- The phrase highlights the unique **nature of "soft power" in foreign policy debates**.

### ***India's Soft Power***

- **Nationalist ideas** have always influenced the Indian state, contributing to their further proliferation in **society and polity**.
- Soft power is simultaneously **ubiquitous and ambiguous**, accepted as significant yet narrow in its policy impact.
- It should be understood as any other form of “**nonmaterial**” **power** which interacts with material resources or **hard power**, either enlarging their impact or making up for their absence.

### ***India's Hard Power***

- **India lacks hard power.**
- If India had power in its hands, then the Ukraine war would not have come before the world.

### ***India's UNSC approach***

- India has **avoided taking a clear position** in many UN resolutions on the issue.
- India has often taken an evasive position on conflicts that involve its traditional allies.
  - However, this ambiguity **does not behoove** a nation aspiring to become a permanent member of the UNSC.

### ***Difference between India's and China's approach***

- India has traditionally been uncomfortable with viewing its **national interests in binary terms**.
- India has a long-standing **relationship with Russia**, which is important for its **military preparedness**.
- Russia's justifications for its military actions in Ukraine **do not resonate** with most of India's political elite.
- China has also made similar justifications, which **India does not agree with**.
- India has **no revisionist motives** and believes in the **sovereignty of all nations**.
- India's views on sovereignty are in line with the universally accepted **Westphalian notion**.
- China's political philosophy of "**might is right**" is fundamentally different from India's.

### ***Challenges for India's Foreign Policy***

- **Growing Russia-China Axis:** Russia has become increasingly interested in its periphery's affairs. Furthermore, **sanctions imposed after the annexation of Crimea have pushed it towards a closer relationship with China** that can certainly deflect its interest in India.
- **Self-Imposed Isolation of India:** Currently, India remains isolated from supranational bodies like **South Asian Association for Regional Cooperation**

**(SAARC)**. Moreover, India has **opted out of the Regional Comprehensive Economic Partnership (RCEP)**.

- Self-imposed isolation does not fit with India's ambition to become a global power.
- **Weakening Ties with Neighbors:** A more worrying concern for Indian foreign policy is weakening ties with the neighbors. This can be seen from instances like **China's Cheque Book Diplomacy** vis-a-vis **Sri Lanka and Pakistan, strain in relation with Bangladesh on National Register of Citizens (NRC) issue** and a **border dispute with Nepal**.
  - Thus instead of looking towards development of the country, **India is forced to invest heavily in security**.

### Looking forward

- **Strengthening Ties with Neighbors:** India should make valiant efforts to improve relations with some of its neighbors such as **Bangladesh, Myanmar, and Sri Lanka**.
  - In this context, India can look forward to extending more diplomatic policies like "**vaccine diplomacy**" under its **Neighbourhood First Policy** with neighbors, which supplied vaccines for free or at affordable prices in 2021.
- **Thinking Beyond Geo-Political:** It is imperative to expand the focus of India's foreign policy agenda beyond the traditional thinking of geopolitical boundaries to address issues such as regulatory oversight of **trans-boundary digital giants, big data management, trade issues and disaster relief**.
- **G20 in 2023: India's presidency of G20 in 2023** will give it the chance to **weave goeconomic themes with geopolitical interests**. Until now, India has played the role of an emerging power trying to become a global power. The G20 summit of 2023 will allow India to articulate and be proactive on issues that matter to the world.
- Therefore, a **multi-alignment approach preserving certain prominent values of non-alignment** is good for India's interests and advancing towards "**Vasudeva Kutumbakam**".

## Strategic convergence between US, UAE, Saudi Arabia and India

- The meeting between the **Saudi Crown Prince and the national security advisers of the US, UAE, and India** in Riyadh highlights the growing strategic convergence between India and the US in the Gulf.
- The meeting also underlines India's new possibilities in the **Arabian Peninsula**.
- The new India-US warmth on the Gulf is a significant departure from the traditional approaches to the Middle East in both India and the US.

### *India's Traditional foreign policy in the Gulf*

- It was the proposition that India must either **oppose the US** or keep its distance from it in the Middle East.
- India withdrew from its historic geopolitical role in the Middle East under **Nehruvian foreign policy**.

### **Impact of Nehruvian foreign policy:**

- Pakistan became the lynchpin of the **Anglo-American strategy** to secure the "wells of (oil) power" in the Gulf.
- Pakistan was a key part of the **Baghdad Pact** created in **1955** along with **Britain, Iraq, Iran, and Turkey** to counter the Communist threat.
  - After Iraq withdrew in 1958, the pact became the **Central Treaty Organisation (CENTO)** and moved to **Turkey**.
  - The regional members of CENTO, Pakistan, Iran, and Turkey, formed a forum on **Regional Cooperation for Development (RCD) in 1964**.
  - CENTO was dissolved in **1979**.
- However, Pakistan did not figure in the current strategy to connect the Gulf with the Subcontinent.

### **Decline of Pakistan in the Gulf**

- In the 1950s, Pakistan was considered a **moderate Muslim nation** with significant prospects for economic growth.
  - However, Pakistan's continuing strategic decline has made it **less relevant to the changing geopolitics of the Gulf**.
- Pakistan has locked itself into a self-made trap of violent **religious extremism**, and its political elite is **unprepared to lift the nation economically**.
- Pakistan has drifted too **close to China**, which has made matters more complicated.
- As the US-China confrontation sharpens, Pakistan is tempted to align with **China and Russia** in the region to boost its "**all-weather partnership**" with **China**.

### *China's Influence in the Gulf*



- China's **diplomatic and political influence** in the Gulf region will continue to rise, but it is nowhere near displacing the US as the principal external actor in the Gulf.
- However, the **Anglo-American connection** to the Arabian Peninsula dates back to the late **16th century**, and the **Anglo-Saxon powers** have no intention of **ceding the Gulf to China**.

#### **Rising power of the Arabian Peninsula**

- The Gulf kingdoms have undergone an **ambitious economic transformation** that will reduce their **dependence on oil over the long term**.
- They have also started to diversify their **strategic partnerships, promote religious tolerance at home, develop nationalism** as the political foundation for their states, and **initiate social reform**.

#### **Current Indian foreign policy in the Gulf**

- India rejected the notion that it can't be **visibly friendly to Israel**.
- India turned its uneasy relations with Saudi Arabia and the UAE, into **solid strategic partnerships**.
- India became a part of a four-nation grouping, unveiled in October 2021 called I2U2 that brought the **US, India, Israel, and the UAE together**.
- Not only the US, but **France** also has emerged as an important partner in the **Gulf and the Western Indian Ocean**.
  - India now has a trilateral dialogue with **UAE and France**.

#### **India's Possibilities in Arabia**

- The New Arabian Tale presents new possibilities for India's **economic growth and productive involvement** in promoting connectivity and security within Arabia and between it and other connected regions, including **Africa, the Middle East, Eastern Mediterranean, and the Subcontinent**.
- India's engagement in the Arabian Tale should also help overcome the dangerous forces of **violent religious extremism** within the Subcontinent.

The emerging possibilities for partnership with the **US and the West**, along with the new opportunities in Arabia, position India to rapidly elevate its standing in the region. However, to seize these opportunities, India needs to **modernize its strategic discourse on the Gulf** and make concerted **efforts to change the outdated narratives** on the Arabian Peninsula.

## A ground view of the Indian Space Policy 2023

- The Indian Space Research Organisation (ISRO) recently released the Indian Space Policy 2023 which had been in the works for some years.
- However, it needs to be followed up with **suitable legislation, accompanied by clear rules and regulations.**

### **India's space industry and space economy**

- Until the early 1990s, India's space industry and space economy were **defined by ISRO.**
- Private sector involvement was **limited to building to ISRO designs and specifications.**
- The Second Space Age began with the licensing of private TV channels, the explosive growth of the Internet, mobile telephony, and the emergence of the smartphone.
- Now, ISRO's budget is approximately **\$1.6 billion**, and India's space economy is over **\$9.6 billion.**
- Broadband, OTT and 5G promise a **double-digit annual growth** in satellite-based services.
- It is estimated that with an enabling environment, the Indian space industry could grow to **\$60 billion by 2030,**
  - It will directly create **more than two lakh jobs.**

### **Satellite Communication Policy**

- The **first satellite communication policy** was introduced in **1997**, with guidelines for **foreign direct investment (FDI)** in the satellite industry that were further liberalised but never generated much enthusiasm.
- Now, more than **half the transponders beaming TV signals** into Indian homes are **hosted on foreign satellites**, resulting in an annual outflow of over **half a billion dollars.**

### **Remote sensing data policy:**

- A remote sensing data policy was introduced in **2001**, which was amended in **2011; in 2016,**
- It was replaced by a **National Geospatial Policy** that has been further liberalised in 2022.
- Yet, **Indian users** spend nearly a **billion dollars annually** to procure earth observation data and imagery from foreign sources.

### **Draft Space Activities Bill**

- A draft Space Activities Bill was brought out in **2017**, which went through a **long consultative process.**
- It lapsed in **2019** with the outgoing **Lok Sabha.**

### **Indian Space Policy 2023 is different**

- Indian Space Policy 2023's Vision is to **enable, encourage and develop** a flourishing commercial presence in space.
- The vision suggests an acceptance that the **private sector is a critical stakeholder** in the entire value chain of the space economy.
- The Indian Space Policy 2023 makes **five key points** that define its role in India's "socio-economic development and security, protection of environment and lives, pursuing peaceful exploration of outer space, stimulation of public awareness and the scientific quest".

### **First**

- **Space-based intelligence, reconnaissance, surveillance, communication, positioning and navigation capabilities** are increasingly seen as mission-critical by the defence services.
  - India conducted a **successful A-SAT (anti-satellite)** direct ascent test in March 2019.
- India set up the **Defence Space Agency and the Defence Space Research Organisation** in the same year.
- A **defence-oriented space security policy document** will be a separate document.
- **The White House Office of Science and Technology Policy, National Aeronautics and Space Administration (NASA), and the Departments of Commerce and Transportation** put out a space policy in the United States.
  - On the other hand, the **Department of Defense and the Director of National Intelligence** are responsible for the **space security strategy**.

### **Second**

- The Indian Space Policy lays out a strategy and defines the roles of the Department of Space, ISRO, Indian National Space Promotion and Authorisation Centre (IN-SPACe), and NewSpace India Limited (NSIL).

### **Third**

- The Indian Space Policy states that ISRO will transition out of the existing practice of being present in the **manufacturing of operational space systems**.
  - Hereafter, **mature systems shall be transferred** to industries for commercial exploitation.
- ISRO shall focus on **R&D in advanced technology, proving newer systems and realisation of space objects** for meeting national prerogatives.
- ISRO's new policy includes **sharing technologies, products, processes, and best practices** with Non-Government Entities (NGEs) and/or Government companies.
- This means that ISRO will use its **qualified and talented manpower** to focus on **cutting-edge research and development** and long-term projects such as **Chandrayaan and Gaganyaan**.

- **NSIL** will become the interface for interacting with the industry, undertaking commercial negotiations and providing hand-holding support to ensure smooth and efficient transfer of technologies.

#### **Fourth**

- The NGEs are allowed to undertake end-to-end activities in the space sector through the **establishment and operation of space objects, ground-based assets and related services**, such as communication, remote sensing, navigation, etc.
- The Indian Space Policy allows satellites to be **self-owned, procured, or leased**, and communication services to be over India or outside.
- Remote sensing data can be disseminated in **India or abroad**.
- NGEs can design and operate launch vehicles for space transportation and establish their infrastructure.
- NGEs can make filings with the **International Telecommunication Union (ITU)** and engage in commercial recovery of asteroid resources.
- Security agencies can task NGEs for procuring **tailor-made solutions** to address specific requirements.
- The activities of the NGEs will be in keeping with **guidelines and regulations** to be issued by **IN-SPACe**.

#### **Fifth**

- IN-SPACe is expected to create a **stable and predictable regulatory framework** that will ensure a level playing field for the NGEs.
- It will **act as a promoter** by setting up industry clusters and as the regulator, issue guidelines on liability issues.

#### **Gaps in Indian Space Policy 2023**

##### **Lack of Timeline**

- The policy sets out an ambitious **role for** IN-SPACe but provides no time frame for the necessary steps ahead.
- Neither is there an indicative timeline for ISRO's transitioning out of its current practices nor is there a schedule for IN-SPACe to create the regulatory framework.
- The policy framework needs clear rules and regulations regarding **FDI and licensing**, government procurement to sustain new **space start-ups, liability in case of violations, and an appellate framework for dispute settlement**.

##### **Legislative Authority**

- A regulatory body needs legislative authority.
  - **Examples:**
    - Reserve Bank of India was set up by 1934 RBI Act,
    - Securities and Exchange Board of India (SEBI) by 1992 SEBI Act, and

- Telecom Regulatory Authority of India (TRAI) by 1997 TRAI Act.
- IN-SPACE is expected to authorise space activities for **all, both government and non-government entities.**
- Currently, it is functioning under the purview of the **Department of Space.**
- The Secretary (Space) is also the **Chairman of ISRO**, the government entity to be regulated by IN-SPACE.

The Space Policy 2023 is reflecting good intentions and a vision. But it is necessary to provide the necessary legal framework to translate this vision into reality, to successfully launch India into the Second Space Age.

## Central Bank Digital Currency - The 'digital rupee' in India

Central Bank Digital Currency (CBDC) is a digital counterpart of government-backed fiat money. This kind of digital currency is connected to the nation's currency and issued by its central bank. The same would be the case with the 'digital rupee' in India as it will be backed by the central bank of India, i.e. RBI. The development of CBDCs is underway in more than 100 nations across the world, and it is in various phases. Some countries have already released their digital currencies, while some have abandoned or stopped working on their initiatives. Despite being strongly inspired by bitcoins, the idea of CBDCs differs from decentralised virtual currencies and crypto assets, which are not issued by the government and do not have the status of "legal tender." With the rising demand for cryptocurrencies, there is a rise in the government's concerns about the risks associated with the same and its tendency to facilitate money laundering and other forms of criminal financing, and thus the concept of CBDC is gaining momentum. Even though the RBI supports the growth of virtual and online currencies, it does not support ones like bitcoin because it is impossible to monitor their end-use. It is preferred to introduce CBDC in order to track end-to-end virtual currency usage. The article sheds light on what digital currency is, how it differs from cryptocurrencies, why it has had such a surge in popularity recently, as well as the problems and risks that come with using it.

### Introduction

Traditional banking and financial systems are transforming across the globe owing to the effects of the Covid-19 epidemic, shifting trading dynamics, and pervasive technological advancements. Post demonetisation in 2016 and the launch of digital India initiative, the government in India has been stressing on the use of digital space and digital money. The current Union Budget Finance Minister, Nirmala Sitharaman announced the introduction of Central Bank Digital Currency which is popularly known as "CBDC". The Reserve Bank of India (RBI) is seriously considering introducing its own Central Bank Digital Currency (CBDC) this fiscal year, which will first be restricted to usage by wholesale businesses only. Given this, the RBI submitted a proposal to the central government in October 2021 to alter the RBI Act, 1934 to expand the definition of "banknote" to encompass currency in digital form. The central bank stated in its annual report (published in May 2022) that it was considering the benefits and pitfalls of introducing CBDC in India while moving gradually through the phases of proof-of-concept, pilots, and launch. "The Reserve Bank is engaged in introducing a central bank digital currency (CBDC) in India. The design of CBDC needs to be in conformity with the stated objectives of monetary policy, financial stability and efficient operations of currency and payment systems," the RBI said in its report. With the declaration of CBDC in the Union Budget and subsequent enactment of the Finance Bill containing the necessary amendments to the RBI Act, 1934 the necessary legal foundation for CBDC's establishment has been laid and therefore the RBI is now responsible for ensuring that



the digital currency that will be introduced achieves the goals that have been set for its introduction.

What is a central bank digital currency or CBDC?

According to RBI, "A CBDC is a legal tender issued by a central bank in a digital form. It is the same as a fiat currency and is exchangeable one-to-one with the fiat currency. Only its form is different". In other words, digital currency is a digitised or virtual version of domestic currency that is equal to physical cash. CBDC, though a virtual or digital currency, differs from private cryptocurrencies in that it satisfies a key requirement of the definition of a currency being backed and issued by a central bank.

CBDC is the same as money issued by a central bank, except it doesn't come in paper form (or polymer). It is a sovereign currency in electronic form and

would appear as a liability (currency in circulation) on the balance sheet of the central bank of India.

Hence,

Central bank digital currency is ....

- the legal tender
- issued and governed by the central bank
- is in digital form
- same as a fiat currency
- will be based on blockchain technology

Although CBDC is a virtual or digital currency, it cannot be compared to the private virtual currencies or cryptocurrencies that have exploded over the past ten years.

It is also essential to understand the difference between CBDC and cryptocurrencies.

Not all digital currencies are cryptocurrencies, but all cryptocurrencies are digital currencies. Digital currency may not be encrypted, but cryptocurrency operates in an encrypted format through blockchain technology.

Since there is no issuer, private virtual currencies do not represent any person's debt or liabilities.

What are the drivers of CBDC?

- The majority of central banks throughout the world are experimenting with digital currency to combat the current wave of virtual currencies or cryptocurrencies. Private or decentralised money is not something that the central bank can regulate, and it also poses a challenge to the sovereignty of their national currency as the public is responsible for both the creation and upkeep of these virtual currencies. The central bank can prevent these misdeeds by regulating

the digital currency. That is why most central banks, including those in Sweden, China, and the EU, are developing their own CBDC.

- Another issue with cryptocurrencies is that their value is purely based on speculations because they are not linked to any assets or currencies (demand and supply). As a result, the value of cryptocurrencies like bitcoin has fluctuated greatly. As CBDCs are issued by central banks, their demand and supply can be regulated and they can be used as a monitoring tool. CBDC may be able to provide better resilience, higher safety, greater availability, and lower prices than private forms of digital money if they are wisely structured.
- A CBDC may possibly be a crucial step toward financial inclusion. Although the availability of payment services has increased recently, only some have access to them. People with low incomes and those who live in rural areas still need help accepting digital payments. Payments across borders, especially for small-value transfers like remittances, can be difficult and expensive for domestic retail payment systems. CBDCs can aid in extending the public's access to public funds. The adoption of digital payments can be accelerated by central banks with the support of CBDCs, especially when the market and profit opportunities are insufficient to spur private sector innovation and handle the associated risks.
- Digital forms' ease of use and security is another benefit favouring CBDC. It is always more convenient and secure to carry digital money than carrying actual cash. It combines the conventional approach with the innovative approach. CBDC can gradually enact a cultural shift in favour of virtual money by reducing the costs associated with currency management. CBDC is designed to combine the security and convenience of digital cash with the reserve-backed money circulation of the traditional banking system.

Why has CBDC suddenly gained popularity in India?

- The Reserve Bank of India (RBI) has been studying the possibility of introducing a central bank digital currency (CBDC) since at least 2013. It is unclear what the benefits would be to the RBI in issuing a CBDC. Still, it is being argued that it would allow for better control and oversight of the domestic money supply and financial stability. Several nations are developing CBDCs, and a few have even implemented them. As of August 2022, 11 countries (The Bahamas, Nigeria, Jamaica and eight countries of the Eastern Caribbean Union ) have already launched their digital currencies. Many including China are still testing and developing their CBDCs. The drivers for CBDC in India are many and varied. But, at its core, the need for CBDC stems from the desire for a more efficient and inclusive monetary system. The current monetary system in India is based on paper currency, which is subject to wear and tear, as well as counterfeiting. This means that there are significant costs associated with its production and distribution. In addition, paper currency is also inefficient in terms of storage and transport. This will also ensure that India remains at the

forefront of innovation in the global financial system and does not fall behind other countries in terms of implementing new technologies.

- In addition, CBDC would also allow for greater inclusion by expanding access of financial services to those who are currently excluded from the formal banking system. At present, there are around 1.2 billion people in India who do not have access to formal banking services. This means they miss out on opportunities to save and build financial resilience. A CBDC could address this by providing a safe and convenient way for people to store and use money without going through a bank.
- CBDC, or the digital rupee, can be used in many real-world applications, such as programmable payments for subsidies and quicker lending and payments by financial institutions. A practical transition to a cashless economy may occur soon, and this might strengthen the government's emphasis on cashless transactions. Cross-border remittances may gain from increased use of CBDC as an environment for interoperability may be established, allowing for faster real-time transmission.
- Finally, CBDC could help to reduce the cost of printing and circulating paper currency. CBDC would mitigate these costs by being digital and therefore more secure and less expensive to produce. In addition, banks charge high fees for certain services, such as international money transfers; with CBDCs, these fees could be reduced or may not even be required, as there would be no need for banks to process the transactions. CBDCs might also make it possible for payment systems to be more quick, easy and global. It is possible for an Indian importer to directly pay a foreign exporter in digital dollars without using a middleman; the transaction would be final.

How CBDC differs from other digital mechanisms, and why is it considered better?

There are numerous ways and platforms available for digital payments. However, a CBDC or Central Bank Digital Currency has some advantages over other alternatives, and these are:

1. As the government's central bank backs CBDC, it is regarded as being more stable than cryptocurrencies, which may be very volatile.
2. Large transactions can be made using a CBDC without worrying about the cap imposed by cryptocurrency.
3. A CBDC is faster and more efficient than other digital payment methods, such as blockchain-based payments.
4. As it would be harder to launder money via a CBDC than other digital payment systems, a CBDC can assist in reducing crime.

Digital currency will be different from Unified Payments Interface (UPI), which is a system that powers multiple bank accounts into a single mobile application. The underlying currency or cash is used to transmit funds through payment channels like UPI, so UPI payments are currently made with the digital equivalent of physical cash

notes. This means that each rupee moved through UPI is backed by actual money, whereas in the case of CBDC, the underlying payment method will be the Digital Rupee, and there won't be a need to back it by real money because it will be legal tender in and of itself.

The digital rupee will be run by RBI rather by bank intermediates, as is the case with UPI, where each bank has a different UPI handler, which is the other point of distinction. Furthermore, Digital Rupee transactions will be instantly settled. Currently, UPI payments rely on the settlement of the transacting banks with the RBI; however, since Digital Rupee will be transacting straight from the RBI, it will be settled immediately.

#### What are the risks of a CBDC?

- The Indian government is in the process of issuing CBDC but there are risks associated with such a move. For example, if a CBDC is poorly designed, it could lead to increased cyber security risks or be subject to fraud and other types of crime. One of the key risks is the potential for CBDC to be used for money laundering and terrorist financing. Another risk is that CBDC could undermine the existing financial system, which is already struggling to cope with high levels of non-performing loans. There is also the possibility that CBDC could lead to inflation if it is not managed properly.
- Banks in India have also raised their disintermediation concerns over RBI's digital currency plans. Banks worry about the potential long-term effects if the central bank takes on the role of keeping and dispersing digital currency, eliminating banks as an intermediary between customers and the RBI. This could lead to a decrease in deposits, and if banks start to lose deposits over time, it will limit their ability to extend credit. Additionally, when banks lose sizable amounts of low-cost transaction deposits, their interest margin may be put under pressure, raising the cost of loan. RBI has taken all these concerns into perspective and has decided to move slowly and steadily, wherein the initial focus area is wholesale CBDC. Wholesale CBDCs means it will be used to facilitate payment between RBI and commercial banks and entities that hold accounts with central banks. Due to its potential to make current wholesale financial systems more efficient, accessible, and secure, the wholesale CBDC is thought to be the most well-liked concept among central banks.
- Privacy concerns are yet another issue. The majority of CBDCs will be created such that the central banks can track the spending, unlike completely anonymous cash. The increased risk to user privacy must be addressed as well, considering that the central bank would have access to a lot of information about user transactions. This has significant ramifications since digital currency users will not be entitled to the same amount of privacy and anonymity as those who trade with cash.

#### Conclusion

As the world progresses, technology intervention is leading to the digitisation of services as well as ways of working across industries. We are now at the cusp of entering a new phase of banking, with the digitisation of currency being the first step in this evolution as more innovative payment methods are being developed. Central banks have now started to develop their own digital currencies, also called central bank digital currencies or CBDCs. By the beginning of 2023, India's official digital currency, which would resemble any of the present private company-run electronic wallets, is most likely to be introduced. The CBDC will be a digital currency backed by the government. The digital rupee is a Central Bank Digital Currency to be issued by the RBI and will be backed by the reserves held by the central bank. The digital rupee will be similar to other online or virtual currencies, but it will have some unique features. It will be designed to reduce the cost of printing and circulating currency notes and to promote financial inclusion. The CBDC can benefit consumers over conventional payment methods in terms of liquidity, scalability, adoption, ease of transactions with anonymity, and quicker settlement. With the assistance of the government-provided infrastructure, the adoption of CBDC will grow, enhance and make it simpler for consumers to use. Similar to how UPI made digital cash more user-friendly, this advancement will increase people's access to digital currencies.

### **India's nuclear policy: Evolution and Challenges**

- The first time India conducted a nuclear test was in **1974** when the test was called a "**peaceful nuclear explosion (PNE)**".
- India conducted its second nuclear test in **May 1998**, which shocked the world.
  - Subsequently, in 1998, the Prime Minister of India declared that India was now a **nuclear weapon state**.

#### **Early phase of India's nuclear journey**

- In 1968, India **refused to sign** the **Nuclear Non-Proliferation Treaty (NPT)**.
- This decision was based on India's belief that the NPT was discriminatory, as it allowed the **five nuclear-weapon states** to retain their arsenals while prohibiting other countries from developing nuclear weapons.
- India's decision to not sign the NPT led to several consequences, including:
  - **Increased tensions** with Pakistan, which is also a nuclear-weapon state.
  - **Sanctions** from the United States and other countries.
  - **Limited access to nuclear technology** and materials.

#### **Pakistan's nuclear program**

- In the years following India's decision to **not** sign the NPT, Pakistan continued to develop its nuclear program.
- By the early 1980s, Pakistan was **enriching uranium at Kahuta**, and by the late 1980s, it had weaponized its **deterrent with Chinese help**.
- As the frontline state in the United States **covert war against the Soviet Union in Afghanistan**, Pakistan was able to get the United States to turn a **blind eye to its nuclear developments**.

#### ***Final phase of India's nuclear journey***

- In the 1990s, there was a growing realization in India that the nuclear option could no longer remain viable and **needed to be exercised**.
- This was due to several factors, including:
  - Technological advances since the **1974 PNE**.
  - Post-Cold War global developments, such as tightening dual-use export controls.
  - The extension of the NPT into perpetuity in **1995**.
  - The start of negotiations on the **Comprehensive Test Ban Treaty (CTBT) in 1994**.

#### **1995:**

- **France and China** conduct nuclear tests to validate **designs and acquire data**.
- Indian Prime Minister Narasimha Rao gives the **green light for tests in India**.
- Preparatory work begins at **Pokhran**.
- Days before the tests were scheduled, US satellites pick up **imagery of activity at Pokhran**.
- The tests are **postponed** until after the general elections.
- The Indian stand on **CTBT negotiations hardens**.

#### **1996:**

- Indian Prime Minister Atal Bihari Vajpayee suggested the **idea of conducting nuclear tests**, but decides against it due to his short tenure.

#### **1998:**

- India conducts a **series of nuclear tests at Pokhran**.
- The tests are met with **international condemnation**.
- India is placed under **sanctions by the United States and other countries**.

#### ***Challenges Related to Nuclear Policy of India***

##### **Domestic challenges**

- India's nuclear triad is **still a work in progress**.
- The land-based missile force has now inducted **Agni IV** with an estimated range of **3,500 km**.
  - **Agni V and Agni VI** are expected to extend the **ranges beyond 6,000 km**.



- The nuclear submarine programme has made **slow progress**, with **Arihant** having undertaken its **first patrol last year**.
  - However, it currently carries a **K-15 (Sagarika) missile** that has a limited range of **700 km**.
- Longer-range missiles are **under development**.

**Technological challenges:**

- India must factor in technological developments that can have an impact on the **credibility of its deterrent**.
- Increasing use of dual-use systems such as **hypersonics and cruise missiles**, and conventional precision global strike weapons blur the dividing line between nuclear and conventional systems.
- Digitisation renders both **early warning and command-and-control systems** vulnerable to counter-space and offensive cyber action.

**Questions about nuclear doctrine:**

- These developments have led to questions as to how to define the **“minimum”** and whether the **no-first-use policy** needs review.
- **Kargil in 1999**, and the **Mumbai attacks in 2008** were seen as evidence of the **failure of nuclear deterrence**.
  - However, Indian doctrine is intended to **deter the threat and use of nuclear weapons**.
- Dealing with Kargil-type attacks or terrorist strikes requires **building conventional and intelligence capabilities** that offer a range of response options.

**External diplomatic challenges:**

- India faced the challenge of gaining **acceptance as a responsible nuclear power** after conducting nuclear tests in **1998**.
- The government was proactive in reaching out to key countries, particularly the **United States**.
- The dialogue between the Deputy Secretary of State (USA) and the Foreign Minister of India between **1998 and 2000** was the most **intense phase of bilateral engagement**.
  - The dialogue was **inconclusive**, but it was immensely productive in clearing the path towards the Next Steps in **Strategic Partnership** and eventually the **India-US Civil Nuclear Cooperation Agreement**.
- The NSG waiver legitimized India's civilian nuclear trade and has enabled over a **dozen cooperation agreements to be concluded**.

**More Challenges Ahead:**

- Changing geopolitics has revived rivalries among **major nuclear powers**.
- The geopolitical centre of gravity has shifted from **Euro-Atlantic to the Indo-Pacific**.

- Navigating these challenges will require policy adjustments that will be strengthened by **consensus and continuity**.

India has made significant progress in meeting its external diplomatic challenges since the 1998 nuclear tests. This progress has been due in large part to the continuity of India's nuclear policy. However, India faces new challenges in the 21st century, and it will need to continue to adapt its policy to meet these challenges.

## Carbon Colours

### Black Carbon

Black Carbon (BC) is a major contributor to global climate change, possibly second only to CO<sub>2</sub> as the main driver of change. Black carbon is formed by the incomplete combustion of fossil fuels, wood and other fuels. Complete combustion would turn all carbon in the fuel into carbon dioxide (CO<sub>2</sub>), but combustion is never complete and CO<sub>2</sub>, carbon monoxide, volatile organic compounds, and organic carbon and black carbon particles are all formed in the process. The complex mixture of particulate matter resulting from incomplete combustion is often referred to as soot.

- BC particles strongly absorb sunlight and give soot its black color.
- BC is produced both naturally and by human activities as a result of the incomplete combustion of fossil fuels, biofuels, and biomass.
- Primary sources include emissions from diesel engines, cook stoves, wood burning and forest fires.
- Reducing CO<sub>2</sub> emissions is essential to avert the worst impacts of future climate change, but CO<sub>2</sub> has such a long atmospheric lifetime that it will take several decades for CO<sub>2</sub> concentrations to begin to stabilize after emissions reductions begin.
- In contrast, BC remains in the atmosphere for only a few weeks, so cutting its emissions would immediately reduce the rate of warming, particularly in the rapidly changing Arctic.

### Impacts

- Black carbon is an important contributor to warming because it is very effective at absorbing light and heating its surroundings. Per unit of mass, black carbon has a warming impact on climate that is 460-1,500 times stronger than CO<sub>2</sub>.
- When suspended in the atmosphere, black carbon contributes to warming by converting incoming solar radiation to heat. It also influences cloud formation and impacts regional circulation and rainfall patterns.

- When deposited on ice and snow, black carbon and co-emitted particles reduce surface albedo (the ability to reflect sunlight) and heat the surface. The Arctic and glaciated regions such as the Himalayas are particularly vulnerable to melting as a result.
- Black carbon and its co-pollutants are key components of fine particulate matter (PM<sub>2.5</sub>) air pollution, the leading environmental cause of poor health and premature deaths.
- At 2.5 micrometres or smaller in diameter, these particles are, many times smaller than a grain of table salt, which allows them to penetrate into the deepest regions of the lungs and facilitate the transport of toxic compounds into the bloodstream.
- 5 has been linked to a number of health impacts including premature death in adults with heart and lung disease, strokes, heart attacks, chronic respiratory disease such as bronchitis, aggravated asthma and other cardio-respiratory symptoms. It is also responsible for premature deaths of children from acute lower respiratory infections such as pneumonia.
- Each year, an estimated 7 million premature deaths are attributed to household and ambient (outdoor) PM<sub>2.5</sub> air pollution.
- Black carbon can affect the health of ecosystems in several ways: by depositing on plant leaves and increasing their temperature, dimming sunlight that reaches the earth, and modifying rainfall patterns.
- Changing rain patterns can have far-reaching consequences for both ecosystems and human livelihoods, for example by disrupting monsoons, which are critical for agriculture in large parts of Asia and Africa.

Black carbon's short atmospheric lifetime, combined with its strong warming potential, means that targeted strategies to reduce emissions can provide climate and health benefits within a relatively short period of time.

### **Blue Carbon**

- Blue carbon is the **carbon stored in coastal and marine ecosystems**.
- Sea grasses, mangroves, and salt marshes along our coast “capture and hold” carbon, acting as something called a **carbon sink**.
- Coastal ecosystems such as mangroves, tidal marshes and seagrass meadows sequester and store more carbon per unit area than terrestrial forests and are now being recognised for their role in mitigating climate change.
- These ecosystems also provide **essential benefits for climate change adaptation**, including **coastal protection and food security** for many coastal communities.
- However, if the ecosystems are **degraded or damaged**, their **carbon sink capacity is lost or adversely affected**, and the **carbon stored is released**,

resulting in **emissions of carbon dioxide (CO<sub>2</sub>) that contribute to climate change.**

- **Dedicated conservation efforts** can ensure that coastal ecosystems continue to play their role as long-term carbon sinks.

### **Brown Carbon**

- Brown carbon is brown smoke released by the combustion of organic matter.
- It coexists with black carbon when released in the atmosphere.
- Known for its light brownish color, absorbs strongly in the ultraviolet wavelengths and less significantly going into the visible.
- It is one of the significant warming factors as it disturbs the temperature pattern of the atmosphere and the cloud forming process. It also changes the solar absorption pattern and the nature of clouds.

Brown carbon contributes +0.25 W m<sup>-2</sup> or about 19% of the total atmospheric absorption by anthropogenic aerosols, while 72% is attributed to black carbon and 9% is due to the coating effect of sulfate and organic aerosols on black carbon. Brown carbon needs to be considered in global climate simulations.

A study of IIT Kanpur has highlighted that Brown Carbon has the potential to warm atmosphere by absorbing light. When compared to Black Carbon, Brown Carbon has 10 times more mass; Black Carbon has 50 times more absorption capacity than BrC. Both of them are absorbers, contributing in the warming of atmosphere.

### **Green Carbon**

- Green carbon is the carbon stored in the plants and soil of natural ecosystems and is a vital part of the global carbon cycle.
- Currently, international rules are blind to the colour of carbon so that the green carbon in natural forests is not recognised, resulting in perverse outcomes including ongoing deforestation and forest degradation, and the conversion of extensive areas of land to industrial plantations.

\* Red carbon is the newest colour in the carbon spectrum. "In its broadest context, it includes all living biological particles on snow and ice that reduce albedo to survive".

### **Climate change mitigation**

- **Conserving and restoring terrestrial forests**, and more recently peatlands, **has been recognised as an important component of climate change mitigation.**
- Several countries are developing policies and programmes in support of sustainable development through initiatives that reduce the carbon footprint associated with the growth of their economies.
- These include **actions to conserve and sustainably manage natural systems** relevant to the United Nations Framework Convention on Climate Change (UNFCCC), including through the reducing emissions from

deforestation and forest degradation in developing countries (REDD+) mechanism and Nationally Determined Contributions (NDCs).

- To incorporate coastal wetlands into the carbon market through the buying and selling of carbon offsets.
- This approach creates a financial incentive for restoration and conservation projects by helping to alleviate federal and state carbon taxes aimed at discouraging the use of fossil fuels.
- When fewer greenhouse gases are emitted, less pollution is created. When there is less pollution to tax, the process benefits not only the environment but also the financial well-being of the community doing the restoration.

### **This strategic-economic bloc will only tighten the leash**

- In 2019, India walked out from the trade pact called the **Regional Comprehensive Economic Partnership (RCEP)**.
  - RCEP involves **China, Japan, South Korea, Australia, New Zealand and the 10-state Association of Southeast Asian Nations (ASEAN) grouping**.
- In 2023, India is getting into the U.S.-driven **Indo-Pacific Economic Framework for Prosperity (IPEF)**.
  - It includes many RCEP countries but **China** is replaced by the **United States**.

#### ***Indo-Pacific Economic Framework (IPEF)***

- IPEF is a United States led **framework for participating countries**.
- IPEF is aimed to solidify members relationships and **engage in crucial economic and trade matters** that concern the region.
- It is neither a **free trade agreement**, nor a **security pact**.

#### **Members:**

- The U.S. will be partnering with **12 initial countries** including **Quad members** (Australia, India and Japan).
- It also includes **seven ASEAN countries**: Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam, as well as South Korea and New Zealand.

#### **Features:**

- There will be **no binding commitments regarding market access** characteristic of trade deals like the **Regional Comprehensive Economic Partnership** (RCEP) or free trade agreements.
- IPEF will focus on increasing regulatory coherence between the member nations.

#### **Four pillars of the IPEF:**

- Connected economy
- Resilient economy
- Clean economy
- Fair economy

#### ***IPEF vs RCEP***

##### **Economic Challenges with China**

- India's relationship with China has experienced a **further decline**.
- Concerns regarding China revolved around the potential impact of a trade agreement on India's **manufacturing sector**, specifically the **influx of low-cost Chinese products into Indian markets**.

##### **Economic Challenges with the U.S.**

- Economic challenges with the U.S. have also been problematic, encompassing areas such as **agriculture, intellectual property, labour and environmental standards, and the digital economy**.

##### **Advantages of IPEF**

- IPEF proposal **completely removes the tariff element** of typical trade deals.
- It is entirely about **all these other areas**.
- The U.S. has also found a **tariffs-free trade deal**, presented as a new kind of **win-win economic partnership**, as a good way to get around the **resistance of many countries**, including India, to free trade agreements, as they used to be called.

##### **Issues with IPEF**

- **IPEF's 'new age' language:** It knits **vaguely-worded webs** that are not obvious in their **actual economic impact**, other than to U.S. strategists who created the proposals.
- **Advantage to the US:** Assessments show that the IPEF would result in a complete stranglehold over the economic systems of the participating countries, in a manner that is to the complete advantage of the U.S.
- The IPEF is really about developing a strategic-economic bloc **centred on the U.S.** and excluding China.
- The long-term impact of the IPEF will leave **little room for domestic policies** to help countries industrialize.

##### ***IPEF and India***



- The IPEF has four pillars: **trade, supply chains, clean economy, and fair economy.**
- India has joined the first three pillars but **not the trade pillar.**
- Joining the trade pillar would be the worst, but the other pillars also contribute to **developing new economic architectures** and structures that are **not tariff-based.**
- In the long run, these new architectures and structures could have an even stronger effect on **economic and trade flows than tariffs.**

#### **Impacts of IPEF on India:**

- In an increasingly digitalizing world, hard-wiring supply chains and giving up policy space in key areas such as **digital, labour, environment, and export constraints** would be like locking India in a gilded **techno-legal cage of irreversible economic dependency.**
- The IPEF can already be seen to have deep implications in agriculture, in terms of **genetically modified seeds and food**, surrendering policy space for **regulating Big Tech**, and **compromising a comparative advantage in manufacturing** because of unfair labour and environment standards.
- It will also seriously affect **India's ability to create a vibrant domestic ecosystem** in emerging areas such as a **digital economy and green products.**

India places great importance on establishing a strategic alliance with the U.S. as a primary objective in its foreign policy. However, forging a strategic partnership with the U.S. does not necessarily entail becoming economically dependent on it. India should not entail blindly accept an economic framework driven solely by U.S. self-interest, as it may not align with India's current economic interests.

#### **India can guide G20's disaster management initiatives**

- Recent years have seen an increase in **both natural and human-made catastrophes** across the globe.
- G20 has endorsed a **new working group on disaster risk reduction**, to make itself well-positioned to **prioritise disaster risk financing** to achieve the targets set by **the Sendai Framework for 2030.**
- G20 has a crucial role to play in supporting countries to strengthen their **financial risk management capabilities.**

#### ***Disasters: Challenges, Impact and Necessity of Reduction***

**Impacts:**

- Disasters exacerbate **poverty, thwart development** and **generate social polarisation** across nations and communities.
- Annual disaster losses account for a **significant share of GDP** in many **low-income economies**.

**Challenges:**

- Difficulty in **gathering and analyzing hazard and exposure data**.
- Need to enhance **technical and institutional capacity** for risk assessment and modelling, and
- Goal of achieving comprehensive coverage for disaster risks.

**Necessity of reductions in disaster risk and losses:**

- The IPCC's Sixth Assessment Report highlights that a significant number of people live in areas that are highly vulnerable to climate change.
- The Sendai Framework for Disaster Risk Reduction calls for substantial reductions in disaster risk and losses.
  - There is a growing recognition that disaster resilience must be a priority.
- However, bridging the gap between **high-level objectives** and **practical investments** remains a challenge.

**Sendai Framework for Disaster Risk Reduction (2015-2030)**

- It was adopted during the third **UN World Conference on Disaster Risk Reduction** held in **Sendai, Japan in 2015**.
- It is the successor instrument to **Hyogo Framework for Action 2005-2015**.
- It is the agreement with an overall objective to substantially **reduce disaster risk and losses in lives, and livelihoods**.
- It outlines **seven clear targets and four priorities** for action to prevent **new and reduce existing disaster risks**.

**Aims:**

- To reduce disaster risk and losses in lives, livelihoods and health and in the **economic, physical, social, cultural and environmental** assets of persons, businesses, communities and countries
- To reduce global disaster mortality by 2030, aiming to **lower the average per 100,000 global mortalities** during 2020-2030 compared with 2005-2015.

**It works based on 4 priorities:**

- **Priority 1:** Understanding disaster risk
- **Priority 2:** Strengthening disaster risk governance to manage disaster risk
- **Priority 3:** Investing in disaster risk reduction for resilience.

- **Priority 4:** Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction.

**G20's new Disaster Risk Reduction Working Group (DRRWG)**

- DRRWG has recognised the **importance of prioritising disaster risk financing**.
- It will offer an extensive overview of **disaster risk assessment and financing practices** across a wide range of economies.
- It will also support the **harmonization of definitions and methodologies for data collection** and analysis to improve access to **international (re)insurance markets**.
- It will strive to address all the key components of a comprehensive financial management strategy for disaster risks. These include:
  - Disaster risk assessment and modeling
  - Affordable and comprehensive insurance coverage of disaster risks
  - Financial assistance and compensation for affected individuals and businesses
  - Risk transfer mechanisms, including catastrophe bonds and insurance, for the management of fiscal risks

With its vast experience in handling natural disasters, India can take the lead in **raising awareness about the financial consequences** of such events. It can lead to the development of a regulatory framework that strengthens insurance companies' ability to handle disaster-related losses.

**India's trade and economic ties with the EU are set to strengthen**

- India and the European Union celebrated **60 years of relationship** with the relaunch of talks on a bilateral trade agreement.
- Brussels visit of the Indian Union Minister for Commerce and Industry has added **momentum to the negotiations** and provided India with a platform to work with the EU to resolve **market access barriers**.
- India offers EU investors an attractive **alternative market to China**.

**India-EU Trade**

**Importance of the EU for India:**

- The EU is India's **third largest trading partner**, accounting for **10.8% (around €88 billion)** of our total trade in goods.

- Trade between both **rise by about 30%** in the last decade.
- The EU is a key export market for India's **agri-food products**.
- India has a **positive trade** balance with the EU.
- **Food Trade:**
  - **Food exports from India to the EU:** increased from **\$2.65 billion** in 2011 to **\$3.01 billion** in 2021.
  - **Food imports from the EU to India:** increased from about **\$410 million in 2011** to some **\$920 million** in 2021.
- **Trade in Services:** It was around **€30.4 billion in 2020**.
- **Foreign investment from EU to India:** €87.3 billion (2020).
- Over **6,000 European companies** are present in India, which has led to significant employment creation in the country.

#### **Importance of India for the EU:**

- India is the EU's **10th largest trading partner**.
- India accounts for **2.1% of the EU's total trade in goods**.
  - **However**, India is well behind **China's 16.2%** and the **US's 14.7%**.

#### **Issues between India and the EU:**

- There are differences between India and the EU over several issues:
  - Content of an investment agreement
  - Intellectual property rights
  - Tackling climate change challenges
- EU businesses have raised **high-tariff-related concerns** in Indian sectors like **dairy, alcoholic beverages and automobiles and auto components**.
- Indian businesses are worried about regulatory issues such as **technical standards and the EU's carbon tax**.
- The **India-EU Trade and Technology Council (TTC)** could serve as a platform to address some of these.

#### **How India and the EU can resolve trade issues?**

- India and the EU are participating in trade discussions in multiple forums, including the **World Trade Organization (WTO) and G20**.
- Union minister's visit affords an opportunity to **identify areas of common interest** and for India to get EU support on its **G20 priority areas**, like:
  - Making trade more inclusive and growth-oriented for developing countries,
  - Building resilient global value chains (GVCs),
  - Integrating micro, small and medium enterprises (MSMEs) in global supply chains by using digital platforms,
  - Logistics for trade, and
  - WTO reforms.

**WTO reforms:**

- In the specific context of WTO reforms, India and the EU have already agreed to work together on common priorities covering issues like its **dispute resolution mechanism, subsidies on agriculture and fisheries, and an e-commerce moratorium.**
- Both sides recognize the need to build on their common goals to pursue consensus-based solutions that would support **livelihoods and nutrition security** for millions in India and other developing countries.
- If India and EU work together, they may be able to reach a consensus on many issues at the next **WTO Ministerial Conference.**

**Areas of Trade Enhancement**

- There are **multiple areas** where bilateral trade and investment flows can be enhanced. For example:
  - Joint-capacity building programmes for supporting MSMEs integration with GVCs;
  - support to startups in each other's market;
  - joint research, innovation and skilling programmes;
  - collaboration and joint projects on sustainable food systems will all help enhance bilateral trade and investment flows.
- **Collaboration between regulatory bodies** and mutual recognition agreements will help address several issues related to technical standards and the mobility of professionals.
- India may explore the scope for **collaborations to attract more tourists** from the EU, **enhance exports of organic products** and traditional medicine as organic **food, Yoga and Ayurveda** gain popularity in the EU.

There is scope for attracting investment and learning from the best practices of the EU. As India embarks upon creating a **resilient and efficient logistics ecosystem** and promoting seamless multimodal international transportation under **PM Gati Shakti and the National Logistics Policy of 2022.**

## The promise in India's National Quantum Mission

- **National Quantum Mission** could be a game changer in multiple sectors, from defence, energy, and environment to healthcare and civil applications.
- For India, investments in quantum materials and devices can generate a cadre of highly skilled workforce.
- It will cater to quantum technologies and major scientific megaprojects ranging from the **semiconductor mission** to neutrino observatory and **gravitational wave detection**.
- The infrastructure will play a key role in **building self-reliance in the energy and electronics industries**.

### *Quantum materials*

- Quantum materials are a **class of matter or systems** that allow the exploitation of some of the **unique properties of quantum physics** and accomplish tasks that classical technology is incapable of.
- The **concept of “quantum materials”** was originally introduced to identify some of the exotic quantum systems such as:
  - Unconventional superconductors,
  - Heavy-fermion systems, and
  - Multifunctional oxides.
- It has turned into a powerful unifying concept across diverse fields of science and engineering, including **solid-state physics, cold atoms, materials science and quantum computing**.
  - **Cold Atoms:** atoms cooled to close to **absolute zero** whereby their quantum mechanical properties are unveiled.

### *Research and Development of Quantum Materials and Devices*

- R&D in quantum materials today embraces **traditional semiconductors, superconductors, and non-linear optical crystals** directly relevant to **computing, communication, and sensing**.
- It encompasses materials based on **complex charge-atom interactions, geometric phase uniqueness of quantum wave functions, and hidden quantum properties** like entanglement.
- Introduction of **ultrafast transistors and opto-electronics components**, as well as non-volatile memory and sensing devices, are becoming enabling vehicles for quantum applications.

### *Quantum Devices:*

- Research on new architectures to incorporate quantum materials into **functional units** has progressed simultaneously, leading to the **concept of “quantum devices”**.

### *Importance of Quantum Materials and Devices*



- Quantum Materials and Devices are essential components for any **quantum technology mission**.
- Materials experts contribute to precision **synthesis, scalable yield, and stable performance**.
- Research will be required to focus on **developing low-loss materials** for superconducting quantum electronics, novel semiconductor nanostructures for entangled **photon sources, and more**.
- Research impact extends across multiple verticals of **quantum technologies, requiring dedicated and centralized material/device infrastructures**.

#### ***Objectives of the National Quantum Mission***

- Build infrastructure for new materials and devices through in-house R&D.
- Foster collaboration among the geographically distributed material workforce in India.
- Ensure efficient resource utilization, minimize redundancy, and avoid duplication.
- Foster innovation in quantum materials and devices under a unified umbrella.
- Employ a project-driven, multi-disciplinary approach for fundamental discoveries, engineering breakthroughs, and entrepreneurial initiatives to advance quantum technology in India.

#### ***Evolving scientific infrastructure in India***

- National initiatives like the **Nano Mission** have contributed to capacity building in the past two decades.
  - It resulted in a significant **five-fold increase** in research publications in the relevant field between **2011 and 2019**.
- A strong community of **material modelling and computing expertise exists** from the **National Supercomputing Mission** and **local computing facilities**.

#### ***Challenges of National Quantum Mission***

##### **Start-up**

- Nearly **12 per cent of start-ups** are deep tech-related, this represents a **nearly 35 times increase between 2016 and 2019**.
  - However, **less than 3 per cent** of these involve **manufacturing and/or materials**.
- **Materials and devices-based innovation** will create new businesses from **manufacturing supporting equipment**.
- India currently imports **semiconductor-based single-photon detectors**, at the bulk scale.

##### **Infrastructure**

- India **does not** have enough infrastructure that can **support the entire chain of operation**.

##### **R&D community**

- The **sub-critical size** of the country's R&D community is a **matter of concern**.
- In 2018, India had **253 full-time equivalent researchers** per million of its population, about **11 per cent of the researcher density of Italy**.
- The workforce is **distributed across the country**, and strategies will be required to integrate them.

India needs to create an R&D ecosystem where **material research for near-term goals** and **applications** needs to **coexist**. This will help serendipitous outcomes to be **immediately recognised, systematically characterised, engineered, and put to use**. Material domains in all aspects of quantum technology such as **computing, communications, and sensing**, are still developing. Hence there is a chance that through timely investment and efficient management, India will emerge as a **global leader in the field**.

### Tracking SDG progress the Bhopal way

- The 2030 Agenda for Sustainable Development was endorsed by the 193 member states of the United Nations in 2015 as a strategy for "**people,**" "**the planet,**" and "**prosperity.**"
  - It consists of **17 Sustainable Development Goals and 169 targets**.
- Bhopal has become the **first city in India** to join the growing global movement on **the localization of United Nations sustainable development goals** following the release of its **Voluntary Local Review (VLR)**.

#### *India's Progress in SDGs*

- India has made commendable efforts towards the adoption, localisation, and achievement of the SDGs.
- NITI Aayog presented India's **second VNR** at the **HLPF convened in 2020**.
- **The National Indicator Framework (NIF)** contextualizes the UN's Global Indicator Framework to reflect India's own development experience.
  - NIF was released by India's Ministry of Statistics and Programme Implementation for the **evaluation and monitoring of the SDGs**
- **23 States and Union Territories** have prepared a vision document based on SDGs.
  - Almost all of them have **initiated steps to localise the SDGs**.
- However, it has taken a while to get to India's **first Voluntary Local Review** at the city level since the efforts to localise the SDGs began.

#### **Importance of Cities**

- Cities are the most significant stakeholders in Agenda 2030 since, without their participation, at least **65%** of the **169 targets** could not be met.
- A VLR is a tool to show how local initiatives are paving the road for **fair and lasting changes** for people and assembling a coalition of partners to support this goal.

### **Flexibility to Cities**

- Cities can choose how closely to match their **Voluntary Local Reviews (VLRs)** with state-level action plans and the **voluntary national review (VNR)** of the nation.
- Using relevant city-level data, cities can perform a **quantitative assessment** to determine their **priority for the VLR process**, or they can give a narrative about their initiatives and goals.
- Indian cities, particularly **non-metro politan regions** with limited ability, resources, and disaggregated data, may find it difficult to implement comprehensive VLRs spanning all SDGs.
- **The National Indicator Framework (NIF)** of India's **286 indicators** does not require VLRs to quantify each one.
- Depending on their goals and logistical ease, cities can choose **specific SDGs for in-depth analysis**.
- Cities can modify and further **localise national metrics** in accordance with the pertinent SDGs to represent their particular local conditions.

### **Bhopal's Plan**

- The **Bhopal Municipal Corporation, UN-Habitat, and a group of over 23 local stakeholders** worked together to create the VLR in Bhopal.
- It has mapped **56 developmental projects** to the SDGs across the three pillars:
  - **'people'** (SDGs 1,3,4,5)
  - **'planet'** (SDGs 6,13,15)
  - **'prosperity'** (SDGs 7,8,11)
- The number of projects that are linked to the SDGs indicates that the city's priorities include the development of **resilient infrastructure and basic infrastructure**.
- The city's focus shifted towards developing essential infrastructure and enhancing resilience after evaluating projects aligned with the **Sustainable Development Goals (SDGs)**.
- An evaluation of specific indicators **related to SDG 11** (Sustainable cities and communities) emphasized Bhopal's commendable achievements in managing **solid waste, improving public transportation, and providing ample open spaces per person**.

- The analysis also revealed areas that require further attention in the future, such as:
  - Ensuring adequate shelter
  - Addressing elevated air pollution levels
  - Enhancing city planning capabilities
  - Promoting equal accessibility to open spaces
- Recognizing the significance of the Voluntary Local Review (VLR), the Mayor of Bhopal took the lead in **involving the community actively** in this process.

#### **Global Examples of VLR Initiatives**

- The city of **Canterbury in the United Kingdom** provides an example where residents and local groups formed a spontaneous coalition to conduct their own VLR.
- This coalition requested local governments to collaborate with city-level groups to promote the SDGs, with local governments serving as **intermediaries in the VLR process**.
- Similarly, in the global South, local governments in **Dhulikhel (Nepal), Singra (Bangladesh), and Amman (Jordan)** worked in a similar context as Indian cities, publishing their VLRS in 2022.

Indian cities now have a unique chance to present their work on a global stage using a framework of their choice and a vernacular of their own. To promote urban innovations and international partnerships coming out of India, hopefully, additional Indian cities would take Bhopal's example.

#### **India as a Quad-led biomanufacturing hub**

- The **Quad** set up a **Critical and Emerging Technology Working Group** in March 2021.
- The group will facilitate **cooperation, monitor trends, and scout for opportunities** related to developments in critical and emerging technologies, that included biotechnology.
  - However, the potential for Quad cooperation in biotechnology remains **insufficiently tapped**.
- The establishment of a **Quad-led biomanufacturing hub in India** will give the necessary fillip to enhance this cooperation.

#### **Biomufacturing**

- Biomanufacturing produces molecules and materials on a commercial scale using **living systems, particularly microorganisms and cell cultures**.
- It can transform the **global industrial system**, with up to **60% of physical inputs** to the global economy expected to be **producible using this technology**.
- Many countries, including the **United States and China**, recognise the **need to optimise this ecosystem** and have designed specific policies to **shape their bio-economies**.

### *India as Biomanufacturing hub*

#### **India's National Biotechnology Development Strategy**

- It envisions the country as a **"Global Biomanufacturing Hub" by 2025**.
- It sets a **target of \$100 billion** for the hub.

#### **What are the benefits of establishing a biomanufacturing hub in India?**

- Quad should establish a biomanufacturing hub in India to benefit from the country's **economic potential** and address **supply-chain vulnerabilities**.
- Quad nations have complementary strengths that can be leveraged to create this hub.
- The U.S. has significant **funding capability**, while Japan, Australia and the U.S. also possess **advanced biotechnology innovation ecosystems** and intellectual property.
- India has **skilled manpower** and the potential to **provide affordable scale**.

#### **Why India is the ideal choice to host the biomanufacturing hub?**

- India is an ideal choice because of its **existing infrastructure, pharmaceutical manufacturing expertise, and available workforce**.
- India is among the top performers in the field of biomanufacturing in **both the quality of research output and in the share among research publications**.
- India also has significant potential in low-cost biomanufacturing of **enzymes, reagents, research materials, and equipment**.
- The cost of manufacturing in India is around **33% lower** when compared to that in the U.S.
  - However, India still requires significant **capability and capacity uplifts** to become a world leader.

#### **What does India need to do?**

- India needs to **uplift its workforce quality**.
- There are many life science professionals in the country, but they **lack access to cutting-edge technology and training**.
- Permanent training facilities can be established in universities around the **Quad hub**, with experts from other Quad countries providing the training.
- Training should also focus on **commercialising research and development**.

#### **Facilitating Collaboration in Biomanufacturing within the Quad**

- Creating a centralized biomanufacturing hub to enhance **collaboration between Quad nations and foster bilateral government efforts.**
- Establishing a **dedicated research collaboration office** within the hub to support cross-Quad initiatives.
- Promoting harmonization of **language, regulations, and data-sharing** related to biomanufacturing to ensure **secure supply chains for Quad nations.**
- Enabling international collaboration by **streamlining processes and standards** within the Quad.
- Strengthening collaboration efforts within the Quad and expanding opportunities for cooperation with countries outside the Quad.

India can become a leading player in the field of biomanufacturing and help the Quad to compete in this key area. The proposed hub in India can capitalise on the **economic potential of the biomanufacturing industry** and address existing and potential vulnerabilities in the global system.

### **Economic abuse and Domestic Violence**

- When asked about **domestic violence**, an average person typically thinks of violence of a physical and sexual nature, especially in the context of intimate partner violence. However, the same amount of interest is not conferred on economic abuse, a significantly more insidious manner of abuse that is usually invisible in the way it operates.
- Economic abuse is significantly associated with physical abuse, sexual abuse, and emotional abuse. The most common forms of economic abuse are not being trusted with money, not being allowed to work outside home, and not being given money for household expenses.
- This is not unduly surprising, given that the most common images of violence against women, children, and queer persons in mainstream society are in the physical and/or sexual context. While Indian law recognises what is termed as “economic abuse” in the special legislation against domestic violence — the **Protection of Women from Domestic Violence Act, 2005 (PWDV Act)** — violence or abuse in the economic context does not form part of the public consciousness in the same manner as intimate partner violence of a sexual and physical nature does.

#### Economic Abuse



- Under the **PWDV Act**, economic abuse is defined as the deprivation of all or any economic or financial resources to which the aggrieved person is entitled under any law.
- The law recognises that prohibition or restriction to continued access to resources or facilities which the aggrieved woman is entitled to use is economic abuse as well.
- Further, the disposal of household effects, any alienation of assets whether movable or immovable, valuables or other property in which the aggrieved woman has an interest is also included under the meaning of economic abuse.
- Specific to the Indian context, economic abuse also brings up related issues such as dowry and exploitation of stridhan.
  - **Stridhan is whatever a woman receives during her lifetime.** Women have an absolute right over their Stridhan.
- Moreover, the Courts have held that deprivation of economic or financial resources or stridhan amounts to domestic violence under the PWDV Act.
- Further, Act provides, a protection order can be passed in favour of the aggrieved woman prohibiting the alienation of any assets, operating bank lockers or bank accounts, regardless of single or joint ownership, without the leave of the Magistrate.
  - This also includes the aggrieved woman's stridhan or any other property held either jointly or separately by both parties.
- **Impact:** Economic violence holds back women from being truly independent, obstructs their ability to take decisions regarding their lives, and is frequently a major contributing factor in their inability to leave abusive situations, or separate themselves from their abuser.
  - A cross-sectional survey in informal settlements in Mumbai, found that 23% of ever-married women reported at least one form of economic abuse. Economic abuse was independently associated with positive screens for moderate-severe depression, anxiety, and suicidal ideation.
- **Status of the Economic Abuse in India:**
  - In 2022, a survey conducted by Tata AIA, a leading Indian insurance company, revealed that 59 per cent of working women do not make their own financial decisions, indicating the extent of financial dependency of Indian women.
  - The NFHS 5 finds that 32% of married women (18-49 years) have experienced physical, sexual, or emotional spousal violence. The

most common type of spousal violence is physical violence (28%), followed by emotional violence and sexual violence.

- A 2017 study by the All-India Democratic Women's Association found that 72% of women had experienced some form of economic abuse in their lifetime.

#### Common Examples of Economic Abuse

- Preventing from getting or keeping a job, obtaining education, or acquiring assets.
- Controlling access to money, bank accounts, credit cards, or financial autonomy.
- Exploiting their salary and other economic resources, such as spending their money without their consent, creating debt, or taking their belongings.
- Denying the victim's right to property, inheritance, or dowry.
- Withholding necessities such as food, clothing, shelter, medication, or personal hygiene products.

#### Factors that Contribute to the High Prevalence of Economic Abuse

- **Patriarchal Attitudes:** Economic abuse is often rooted in the patriarchal norms that give men more preference over women in the household and society. Women may face discrimination and barriers in accessing education, employment, and property rights, which make them more dependent on their male partners.
- **Lack of Economic Opportunities for Women:** Women in India are often denied access to education and employment opportunities. This makes them more financially dependent on their husbands, which can make them more vulnerable to economic abuse.
- **Lack of Awareness:** Many victims of economic abuse may not recognize it as a form of domestic violence or may not know their rights and options to seek help.
- **Social Stigma:** Economic abuse may also be normalized or justified by cultural or religious beliefs that assign different roles and responsibilities to men and women. This can discourage victims from seeking help or reporting abuse.

#### Safeguards available against Economic Abuse

- The **Protection of Women from Domestic Violence Act (PWDVA) of 2005**, which defines economic violence broadly and provides for monetary relief, compensation, and protection orders for the aggrieved women.
- The **Code of Criminal Procedure of 1973**, which empowers courts to order maintenance for wives, children, and parents who are neglected by their husbands or sons.
- The **Hindu Succession Act of 1956 (amended in 2005)**, which grants equal inheritance rights to daughters and sons in joint family property.

- The **National Commission for Women**, which is the apex national level organization of India with the mandate of protecting and promoting the interests of women.
- The **Ministry of Women and Child Development (MoW&CD)** in collaboration with the Ministry of Home Affairs has envisaged engagement of Mahila Police Volunteers (MPVs) in the States/UTs who act as a link between police and community and help women in distress.
- The **MoW&CD** has launched **Sakhi dashboard** is an online platform for the functionaries of One Stop Centres (OSCs) and Women Help Lines (WHLs) to populate and view various important information about the cases of violence affected women coming to them, as well as about their establishments.
- The **Department of Telecommunication** has allocated the number 181 to all States/UTs for Women Helpline.
- The **Rail Ministry** has launched **Integrated Emergency Response Management System** that aims to provide round the clock security to women passengers in all Railway Stations by strengthening of Security Control Rooms of Railways with Security Helpline, Medical Facilities, RPF and police, installation of CCTV cameras, etc.
- The **Ministry of Home Affairs** has created **Central Victim Compensation Scheme (CVCF)** under section 357A CrPC It will support States/UTs in providing fund towards compensation to the victim or her dependents who have suffered loss or injury as a result of the crimes (including survivors of rape and acid attack).

What could be done to reduce economic abuses?

- **Raising Awareness:** Increasing public awareness about economic domestic abuse is crucial. Educational campaigns, community programs, and media initiatives can help promote understanding, recognize warning signs, and encourage reporting of such abuse.
  - The safeguards options - available to women - need to be promoted and mainstreamed amongst the women.
- **Strengthening Legal Protections:** Though the govt has enacted the PWDV Act to provide safeguard to the women but it has remained more or less a toothless act. The Government must incorporate stringent punishment provisions to the act so that it could act as a deterrent to the abusers.
- **Providing Support Services:** Victims of economic domestic abuse need access to specialized support services. This can include counselling, legal aid, financial advice, and assistance with finding safe housing or employment.
  - NGOs like Naari Foundation, Shakti Vahini Foundation who are doing exceptional work in this field should be collaborated to fight this menace.

- **Empowering Victims:** Empowering victims to become financially independent and self-sufficient is crucial. Providing vocational training, educational opportunities, and access to job placement programs can help survivors rebuild their lives and gain the skills needed to secure stable employment.
  - The **DBT transfer** to female's account has been a crucial part of addressing this issue, more schemes on this line are a welcome.
- **Collaborating with Financial Institutions:** Though there are schemes to provide low-cost loans to women, but the loan disbursed are very less in number. Banks and other financial institutions can play a role in preventing economic abuse. Implementing training programs for employees to recognize signs of economic abuse, developing protocols for reporting suspicious transactions, and offering financial literacy resources to customers can all contribute to reducing economic domestic abuse.
- **Research and Data Collection:** Investing in research and data collection is essential to understand the prevalence, causes, and consequences of economic abuse. This information can help inform policies, interventions, and resource allocation.
- **Promoting Gender Equality and Social Norms Change:** Addressing the underlying gender inequalities and challenging harmful social norms is fundamental to reducing economic domestic abuse. Promoting gender equality through education, awareness campaigns, and community engagement can contribute to long-term prevention efforts.

### Resolving the tribal health challenge

- After Independence, India has made remarkable strides, emerging as the **world's fifth-largest economy** and a leader in the digital realm.
- India has demonstrated the ethos of **Vasudhaiva Kutumbakam (One World, One Family)**.
- One of the finest examples of this is India's contribution towards the global vaccination drive during the pandemic when it supplied vaccines to countries across the globe.
- Under "**Vaccine Maitri**", India provided over **60 million vaccine doses** to neighbouring countries and other parts of the world.
  - However, India must also consider how it can build a healthcare system that caters to all communities.

### ***Tribal Population and its health challenges in India***

- **8.9 per cent** of the population is constituted by the tribal communities in India.
- They remain the **most neglected and deprived group** when it comes to **access to healthcare**.
- Compare to the national average the **mortality rate and infant mortality** in tribal areas are **44 per cent and 63 per cent higher respectively**.
- This underlines the urgent **need to empower tribal communities** and ensure they receive **equitable healthcare access**.
- **Challenges:** lack of infrastructure, medical professionals, connectivity, affordability, equipment, insurance, funding, and much more.

### ***Solutions for Tribal Health Challenges***

#### **Empowering Tribal Communities**

- Empowering tribal communities while keeping in mind their **traditions and other intangible heritage touchpoints**.
- The health of communities is influenced by various factors, these factors can be tackled with a **more communitarian social setup**.

#### **Medical colleges and training centres**

- These institutions can equip **local healthcare providers** with the **necessary skills and knowledge** to offer quality healthcare services.
- Local healthcare providers can understand the **cultural sensitivities of tribal communities**.
- It can bridge the **gap in healthcare infrastructure** and provide **job opportunities** for the local population.

#### ***Public-Private Partnerships in Tribal Health***

- **NITI Aayog and United Nations Development Programme (UNDP)** jointly released a compendium of best practices across **14 social sectors**, highlighting initiatives that are sustainable, innovative, impactful and replicable.
- They highlighted the Mera Baccha Abhiyan as one of the best practices.

#### **Mera Baccha Abhiyan**

- **Aim:** to fight malnutrition through public participation in Datia district, Madhya Pradesh.
- The malnutrition rate of the district dropped by **17.5 per cent**, making it lower than the state's average.
- The district also witnessed a rise in **immunisation** from 53.2 per cent to 79.6 per cent, **breastfeeding** from 32 per cent to 56.4 per cent, and a drop in **diarrhoea from 12.9 per cent to 5.7 per cent**.
- The scheme demonstrates the **power of public partnerships in healthcare provision**.

The responsibility of providing healthcare, a fundamental human right, for all our fellow citizens, lies both with private and government institutions. By inclusive leadership and investments in healthcare infrastructure in tribal areas, India can empower its tribal communities, achieve sustainable development, and fulfil the United Nations SDGs.

### India at G7: myth of multipolarity

- The G7 summit at Hiroshima signaled **Western unity against** the challenges presented by Russia and China.
- The summit reflected the **resilience of the Western alliance** despite the many differences between the US and its partners.
- India participated in the summit as a guest nation, which shows the **myth of multipolarity endures in Indian foreign policy** discourse even as a bipolar world takes shape.
- India is nimbly adapting to the realities of a bipolar world; the Indian foreign policy discourse continues to be tied down by multipolar confusion.

#### *Outcomes of G7 summit*

- The G7 leaders reaffirmed their solidarity with Ukraine in its battle against Russia.
- Their aim was to **reduce the disparities within the G7** regarding the approach towards managing the **situation with China**.
- The G7 statement skillfully handled the variations between the **United States and Europe** on China by affirming that they **do not intend to "separate"** from the **Chinese economy and** that they are not against **China's economic development**.
- They agreed to **reduce the risks** associated with **commercial relations with China** by opposing China's non-market policies and economic pressure.
- The G7 also emphasized the importance of **peace and stability** in the **Taiwan Strait** and expressed their opposition to unilateral actions by China that seek to alter the territorial status quo in the **South and East China Seas**.

#### *What is the meaning of a Multipolar world?*

- Multipolar is about **political resentment against the power of the US** or more broadly the **"collective West"**.
- This tells us a lot about the **anti-Western emotion** in the Indian elite.
- It offers little help in understanding the geopolitical dynamic of the world.

#### **Is a Multipolar World Emerging?**



- The word Multipolar is often used far more analytically to describe the **international power structure**.
- The claim is about the **weakening of American power** since the heyday of the “**unipolar moment**” that followed the collapse of the Soviet Union.

#### **Uneven Distribution of Power**

- While proponents of a multipolar world point to factors such as the **consolidation of the EU, Russia's resurgence, China's rapid rise, Japan's significant economic weight, and India's emerging presence**, it is crucial to note that power is not evenly distributed among these major players.

#### **Limitations**

- **EU:** Integration has made the EU a formidable entity but it still has a long way to go before becoming a **credible geopolitical actor, lacking significant political and military influence**.
- **Japan:** Despite being the **world's third-largest economy**, Japan possesses limited military power and lacks the political will to engage in the use of force.

#### **China's Growing Power**

- China is developing **comprehensive national power** that is **comparable to the US**.
- China is increasingly a **peer competitor of the US on the economic front**.
- China is beginning to challenge the **liberal ideology of the West** by offering an alternative political and economic model.
- However, China is yet to catch up with the **sophistication of US technological power or match US's military power**.

#### **India and other countries**

- India and countries like **Brazil, Indonesia, and Saudi Arabia** are rising in the global power hierarchy, but have serious limitations.
- None of them can be expected to measure up to the capabilities of the **US or China in the near future**.

#### **Strategies of Balancing Against Dominant Power**

- “Multipolar world” is used with reference to strategies seeking to **balance against the dominant power**.
- **Number of powers including India** sought to develop political and institutional strategies against the dangers from unconstrained US power.

#### **India's Response to US Threats**

- India joined the **RIC** forum with Russia and China and the **BRICS** also brought in Brazil and South Africa in response to twin threats from the US.
- During the 1990s and early 2000s, India believed the **US was the main challenge** and **China and Russia** were part of the answer to that challenge.
- **Twin Threat:** the US Administration's policy on rolling back India's nuclear and missile programmes and US activism on the Kashmir question.

### ***How geopolitics is shifted for India?***

- In the 21st century it was the US that took the lead to end India's isolation from the global nuclear order while China has sought to **block India's membership** in the **Nuclear Suppliers Group**.
- The US **no longer** meddles in the Kashmir question, now it is China that mucks around in many ways — **seizing territory, backing Pakistan, and raising the issue in international forums**.

### **Challenges Presented by China**

- China's actions undermine **India's economic interests**, counter its **regional influence, and challenge India's global aspirations**.
- Russia, which previously helped India balance against China, is now moving **closer to China**.
- To counter China now, the **United States and its allies in Asia** have become important considerations in India's strategic calculations.

### **Debates on World Polarity**

- The governments face the **pressing need to address immediate threats**.
- In the face of mounting challenges **posed by China in the 21st century's** second decade, India underwent **significant shifts in its perspective**.
- India introduced a new element by emphasizing the importance of fostering a "**multipolar Asia**" and **embracing the Indo-Pacific concept**.

India's "multipolar world" of the 1990s was against US power through the RIC and **BRICS**. India's "multipolar Asia" now focuses on balancing China through the **Quad** and partnerships with the US and its allies. As a bipolar framework envelops Asia, official India will continue to adapt its foreign policy.

### **India needs to bolster the Andaman and Nicobar Command**

- India is strategically fortunate to have island territories in the **Bay of Bengal** as well as the **Arabian Sea**.
- The Andaman and Nicobar (A&N) group of **572 islands** forms a springboard from where India can project **power, exert influence, or strike friendships in its eastern neighbourhood**.
- These islands could also be objects of desire for any country that wants to dominate the Bay of Bengal.

### ***What is China's island strategy in the South China Sea?***

- Since 2013, China is **building artificial islands** in the South China Sea.

- China has created over **3,000-4,000 acres** of new land atop reefs and rocks.
- **Fiery Cross, Mischief and Subi Reefs** have been provided with runways and harbours as well as guided-missile batteries.
- **Objectives:**
  - By developing a capability to **monitor all traffic** that moves under or above the sea, termed "**maritime domain awareness**", a nation can extend its defensive perimeter well beyond the homeland.
  - By providing island outposts with surveillance facilities and fortifying them, a nation can project power over a huge oceanic expanse.

#### ***How India created Andaman and Nicobar Command (ANC)?***

- India placed all Armed Forces located in the A&N Islands in **October 2001**.
- All Armed Forces including the Coast Guard were placed under the newly created **Commander-in-Chief, A&N (CINCAN)** to be nominated, in rotation, from the three services.
- **ANC's functions:** to ensure the defence of the territory, waters, airspace and the exclusive economic zone of the islands.
  - The ANC was also charged with **safeguarding the eastern approaches to the Indian Ocean** and establishing an **air defence identification zone (ADIZ)** over the islands.

#### ***How neighbours reacted to ANC?***

- South East Asian neighbours were already becoming wary of China.
- They expected that India would assert regional influence by positioning substantial forces with **transnational capabilities in the A&N**.
- After the establishment of ANC the Chinese Premier warned his countrymen about the "**Malacca Dilemma**".

#### ***Why India kept the tri-service force levels low in A&N?***

- India thought any overt show of force by India in the Bay of Bengal would be seen by neighbours as "**muscle-flexing**" and was, hence, undesirable.
- That is why despite frequent pleas by successive CINCANs, the tri-service force levels **remained ridiculously small and inadequate** for ocean surveillance or the establishment of an ADIZ.
- The services individually and collectively failed to **lend support and reinforce the fledgling ANC**.

#### ***Why ANC is an example of the Feasibility of Jointness?***

- ANC served as a testing ground for implementing **jointness in India's military operations**.
- The development of **staff, logistics, and operational procedures** in ANC served as a template for replication elsewhere.
- Overcoming **initial hurdles and breaking down inter-service suspicion** resulted in a highly efficient and functional joint command.

- The ANC's **successful humanitarian assistance** and disaster relief efforts during the **2004 tsunami demonstrated its effectiveness.**

**What needs to be done for enhancing preparedness for crisis situations?**

- **The Kargil War 1999, the 2004 tsunami, and the Galwan Valley standoff 2020** serve as reminders of sudden crisis situations.
- The ANC needs **urgent reinforcement** to guard against future surprises.
- Necessary steps for **fortification and augmentation include:**
  - Establishing comprehensive maritime domain awareness.
  - Defending the archipelago from military intrusions.
  - Tracking and intercepting hostile ships/submarines.
  - Establishing a rapid reaction force for swift response through airlift or sealift.

**How ANC can contribute to Indo-Pacific Security?**

- The ANC can play a role in Indo-Pacific security due to China's increasing aggression in the Himalayas and the Pacific.
- PLA Navy (PLAN) **warships, submarines, and intelligence-gathering vessels** have been frequent in the region.
- As the PLAN expands in numbers and capabilities, a permanent Chinese naval presence in the Indian Ocean could emerge.
- The ANC cannot match the PLAN "force-on-force" and must seek **power-balancing alternatives.**
- Existing partnerships like the **Quad and Malabar**, with the **US, Japan, and Australia**, can be utilized.
- The Quad leaders must address **China's belligerence** and make tough decisions during the postponed summit.
- The Quad should enhance its **stature and credibility** by crafting an agenda and charter, even without forming a military alliance.

**Strengthening the Quad/Malabar Construct**

- India can inject dynamism into the **Quad/Malabar** construct by **offering Port Blair** in the Andamans as a location for a **secretariat** and **meeting place for member navies.**
- The Quad navies should progress from multinational "**exercises**" to **multinational "operations"** after achieving sufficient interoperability.
- Non-traditional threats provide opportunities for the Quad navies to **engage in beneficial and practical operations.**
- By increasing skills in **disaster relief, humanitarian assistance, medical aid, submarine and aircraft rescue, and maritime security operations**, the Quad can provide comfort and reassurance to smaller **Indo-Pacific nations and deter potential hegemony.**

The ANC must be adequately bolstered and retained as an independent joint command, to become India's maritime bastion in the Bay of Bengal and to play a significant role in the ongoing Indo-Pacific "Great Game".

### **A funding solution for developing nations' climate challenge**

- The G20 has set up a high-level committee to suggest reform of multilateral development banks (MDBs) so that they are fit for purpose in the contemporary global scenario. It is co-chaired by N K Singh, former chairman of India's Finance Commission and Larry Summers of Harvard. A good augury is the appointment of Ajay Banga as president of the World Bank. Though best known as the CEO of Mastercard, Banga was schooled in India and is more than au fait with the requirements of the developing world.
- Poverty eradication and reduction of inequality has been the mission of the World Bank for years and the need to keep this emphasis has not disappeared, no matter the global gains on these fronts. However, with climate change now clearly recognised as the greatest global challenge, MDBs must rise and help developing countries in their "green" challenge.

#### **Challenges of climate financing for the developing world**

- Money estimates annually for greening in developing countries are in the **range of \$2-3 trillion**. These are **relatively manageable figures**. **Annual global savings**, coming mostly in the developed world, is around \$20 trillion. But, they are beyond the **domestic capacities** of developing countries.
- For example, in India, solar and wind energy attracted investments **worth \$66 billion** in the last eight years. But, this requirement will increase manifold.
- India will require **around \$1.15 trillion in the next eight years** to install 450 GW of renewables by 2030, for infrastructure of **transmission and storage**, **Green Hydrogen push** and increase the share of electric vehicles.
- A total investment of \$1.15 trillion is the estimated requirement, with the **debt requirement** being around **\$850 billion** and **equity roughly \$300 billion**.
- The \$850 billion debt requirement alone is **more than a quarter of the total loans** of all commercial banks in India. Moreover, these requirements will have to compete with **other developmental and individual priorities**.
- Other domestic financing routes such as bonds, pension funds and insurance funds have **limited prospects** for clean-tech segments. They are concentrated in **high-quality assets**, that is, AA+ rated assets.

- The **gap of around 40-60%** of the **total debt requirement**, can only be filled by foreign sources. But developed countries are reluctant to provide funding.

#### **Solutions for climate financing for the developing world**

- Global MDBs can be **particularly instrumental**. They can provide **interrupted flow of private capital** in the developed world for green projects in developing countries.
- This can be done by the creation of an **International Foreign Exchange Agency** linked to the WB. It will provide **hedging support** for foreign exchange borrowings by **green projects** in developing countries.
- **Large-scale pooling of projects and currencies coupled with reinsurance** is an alternative to insurance. It can considerably lower the costs of **foreign borrowed capital** for green projects in the private sector in developing countries.
- **Residual risks** could be covered by sovereign support from developed countries.
- The idea of a **foreign exchange agency** is operational in a small manner between Europe and West Africa. But the requirement is for something on a **truly large scale** covering **several currencies** and reaching the largest populations in developing countries.

While the G20 committee will focus on several aspects of reforming the MDBs, including capital adequacy and borrowing parameters for MDBs, their governance and the issues of developing countries' debt, climate financing in developing countries also needs to be accorded a high priority. Unlike many other areas of divergence in the present geopolitics, climate change sits well with all the major global economic players allowing for multi-partisan consensus. This must be leveraged at the MDBs with an agency or any other appropriate mechanism taking care of the currency risk. This is a relatively low-cost option for global well-being that could be piloted during India's G20 presidency.

#### **Menstrual health is a public health issue**

- In a recent incident, a man from a city in Maharashtra allegedly killed his 12-year-old sister because he mistook period stains on her clothes as a sign of a sexual relationship.
- India is home to more than 350 million women and girls who menstruate every month. However, menstruation is still a taboo and a source of shame and discrimination for many of them.



- In urban India, girls and women navigate a good part of their life in the public domain — a young working woman travels for hours by public transport, a teenager living in slums makes her way to school through narrow lanes, a sanitation worker begins her day before dawn cleaning the city, a vegetable vendor spends hours by her stall, and a nurse works busy 12-hour shifts. Their lives are very different, but they all navigate public spaces on a daily basis while dealing with a private aspect of their lives: their periods.
- Periods are normal, but continue to be shrouded by shame, stigma and discrimination. Consequently, people face barriers in getting accurate information about periods and related products, using toilets, and seeking help when needed.
- **Menstrual health** is not only a matter of personal hygiene, but also a public health issue that requires urgent attention and action from governments, civil society and individuals.

### **Gravity of the Issue**

- According to the **National Family Health Survey (NFHS-5)**, even though there has been significant progress in the past years, approximately 27% of young rural women still resort to unsanitary means of protection during their menstrual cycle.
- Among the urban population, 10% of young women reported using unhygienic methods.
- As per the report, 16 states and union territories (UTs) have a usage rate of over 90% for hygienic menstrual products. Nevertheless, some of the most impoverished states in India have a poor record in this regard. Bihar has the lowest usage rate (59%) of safe menstrual protection, followed by Madhya Pradesh (61%) and Meghalaya (65%).

### **Consequences of Poor Menstrual Hygiene**

- **Health:** Poor menstrual health can lead to infections, irritation, dermatitis, alteration in pH balance, and increased risk of cervical cancer. It can also affect mental health by causing stress, anxiety, and low self-esteem due to stigma and shame.
- **Education:** Poor menstrual health can affect school attendance, performance, and retention of girls and **transgender** students due to lack of facilities, products, information, and support. It can also create barriers to participation in sports and extracurricular activities.
- **Marriage:** Poor menstrual health can affect the sexual and reproductive health and rights of women, girl students drop out of school, are pushed into **child marriage**, and are more like to experience **domestic violence**, infections, reproductive illnesses, **malnourishment**, and poor mental health.

- **Work:** Poor menstrual health can affect the productivity, income, and career opportunities of women and transgender workers due to absenteeism, discomfort, discrimination, and harassment. It can also limit their access to decent work and social protection.

### **Barriers for Menstrual Hygiene**

- **Period Poverty:** Lack of awareness about menstrual hygiene and related issues is a significant barrier in India. Many girls and women, particularly in rural areas, have limited knowledge about menstrual health, including proper hygiene practices, use of sanitary products, and management of menstrual discomfort.
  - A survey conducted by the NGO Child Rights and You (CRY) revealed that access to sanitary pads was limited to many girls, with 44.5% of girls admitting to using homemade absorbents or cloth.
  - The report also found that around 11.3% of the girls did not know the correct cause of menstruation and said that it was a curse from God or caused by disease.
- **Stigma and Shame:** Menstruation is still surrounded by social stigma and cultural taboos in many parts of India. Menstruating women often face discrimination, restrictions, and isolation, leading to feelings of shame and embarrassment. This stigma can prevent open discussions, limit access to information and resources, and perpetuate negative attitudes towards menstrual hygiene.
  - The CRY report also found that Hesitation or shyness to purchase pads from the shops, difficulty in disposing of pads, poor availability and no knowledge of pads were the reasons for not using sanitary pads.
    - As much as 61.4% of girls have accepted that a sense of embarrassment existed in society with regard to periods.
  - **Lack of Access to Affordable Sanitary Products:** Access to affordable and hygienic menstrual products is a major challenge in India. Many women, especially those from low-income backgrounds, struggle to afford sanitary pads or tampons. This can result in the use of unhygienic alternatives like cloth, rags, or even ash, which can increase the risk of infections and other health issues.
  - **Inadequate Sanitation Facilities:** In many areas, the lack of proper sanitation facilities, including clean toilets and water supply, poses a significant barrier to menstrual hygiene. Insufficient infrastructure in schools, public places, and households can make it difficult for women and girls to manage their periods safely and with dignity.
    - Women in informal work (e.g., construction work, domestic work etc.) often have no access to washrooms, clean water for bathing,

and to cost-effective hygiene products and their safe disposal.

Often, they also lack privacy to change their menstrual products.

- **Limited Healthcare Services:** Rural areas often face a shortage of healthcare providers, including doctors, nurses, and midwives, who are specifically trained in addressing menstrual health issues. This shortage further hampers women's access to knowledgeable healthcare professionals. This lack of healthcare infrastructure also contributes to the persistence of myths and misconceptions about menstruation.
- **Cultural and Religious Practices:** Certain cultural and religious beliefs and practices can impede menstrual hygiene. For example, some communities consider menstruating women as impure and restrict their participation in religious activities or social gatherings. Such practices can further reinforce stigma and hinder proper menstrual hygiene practices.
  - In Maharashtra, a study found that the practice of segregating menstruating girls and women to 'kurmaghars', or "period huts", with no sanitation and other basic facilities poses a significant barrier to conducive sexual and reproductive health outcomes among females.
- **Lack of Policy Measures:** The 2022 'Right of Women to Menstrual Leave and Free Access to Menstrual Health Products Bill' specified three days of paid leave for women and transwomen during their periods, and additional benefits for students is yet to become act. Only two states, Kerala and Bihar, currently have menstrual leave policies for women.

### Looking ahead

- **An Inclusive Approach:** It must also cater to the menstrual needs of the differently abled, trans-male/female, and people with other gender identities who menstruate. Gender-nonconforming persons face safety problems and a lack of menstrual supplies. We need to urgently understand their unique needs as well.
- **Improve the quality of Sanitary Products:** Despite being cheap and affordable, officials have also noted quality issues in sanitary napkins distributed under various government schemes.
- **Promote better Alternatives:** Menstrual cups are a cheap, sustainable, and eco-friendly alternative to sanitary napkins, but they are still treated with scepticism.
- **Telemedicine and teleconsultation services:** Utilizing telemedicine platforms can provide remote access to healthcare professionals specialized in menstrual health. Through video consultations, women and girls in remote areas can receive personalized guidance, support, and expert advice on menstrual

hygiene, ensuring that accurate information is easily accessible regardless of geographical constraints.

- **Community-based peer education programs:** Engaging local communities through innovative peer education programs can help break the silence and stigma surrounding menstruation. These programs can train and empower women and girls to become menstrual hygiene ambassadors.
- **Robust Waste Disposal:** Safe disposal of sanitary napkins and the associated difficulties and misconceptions.
  - **IoT technology** can be employed to develop smart toilets equipped with sensors for detecting menstrual waste and automatically initiating proper disposal mechanisms.
- **Constructing Smart Toilets:** These toilets can provide real-time feedback on hygiene practices, monitor supply levels of menstrual products, and send alerts for maintenance and restocking.
- **Raise Awareness:** Awareness must be raised among women through Initiatives like the use of mobile applications, interactive websites, and voice-based information systems to provide easily accessible and culturally appropriate information on menstrual health and hygiene.
  - **Augmented Reality (AR) and Virtual Reality (VR)** technologies can create immersive and interactive learning experiences for menstrual health education.
  - Virtual simulations and scenarios can be used to teach proper hygiene practices, demonstrate the biological processes involved, and address myths and misconceptions.
- **Policy Measures:** Policies like Reduction of tax, setting standards for sanitary products and creation of female friendly infrastructure should be implemented. Also, the 'Right of Women to Menstrual Leave and Free Access to Menstrual Health Products Bill should be made a law and implemented in Letter and Spirit.

Inadequate menstrual hygiene can harm women and girls physically, mentally, and socially, causing infections, **anemia**, infertility, school dropout, violence, and discrimination. It is not just a personal hygiene matter but a public health concern demanding immediate action from governments, civil society, and individuals. To overcome these challenges, we need a comprehensive strategy involving education, awareness campaigns, policy reforms, infrastructure enhancements, and better healthcare services. By destigmatizing menstruation, ensuring affordable sanitary products, and providing comprehensive menstrual health education, we can enhance menstrual hygiene in India.

## National Population Register - All you need to know

For **Census 2021**, the Government has made the **National Population Register (NPR)** mandatory, allowing citizens to self-enumerate, for individuals who wish to fill out the census form themselves instead of relying on government enumerators.

- Self-enumeration refers to the **completion of census survey questionnaires** by the respondents themselves. Self-enumeration will **be provided to only those households that have updated NPR online**.
- During self-enumeration, **Aadhaar or mobile number** will be mandatorily collected.

### Set of Questionnaires

- The upcoming Census will be the **first digital one**, allowing respondents to complete the **questionnaire from their homes**.
- The set of questions for the **Houselisting and Housing Schedule phase** has been finalized, while the questions for the Population Enumeration phase are yet to be notified.
  - The comparison between the **2011 Census** and the next one reveals new inquiries on travel time and metro rail usage for commuting.
- The question on **disabilities includes additional categories** like acid attack, intellectual disability, chronic neurological disease, and blood disorder.
- The next Census will **also gather information on whether individuals living in rented houses own residential property elsewhere or do not own any**.
- Clarifications are provided on the **availability of drinking water within specific distances** from the premises.

### National Population Register

- NPR is a database **containing a list of all usual residents** of the country.
  - A usual resident for the purposes of NPR is a person who has resided in a place for six months or more and intends to reside there for another six months or more.
- Its objective is to **have a comprehensive identity database** of people residing in the country.
  - It is generated through house-to-house enumeration during the “house-listing” phase of the
- NPR was first collected in 2010. It was updated in 2015 and already has details of 119 crore residents.
  - In March 2020, the Ministry of Home Affairs (MHA) amended the Census Rules framed in 1990 to capture and store the Census data in an electronic form and enabled self-enumeration by respondents.
- **Legal Backing:**

- The NPR is prepared under the provisions of the **Citizenship Act 1955** and the Citizenship (Registration of Citizens and Issue of National Identity Cards) Rules, 2003.
- It is mandatory for every “usual resident of India” to register in the NPR.
- **Significance:**
  - It will streamline **data of residents across various platforms**.
    - For instance, it is common to find a different date of birth of a person on different government documents. NPR will help eliminate that.
  - It will help the government **formulate its policies better** and also aid national security.
  - It will help to target government beneficiaries in a better way and also further cut down paperwork and red tape in a similar manner that Aadhaar has done.
  - It will help in implementing the **idea of ‘One Identity Card’** that has been recently floated by the government.
    - ‘One Identity Card’ seeks to replace duplicate and siloed documentations of Aadhaar card, voter ID card, banking card, passport, and more.
  - **NPR and NRC:**
    - According to Citizenship Rules 2003, NPR is the first step towards compilation of a **National Register of Citizens (NRC)**. After a list of residents is created (i.e., NPR), a nationwide NRC could go about verifying the citizens from that list.
    - However, unlike the NRC, the NPR is not a **citizenship** enumeration drive as **it records even a foreigner staying in a locality for more than six months**.
      - NRC is a register prepared **after the conduct of the Census of 1951** in respect of each village, showing the houses or holdings in a serial order and indicating against each house or holding the number and names of persons staying therein.

#### Difference between NPR and Census

- **Objective:**
  - The census involves a **detailed questionnaire** - there were 29 items to be filled up in the 2011 census - aimed at eliciting the particulars of every person, including **age, sex, marital status, children, occupation, birthplace, mother tongue, religion, disability** and whether they belonged to any Scheduled Caste or Scheduled Tribe.



- On the other hand, NPR collects basic demographic data and biometric particulars.
- **Legal Basis:**
  - The census is legally backed by the Census Act, 1948.
  - The NPR is a mechanism outlined in a set of rules framed under the Citizenship Act, 1955.
- **Comprehensive Identity Database:**
  - The NPR, unlike the Census, is a **comprehensive identity database of every “usual resident”** in the country and the data proposed to be collected at the family level can **be shared with States and other government departments.**
  - Though Census also collects similar information, the **Census Act of 1948** bars sharing any individual's data with the **State or Centre and only aggregate data at the administrative level** can be released.

### Better nutrition, fewer emissions

- The **Group of 7 (G7)** nations stressed that the peak for **global Green House Gas (GHG) emissions** should be reached by 2025.
- They also committed to an **“Acceleration Agenda”** for G7 countries to reach net-zero emissions **by around 2040** and urged emerging economies to do so by around 2050.
  - China and India have committed to net zero **by 2060 and 2070 respectively.**
- However, emerging trends in climate change may not give the countries the **luxury of being too late.**

### Forecasted Temperature Increase and Impact on Agriculture

#### Forecast of Temperature Increase

- The **World Meteorological Organisation (WMO)** has forecasted that global near-surface temperatures are likely to **increase by 1.1°C to 1.8°C annually** from 2023 to 2027.
- WMO also anticipates that temperatures will **exceed 1.5°C above pre-industrial levels** for at least **one year within this period.**
- As per the **India Meteorological Department (IMD)**, India experienced its **fifth hottest year** on record in 2022.

#### Impact on Agriculture

- Every 1-degree Celsius increase in temperature is likely to be inflicted in terms of **human lives and livelihoods**, especially for those working in the **agriculture sector**.
- India has the **largest agricultural workforce (45.6 per cent in 2021-22)** among G20 countries, which will cause a disproportionate impact on the country.
- Indian agriculture faces a **double whammy**: it has to **feed the largest population** (1.42 billion in 2023 and likely to be 1.67 billion by 2050), and it has to do so while contending with the **increasing vagaries of nature**.
- India's **grain production (330MT in 2022-23)** gives is sufficient but the nutritional challenge remains.

### **Agricultural Research, Development, Education and Extension (ARDE)**

#### **ARDE vs Subsidy:**

- Research at ICRIER indicates that investing in **Agri-R&D yields** much greater returns (**11.2**) compared to **fertiliser subsidy (0.88)**, **power subsidy (0.79)**, **education (0.97)**, or **roads (1.10)**.

#### **Improving Resource Use Efficiency:**

- ARDE plays a crucial role in enhancing the efficient utilization of natural resources like **soil, water, and air**.
- Development of **heat-resistant seeds and precision agriculture techniques**, such as **drip irrigation**, contribute to conserving resources.
- **Sensor-based irrigation systems** enable automated control, resulting in improved resource efficiency.
- **Fertigation and nano-fertilisers** help save on the subsidy for fertilisers and **reduce carbon footprint**.
- **Implementation of innovative farming practices** leads to higher output with fewer inputs while reducing GHG emissions.
- Research at the **Borlaug Institute for South Asia (BISA)** shows the **benefits of mulching**, including increased **soil organic carbon and water savings**.

#### **Scaling up Experiments:**

- Larger allocations of funds are essential for expanding successful experiments.
- Analysis of ARDE since 2005-06 reveals an **increase in total expenditure**, but research **intensity shows fluctuations**.
- Research intensity has grown from **0.55% in 2005-06** to its peak of **0.70% in 2010-11**, before declining to **0.48% in 2019-20**.
- Achieving higher research intensity requires increased **budgetary allocations for ARDE**.

### **ARDE- Allocations, Challenges & Solutions**

#### **Allocation of ARDE by Sector:**

- There is a **skewed distribution of ARDE** towards the crop husbandry sector.

- The relative **share of crop husbandry** has marginally **increased from 75% to 76% between 2008 and 2020**.
- The shares for **soil, water conservation, and forestry** have **declined from 5% to 2%**.
- The shares for **animal husbandry, dairy development, and fisheries sectors** have **decreased from 11% to 8%**.
- Correcting this imbalance is crucial, especially considering that the **livestock sector contributes 54% of GHG emissions** in agriculture.

**Challenges and Solutions:**

- The overall research intensity in agriculture falls short of the **recommended target of 1% of the agricultural gross value added (AGVA)**.
- To achieve this target, India needs to **double its budgetary allocations for ARDE**.
- **Reducing fertiliser and power subsidies** and redirecting those savings to Agri-R&D can improve research intensity.
- Political courage and innovative policies are required to ensure **farmers' incomes increase during this realignment phase**.

With the considerable rise in funding for ARDE, it becomes essential to not only readjust expenses but also policies (such as **subsidies for fertilizers, power, etc.**) to address the issue of climate change. The **livestock and horticulture sectors** have been expanding at a rate that is more than twice that of the cereal sector. However, India's current policies and programs are still focused on traditional staples like **rice and wheat**, reflecting outdated practices. It is crucial to shift this approach to improve nutrition and reduce greenhouse gas emissions.