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EDITORIALS

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The anti-defection law - political facts, legal fiction

The practice of legislators from changing political parties during their term continues unabated in Indian legislatures despite the Tenth Schedule having been inserted into the Constitution in 1985. Commonly known as the 'Anti - Defection Law', it was meant to arrest the practice of legislators from changing political affiliations during their term in office. The political crisis in Maharashtra, and many others before it, are grim reminders of what the Tenth Schedule can and cannot do.

Anti - Defection Law

- The anti-defection law punishes individual Members of **Parliament** (MPs)/MLAs for leaving one party for another.
- Parliament added it to the Constitution as the **Tenth Schedule in 1985.** Its purpose was to bring stability to governments by discouraging legislators from changing parties.
    - The Tenth Schedule - popularly known as the **Anti-Defection Act** - was included in the Constitution via the **52nd Amendment Act, 1985.**
    - It sets the provisions for disqualification of elected members on the grounds of defection to another political party.
    - It was a response to the toppling of multiple state governments by party-hopping MLAs after the general elections of 1967.
- However, **it allows a group of MP/MLAs to join** (i.e., merge with) another political party without inviting the penalty for defection. And it does not penalize political parties for encouraging or accepting defecting legislators.
    - As per the 1985 Act, **a "defection" by one-third of the elected members of a political party was considered a "merger".**

- But the **91st Constitutional Amendment Act, 2003,** changed this and now **at least two-thirds of the members of a party must be in Favour** of a "merger" for it to have validity in the eyes of the law.

- The members disqualified under the law can stand for elections from any political party for a seat in the same House.
- The decision on questions as to disqualification on ground of defection are referred to the **Chairman** or the **Speaker** of such House, **which is subject to 'Judicial review'.**
  - However, the law does not provide a timeframe within which the presiding officer has to decide a defection case.

Grounds for Defection

- **Voluntary Give Up**:
  - If an elected member **voluntarily gives up his membership** of a political party.
- **Violation of Instructions:**

- If he votes or abstains from voting in such House contrary to any direction issued by his political party or anyone authorized to do so, without obtaining prior permission.
    - As a pre-condition for his disqualification, his abstention from voting **should not be condoned** by his party or the authorized person **within 15 days** of such incident.

- **Elected Member:**
    - If any **independently elected member joins any political party**.
- **Nominated Member:**
    - If any **nominated member** joins any political party **after the expiry of six months.**

Affects the Political System

- **Subversion of Electoral Mandates:**
    - Defection is the subversion of electoral mandates by legislators who get elected on the ticket of one party but then find it convenient to shift to another, due to the lure of ministerial berths or financial gains.

- **Affects the Normal Functioning of Government:**
    - The infamous "Aaya Ram, Gaya Ram" slogan was coined against the background of continuous defections by the legislators in the 1960s.
    - The defection leads to instability in the government and affects the administration.
- **Promote Horse Trading:**
    - Defection also promotes horse-trading of legislators which clearly go against the mandate of a democratic setup.

Challenges with Anti - Defection Law

- **Paragraph 4 of the law:**
    - Paragraph 4 of the Anti - Defection Law creates an exception for mergers between political parties by introducing three crucial concepts:
        - **Original Party:**

        - The political party to which a member belongs (this can refer to the party generally, outside of the House).
    - **Legislature Party:**
        - Consisting of all elected members of a House for the time being belonging to one political party.
    - **Deemed Merger**
- Paragraph 4 **does not clarify whether the original political party refers to the party at the national level or the regional level,** despite the fact that that is how the **Election Commission** of India recognises political parties.
- **Paragraph 4 states that:**
    - A merger can take place only when an original party merges with another political party, and at least two thirds of the members of the legislature party have agreed to this merger.
- Paragraph 4 seems to be creating a "legal fiction" so as to indicate that a merger of two third members of a legislature party can be deemed to be a merger of political parties, even if there is no actual merger of the original political party with another party.

- **Undermining Representative & Parliamentary Democracy:**

- After enactment of the Anti-defection law, the MP or MLA has to follow the party's direction blindly and has no freedom to vote in their judgment.
- Due to Anti-Defection law, the chain of accountability has been broken by making legislators accountable primarily to the political party.

- **Controversial Role of Speaker:**
  - There is no clarity in the law about the timeframe for the action of the House Chairperson or Speaker in the anti-defection cases.
  - Some cases take six months and some even three years. There are cases that are disposed - off after the term is over.
- **No Recognition of Split:**
  - Due to the **91st Constitutional Amendment Act, 2003**, the anti-defection law created an exception for anti-defection rulings.
  - However, the amendment does not recognize a 'split' in a legislature party and instead recognizes a 'merger'.
- **Allows only Wholesale Defection:**

- It allows wholesale defection, but retail defection is not allowed. Amendments are required to plug the loopholes.
- He raised concern that if a politician is leaving a party, s/he may do so, but they should not be given a post in the new party.

- **Affects the debate and discussion**:
  - The Anti-Defection Law has created a democracy of parties and numbers in India, rather than a democracy of debate and discussion.
    - In this way, it does not make a differentiation between dissent and defection and weaken the Parliamentary deliberations on any law.

Suggestions

- The Election Commission has suggested it should be the deciding authority in defection cases.
- Others have argued that the **President** and **Governors** should hear defection petitions.

- The **Supreme Court** has suggested that Parliament should set up an independent **tribunal** headed by a retired judge of the higher judiciary to decide defection cases swiftly and impartially.
- Some commentators have said the law has failed and recommended its removal. Former Vice President Hamid Ansari has suggested that it applies only to save governments in no-confidence motions.

Make Anti-Defection Law More Effective

- **Rational use of the anti-defection law:**
    - Several experts have suggested that the law should be valid only for those votes that determine the stability of the government. Example: passage of the annual budget or no-confidence motions.
- **Advice of Election Commission:**
    - Various commissions including National Commission to review the working of the constitution (NCRWC) have recommended that rather than the Presiding Officer, the decision to disqualify a member should

be made by the President (in case of MPs) or the Governor (in case of MLAs) on the advice of the Election Commission.

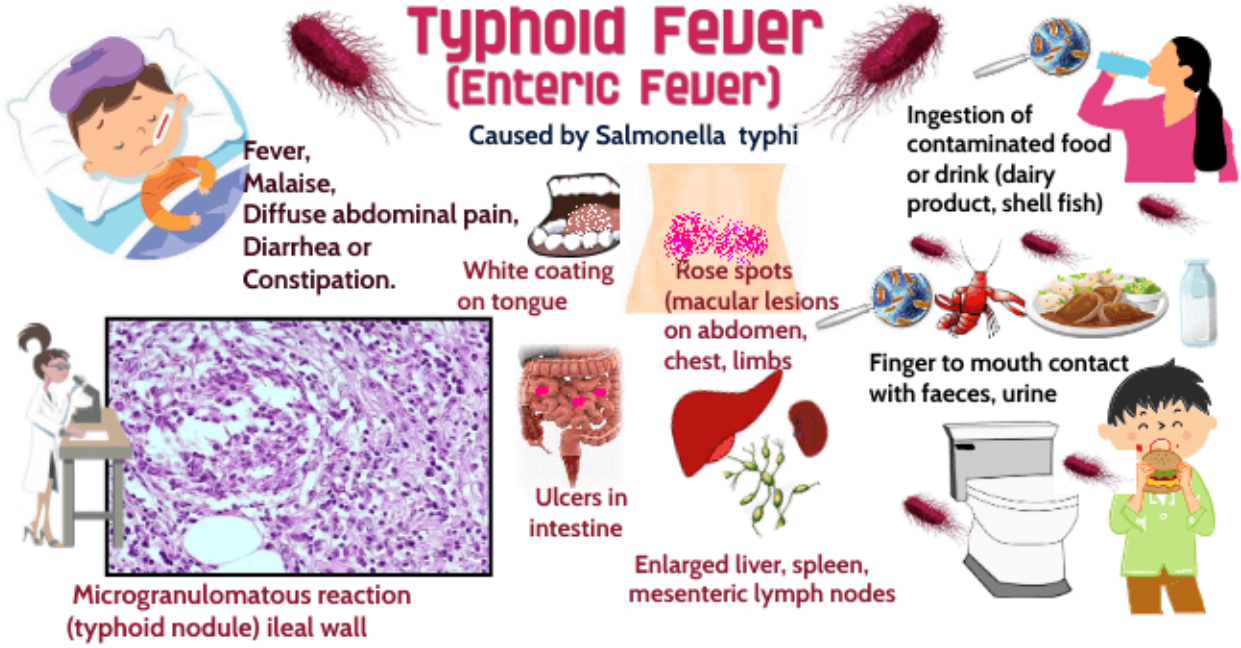
- **Independent authority to deal with disqualification:**
    - Justice Verma in Hollohan judgment said that tenure of the Speaker is dependent on the continuous support of the majority in the House and therefore, he does not satisfy the requirement of such independent adjudicatory authority.
    - Also, his choice as the sole arbiter in the matter violates an essential attribute of the basic feature.
    - Thus, the need for an independent authority to deal with the cases of defection.
- **Promoting the principle of intra-party democracy:**
    - 170th Law Commission report underscored the importance of intra-party democracy by arguing that a political party cannot be a dictatorship internally and democratic in its functioning outside.
    - Thus, the parties should listen to the opinions of the members and have discussions on the same. This would give the freedom of speech and expression to its members and promote inner-party democracy.

- **Analysis by Supreme Court**:
    - An academic revisiting of the Tenth Schedule by the Supreme Court, so as to guide future use of the anti - defection law, is timely and should happen soon.

Drug-resistant typhoid strains

Bacteria that cause **typhoid fever** are becoming more and more resistant to some of the most widely used antibiotics, according to the study published in The Lancet Microbe journal.

- Typhoid fever causes 11 million infections and **more than 1,00,000 deaths per year.** South Asia accounts for **70% of the global disease burden.**



Typhoid

- Typhoid fever is a life-threatening **systemic infection caused by the bacterium *Salmonella enterica* serovar Typhi** (commonly known as Salmonella Typhi) **carried only by humans** - no other animal carrier has been found.

Transmission:

- Typhoid fever is **transmitted by the faecal-oral route**, through ingestion of contaminated food or water.

- Without treatment, about **one person in 20 who recovers from typhoid becomes a 'carrier'.** Despite having no symptoms of illness, they have bacteria in their faeces and urine, and can infect others for a period of about three months (sometimes up to one year).
- **Travellers are at high risk of developing typhoid fever** in many typhoid endemic countries. This includes parts of **Asia (especially India, Pakistan, and Bangladesh), Africa, the Caribbean, Central and South America, and the Middle East.**

Symptoms:

- Symptoms and signs of typhoid range from mild to severe, can last for about one month without treatment, and may include: fever, fatigue or tiredness, malaise (general feeling of unwellness), sore throat, persistent cough, headache.

Prevention:

- **Vaccine:**
  - The typhoid vaccine is available as an oral medication or a one-off injection:

- **Capsule:** For adults and children over the age of 6 years, this is a **live, attenuated vaccine**.
- **Shot:** For adults and children over the age of 2 years, this is an inactivated vaccine a person needs to get 2 weeks before travel.
- The **typhoid vaccine is only 50-80% effective**.

Treatment:

- Typhoid fever requires prompt treatment with **antibiotics**.

Drug Resistance:

- The effectiveness of **antibiotics** for typhoid fever is threatened by the emergence of **drug resistant strains**.
  - The existence of **resistant strains of bacteria means antibiotics or drugs designed to kill them no longer work**, allowing them to spread rapidly, posing a risk to public health.
- Since 2000, **multi-drug-resistant (MDR)** typhoid has declined steadily in Bangladesh and India, remained low in Nepal, and increased slightly in Pakistan.

- However, these are **being replaced by strains resistant to other antibiotics,** according to the study conducted by researchers from **Stanford University, Christian Medical College Vellore** and other institutions.
- **Multi-drug resistance (MDR)** is defined as lack of susceptibility to at least one agent in three or more chemical classes of antibiotic.
- Strains were classified as **MDR** if they had **genes giving resistance to antibiotics ampicillin, chloramphenicol, and trimethoprim/ sulfamethoxazole**.

○ A new type of drug resistance is observed in strains termed **XDR typhoid. Strains resistant to the antibiotic (azithromycin) have been seen in India, Bangladesh, Nepal and Pakistan.**

- **Extensive Drug Resistance (XDR)** typhoid is caused by a strain that is **resistant to at least five antibiotic classes recommended for treating typhoid fever.**

Road ahead

- An **integrative approach and a comprehensive policy framework are required** to be in place for the prevention, control and elimination of typhoid fever.
- **India's Health Ministry** is considering introducing **new typhoid conjugate vaccines** into the national immunization program. **Two WHO prequalified vaccines have been developed in India (by Bharat Biotech and Biological E).**

Cropping Patterns in India

- Different crops grown in an area at a particular point of time is called cropping pattern.
- Cropping pattern depends on climate (temperature, rainfall, wind etc.), soil, support price, value, demand - market, labor availability, historical setting, etc.
- Climate: Rice is cultivated extensively when the monsoons are good. But when monsoons are weak, millets are grown instead of rice.

- **Cotton in Maharashtra**, **tea in Assam** and **jute in West Bengal** remain the dominant crops due to highly favorable conditions for cultivation.
- Soil: **Regur** soils are ideal for cotton cultivation. Cotton is the obvious choice in such soils when the climate is favorable.
- Minimum Support Price (MSP): Rice and wheat which are offered MSP are preferred by farmers.
- Value: Millets in the hilly areas of HP and Uttarakhand are replaced by high value horticulture crops like apple.
- Demand: Rice is the preferred crop in the densely populated regions as there is a ready market.
- Historical setting: Sugarcane is grown **more extensively in North India** even though the **conditions are most favorable in South India**.
- This is because the sugarcane cultivation was encouraged by British as an alternative to indigo which lost its significance and market in states like Uttar Pradesh due to introduction of artificial dyes.
- **Diversification** of crops due to surplus food grain production post Green Revolution has led to significant changes in cropping pattern.

- Other than rice and wheat, oilseeds and pulses also became more prominent.
- Crop diversification in certain regions has been negligible. E.g.

1. **Rice dominates in well irrigated parts of south India.**
2. **Wheat dominates north-western part of the country.**

- Coarse grains like jowar, bajra, maize, barley, ragi etc. are given comparatively less importance in these regions.

Major Crops of India

- Cropping patterns can be better understood by studying about major crops of India.
- Indian Geography, types of soils in India and Indian climatology forms the foundation for understanding cropping pattern and major crops of India.

Crop Classification

Crop Classification based on the type of produce

Food Crops	Rice, wheat, maize, millets – jowar, bajra, ragi; pulses – gram, tur (arhar) etc. **(cereals - grass like plants with starchy edible seeds having high nutritional value)**
Cash Crops	Cotton, jute, sugarcane, tobacco, oilseeds, groundnut, linseed, sesamum, castor seed, rapeseed, mustard, etc.
Plantation Crops	Tea, coffee, coconut, arecanut, rubber and spices – cardamom, chillies, ginger, turmeric etc.
Horticulture	Vegetables – Onion, tomato, etc; and fruits – Apple, Orange, Mango, banana, citrus fruits, etc..

Crop Classification based on climate

Tropical	**Temperate**

Crops grow well in warm & hot climate	Crops grow well in cool climate
E.g. Rice, sugarcane, Jowar etc.	**E.g. Wheat, Oats, Gram, Potato, apple etc.**

Classification Based on growing season

Kharif/Rainy/Monsoon crops	**Rabi/winter/cold seasons crops**	**Summer/Zaid crops**
The crops grown in monsoon months	*The crops grown in winter season*	*Crops grown in summer*
Sown before monsoon and harvested at the end of the monsoon	*Sown before retreating monsoon and harvested before summer.*	*Sown and harvested in summer*
June to Oct-Nov	Oct to March	March to June

Require warm, wet weather at major period of crop growth	Crops grow well in cold and dry weather	Require warm dry weather for major growth period
E.g. Cotton, Rice, Jowar, Bajara etc.	**E.g. Wheat, gram, sunflower etc.**	**E.g. Groundnuts, Watermelon, Pumpkins, Gourds etc.**

The kharif crops include rice, maize, sorghum, pearl millet/bajra, finger millet/ragi (cereals), arhar (pulses), soyabean, groundnut (oilseeds), cotton etc.

The rabi crops include wheat, barley, oats (cereals), chickpea/gram (pulses), linseed, mustard (oilseeds) etc.

NOTE:

Wheat

- Second most important staple food for Indian population.
- It is a rich source of **calcium, thiamine, riboflavin** and **iron**.
- Preferred staple food in northern and north-western parts of the country.

Climatic conditions for wheat

- Wheat is a **temperate crop** which requires a **cool climate with moderate rainfall**.
- It shows **great adaptability** & can be grown in tropics as well (yields are low in tropics).
- It is a **rabi crop** (winter crop - requires cool and less moist climate).

Regions	Sowing months	Harvesting months
1. Karnataka, Maharashtra, Andhra Pradesh, Madhya Pradesh and West Bengal [central and southern (peninsular) agro climatic regions]	September-October	January-February
2. Bihar, Uttar Pradesh, Punjab, Haryana and Rajasthan [North-eastern	October-November	February-March

plain and North-western plain agro climatic regions]		
3. Himachal Pradesh and Jammu & Kashmir	November-December	April-May

Oilseed (Cash Crop) Crops in India

- Major oilseeds include groundnut, linseed, sesamum, castor seed, rapeseed, mustard, sunflower and soyabean.
- Oil extracted from oilseeds is used in diet and as raw material for manufacturing paints, varnishes, hydrogenated oil, soaps, etc.
- Oil-cake which is the residue of oilseeds forms an important cattle-feed and manure.
- India has the **largest** area (18-20 % of the net sown area) and production of oilseeds in the world.
- There had been a gradual increase in area, production and yield of oilseeds, with the passage of time.

- The production of oilseeds has always fallen short of our demand and India has always been a **net importer** of oilseeds.
- There is a very little scope for bringing additional area under oilseeds. Increasing productivity is the only way to meet the domestic demand.
- **Madhya Pradesh, Rajasthan, Maharashtra** & **Gujarat** are the main producers of major oilseeds accounting for over two-third of the area and three-fourths of the production.
- Other producers include Andhra Pradesh, UP, Haryana, Karnataka, **Tamil Nadu** (gives maximum yield in oil seeds) West Bengal, Odisha, Assam, etc..

Groundnut

- Groundnut is the most important oilseed of India.
- It accounts for nearly half of the major oilseeds produced in India.
- Groundnut kernels are rich in proteins and vitamins and have high calorific value.
- It contains **40-50% oil** which is used as edible oil or hydrogenated vanaspati.

- The oil is used for manufacturing margarine, medical emulsions, soap etc.
- Its oil cake is used as an important rich cattle feed.
- It is often a rotation crop because of its **atmospheric nitrogen fixing abilities**.

Conditions for Growth

- It is a tropical crop that requires 20°-30°C temperature and 50-75 cm rainfall.
- Isohyet of 100 cm marks the upper limit for groundnut cultivation.
- It is mainly a **kharif** crop but it also cultivated during rabi season.
- It is highly susceptible to frost, prolonged drought, continuous rain & stagnant water.
- Dry winter is needed at the time of ripening.
- **Well drained** sandy loams, red, yellow and black cotton soils are well suited.

Production and Distribution

- India (17.4%) is the **second largest** producer of groundnut. [China 40%].
- Unlike rice and wheat, there is no fixed cropping area for groundnut.
- Groundnut is a rainfed crop and fluctuations in its production is usual.
- **Andhra Pradesh, Tamil Nadu, Gujarat and Rajasthan** are the four main producers.
- These four states together account for over 70% of total production of India.
- Andhra Pradesh (23%) is the largest producer of groundnut in India.
- Tamil Nadu (18%) is the second largest producer.
- Gujarat, Rajasthan, Karnataka and Maharashtra are the other important producers.

Trade

- India''s exports have drastically fallen due increased domestic consumption.

India's edible oil industry

- Indians used broadly these edible oils

1. 'vegetable' oils obtained from crushing local oilseeds

- mustard in northern and eastern India;
- groundnut in Gujarat, Maharashtra, Karnataka and Andhra Pradesh;
- sesame and groundnut in Tamil Nadu; and
- coconut in Kerala

2. 'animal' fat - ghee from milk.

3. **dalda - hydrogenated vegetable oil**.

- hydrogenation – adding hydrogen to **convert "unsaturated" liquid fats into "saturated" solid fats**.
- hydrogenation is done to harden or raise the melting point of the oil.
- Just as ghee, dalda has higher melting and **smoke point** (at which the molecules start breaking down).
- Advantages of dalda: Good shelf life of foods, quite cheap compared to edible oils.
- Disadvantages of dalda: saturated fats are **very bad for health** (
- **Oil seeds = Yellow Revolution** [**National Dairy Development Board (NDDB) played an important role**].

In 1970s

- **groundnut** accounted for almost 60 per cent of India's edible oil consumption.
- groundnut was followed by mustard, cottonseed, coconut, sesame, etc. (industry was based totally on **domestically** produced oilseeds).

Present

- groundnut oil's share declined - hardly 1 per cent
- mustard's share declined to 10 per cent.
- **Palm, soyabean and sunflower** dominated (industry shifted towards **imported** oilseeds and oil).

1. palm oil (45 per cent)
2. soyabean (20 per cent)
3. sunflower (rest).

Managing type 1 diabetes

Last week, the **Indian Council of Medical Research (IMCR)** released guidelines for the diagnosis, treatment, and management for **type-1 diabetes**. This is the **first time** the ICMR has issued guidelines specifically for type 1 diabetes, which is **rarer than type 2** – only 2% of all hospital cases of diabetes in the country are type 1 – but which is being diagnosed more frequently in recent years.

"Today, **more and more children are being diagnosed with type 1 diabetes** in our country. This may be because the **actual prevalence of the disorder** is going up in India. It may also reflect better awareness and therefore, improved **diagnosis of type 1 diabetes**. Finally, it could be that children are surviving more due to early diagnosis and better treatment," the guidelines said.

India is considered the diabetes capital of the world and the pandemic disproportionately affected those living with the disease. **Type 1 or childhood diabetes**, however, is less talked about, although it can turn fatal without proper **insulin therapy**.

So, what is type 1 diabetes?

Type 1 diabetes is a condition where the **pancreas completely stops producing insulin**, the **hormone responsible for controlling the level of glucose** in blood

by increasing or decreasing absorption to the liver, fat, and other cells of the body.

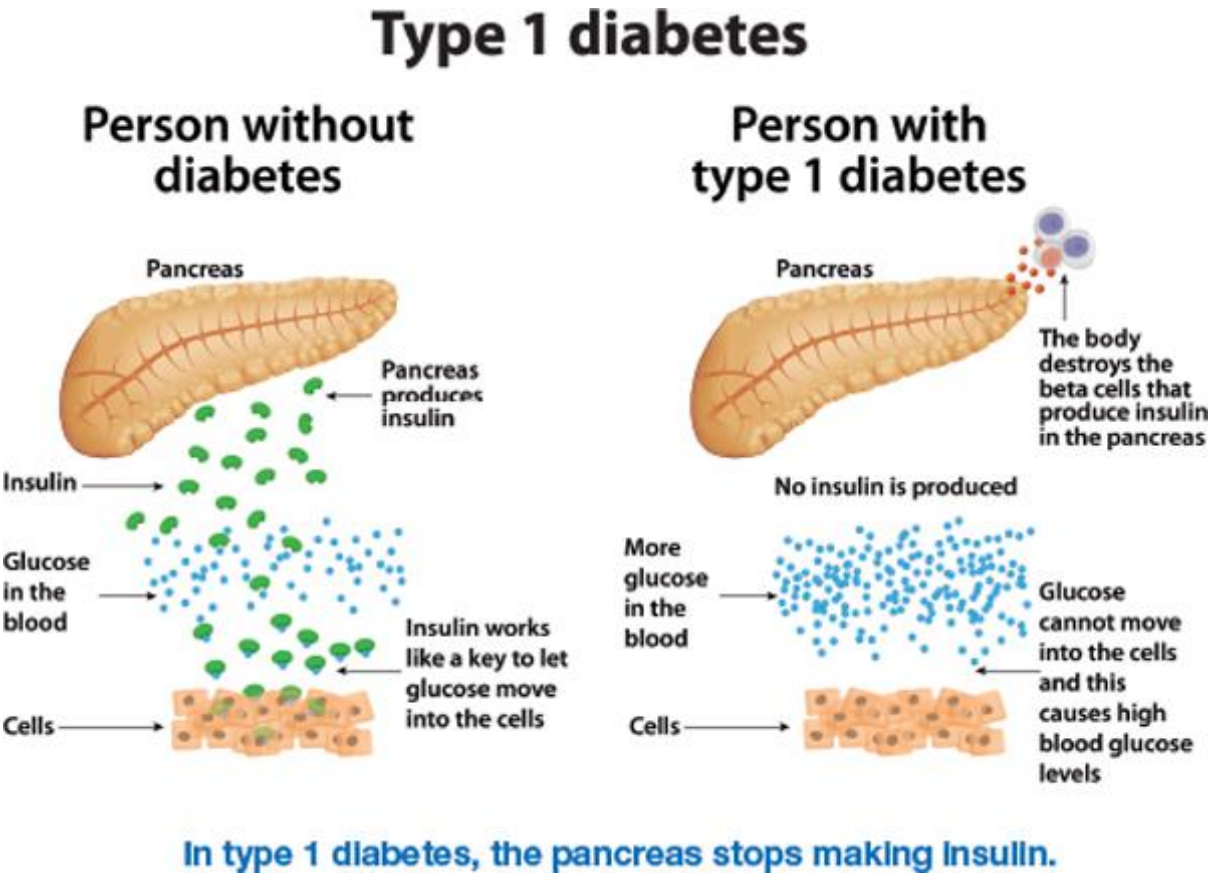
This is unlike **type 2 diabetes** – which accounts for **over 90% of all diabetes cases** in the country – where the **body's insulin production either goes down** or the **cells become resistant to the insulin**.

"**Type 1 diabetes** is predominantly diagnosed in children and adolescents. Although the prevalence is less, **it is much more severe than type 2**. Unlike type 2 diabetes where the body produces some insulin and which can be managed using various pills, if a person with type 1 diabetes stops taking their insulin, they die within weeks. The body produces zero insulin," said Dr V Mohan, chairman of Dr Mohan's Diabetes Specialities Centre, and one of the authors of the guidelines.

"**Before insulin was discovered 101 years ago**, these children would die within months after diagnosis. Now, with better insulin and various innovations, they are living longer. My oldest patient with type 1 diabetes is now 90; he was diagnosed when he was 16," he said.

Children with the condition usually present to the hospital with **severe symptoms of frequent urination**, and **extreme thirst** and nearly a third of them have diabetic ketoacidosis (a serious condition where the body has a high concentration

of ketones, a molecule produced when the body isn't able to absorb glucose for energy and starts breaking down fats instead).



How rare is it?

There are **over 10 lakh children and adolescents living with type 1 diabetes** in the world, with India accounting for the highest numbers. **Of the 2.5 lakh people living with type 1 diabetes in India**, 90,000 to 1 lakh are under the age of 14 years. For context, the total number of people in India living with diabetes was 7.7

crore in 2019, according to the **Diabetes Atlas of the International Diabetes Federation**.

The guidelines, which distinguish **type 1 diabetes** from other less common forms, also talk about how increasing incidence of type 2 diabetes due to obesity in the younger population can lead to confusion. Among individuals who develop diabetes **under the age of 25 years**, **25.3% have type 2**.

Who is at risk of type 1 diabetes?

The **exact cause of type 1 diabetes is unknown**, but it is thought to be an **auto-immune condition** where the **body's immune system destroys the islets cells** on the pancreas that produce insulin.

Genetic factors play a role in determining whether a person will get type-1 diabetes. The risk of the disease in a child is 3% when the mother has it, 5% when the father has it, and 8% when a sibling has it.

The presence of **certain genes is also strongly associated with the disease**. For example, the prevalence of genes called **DR3-DQ2 and DR4-DQ8 is 30-40%** in patients with type 1 diabetes as compared to 2.4% in the general population, according to the guidelines.

What are the guidelines?

Running into 173 pages, they have been developed by leading **diabetologists** including Dr Nikhil Tandon, head of the department of endocrinology at the All India Institute of Medical Sciences (AIIMS), New Delhi. "There were **several guidelines from international agencies**. However, these are the first truly Indian guidelines which look at everything from diagnosis, treatment, and management of type 1 diabetes. It gives detailed guidelines on managing the disease in different conditions such as when one is pregnant or when one is travelling," said Dr V Mohan.

The guidelines provide **details on diet and exercise**, **insulin monitoring**, and prevention and treatment of complications such as **retinopathy**, **kidney disease**, and **nerve disease**. Dr said the guidelines would hopefully act as a ready-reference book for all practicing physicians to improve care for children diagnosed and those living with the condition.

A similar guidebook for type 2 diabetes already exists.

How has treatment of type 1 diabetes evolved over the years?

The **discovery of insulin helped children with the condition survive**, Dr Mohan said, "but they still have to keep pricking themselves to deliver insulin through

their life, Researchers are now looking for a cure and there are some encouraging results from a stem cell therapy to increase islets cells".

"**Every child in the world should get insulin**, it is essential medicine. In India, half the people can afford it, and the other half can get it for free at most government hospitals. It costs about Rs 5,000 per month," he said.

Dr Mohan said **continuous glucose monitoring devices** and **artificial pancreas** have started to become available, although these are initial reports and it might take a few years for these to become available as treatments. "Continuous glucose monitoring devices can help monitor the **blood glucose levels throughout 24-hour** with the help of a sensor. The **artificial pancreas go a step further** and along with monitoring the levels they can automatically deliver the insulin when needed," he said.

The guidelines state, "Cost considerations remain an issue in India. Thanks to better management, **diabetic ketoacidosis is becoming less common**, although in rural areas, and in peripheral centres, it still remains a big problem."

The guidelines also acknowledge **modern glucometers**. **Urine glucose monitoring** (and not blood glucose) was the norm before glucometers. And, initially, even glucometers were expensive, painful, expensive, and not so accurate.

"Today, we have blood glucose monitors which are extremely precise and are less painful. Cost of strips, however, still remains a challenge," the guidelines state.

Constitutional Morality and Ethics of Abortion

Abortion is a simple health care intervention that ends a pregnancy. It can be effectively managed by a wide range of health workers using **medication or a surgical procedure**. Comprehensive abortion care includes the provision of **information, abortion management and post-abortion care**. It encompasses care related to - **(a)** Miscarriage (spontaneous abortion and missed abortion); **(b)** Induced abortion (the deliberate interruption of an ongoing pregnancy by medical or surgical means); **(c)** Incomplete abortion as well as fetal death (intrauterine fetal demise).

Access to health services and the right to make a decision about managing the pregnancy or obtaining an abortion has a lot to do with individual rights. This conservative approach of the state has the potential of causing

irreversible damage to female health and it can also be seen as an infringement of women's rights.

It has become a contentious issue all over the world. Everybody is in a bit of a predicament whether a mother has a right to terminate her pregnancy at any time she wishes or an unborn child has a right to life.

The law prohibits abortions once cardiac activity gets detected in the embryo, which usually occurs around the sixth week of pregnancy. Most women do not know they are pregnant at that point as it's the early stage of pregnancy. So, it becomes relevant to unearth the Abortion Ethics, which often gets ignored or subjected to misinterpretations.

Abortion Rights in USA

- **Roe v/s Wade case, 1973**: in this landmark judgment, Supreme Court of United states upheld the abortion right as constitutional rights, effectively

striking down wide range of state-level abortion limitations applied before foetal viability.

Foetal Viability: Foetal Viability is the point at which a foetus can survive outside the womb, at that time considered to be around 28weeks, but today due to advancement in medicines and technology, came closer to 23 to 24 weeks.

- **Planned Prenthood v/s Casey case, 1992:** in this judgement Supreme Court of United States (SCOUTS) threw out the so-called trimester framework, while ensuring the 'essential holding', of Roe v/s Wade case, which established the women's constitutional right to abortion until foetal viability.
- The **Supreme Court of the United States (SCOTUS)** has privately voted to strike down the constitutional right to abortion.

Pro-choice .vs. Pro-life -

Controversy

- Pro-choice: are proponents who support choice of child bearer and hence support the cause of abortion at will.
- Pro-life: are proponents who support life in consideration i.e. the foetus which is considered life from the women's womb itself.

In India, pro-life versus pro-choice debates are confined primarily to academia, as the abortion narrative has been determined by the Medical Termination of Pregnancy (MTP) Act.

Pro-Choice

- This pro-choice endowment was a need based public health strategy aimed at the alarming increase in the population growth before the 1970s.
- It was also targeted towards preventing maternal deaths from illegal abortions, carried out by back-alley abortionists. India was the first country to launch a **family planning programme** in **1952**.

- The idea of this programme was to promote the use of contraceptives to delay or space out a pregnancy.
- Whatever the family planning programme has tried over the years through different marketing strategies has only made a small dent.
- Sterilisation remains the permanent method of contraception, after she or the family has decided on the desired number of children.

- Unfortunately, legalised abortion has become a convenient standby, as a woman can cite contraceptive failure to abort an unwanted pregnancy.
- Beyond the actual cases of true contraceptive failure, the easy access to abortion services has perhaps promoted a certain amount of irresponsibility, with women's rights often over-riding discussions on the rights of the unborn child.

Misuse of Pro-choice

The next saga in India's abortion narrative was the mis-utilisation of the pro-choice endowment provided by the MTP Act.

- Son-preference saw voiceless women being coerced to determine the sex of the baby. The upsurge of selective abortion of female foetuses was accompanied by an explosion of imaging technology.
- Indian towns without life-saving healthcare services invariably have at least one ultrasound clinic.
- The profusion of ultrasound clinics and sex-selective abortion hastened the decline of the sex-ratio. So alarming was the decline that the **Pre**-*Conception and Pre-natal Diagnostic Techniques Act (PCPNDT)* had to be legislated.

Pro-choice versus Pro-life

1. The pro-life and pro-choice movements primarily come into conflict on the issue of abortion.
    - The pro-life movement argues that even a non-viable, undeveloped human life is sacred and must be protected by the government. Abortion must not be legal according to this model, nor should it be practiced on an illegal basis.

- The pro-choice movement argues that in pregnancies prior to the point of viability - a point at which the fetus cannot live outside the womb -the government does not have the right to impede a woman's decision to terminate the pregnancy.

2. The court has observed that in the case of pregnant women, there is a "compelling state interest" in protecting the life of the prospective child. Therefore, the termination of a pregnancy is only permitted when the conditions specified are fulfilled.
3. But from a women's rights perspective, should not a pregnant mother have the right to decide whether to go through full-term when there is even the slightest chance of a foetal infirmity and not "substantial foetal abnormalities"?
4. It is fair to state that no woman who voluntarily chose to get pregnant is likely to seek an abortion unless there are compelling circumstances. Should not the wishes and desires of the person who will be the caretaker be considered?

Indian Provision in Abortion Right

- **Medical Termination of Pregnancy (Amendment) Act, 2021**: in the year 1971, Indian legislators had passed the law, 'Medical Termination Pregnancy Act' to regulate the procedure of termination of Pregnancy. Recently, Government of India has passed an amendment act to the Medical Termination of Pregnancy act. The provisions included in the Amendment Act:
    - **Categories for termination of Pregnancy** :
        - survivors of sexual assault or rape or incest
        - minors and women whose marital status changes during an ongoing pregnancy (widowhood and divorce)
        - women with physical disabilities
        - mentally ill women
        - cases of foetal malformation that has
            1. a substantial risk of being incompatible with life
            2. or if the child is born it may suffer from such physical
            3. or mental abnormalities to be seriously handicapped
- **K S Puttuswami v/s Union of Inida**: In the landmark judgment in KS Puttaswamy v Union of India, the Supreme Court recognised women's

constitutional right to make reproductive choices and the right to "abstain from procreating" was read into the **right to privacy, dignity and bodily autonomy**.

Women's reproductive rights

Based on the multiple definitions of reproductive rights, it can be said that they include some or all of the following rights -

- right to safe and legal abortion
- right to control one's reproductive functions
- right to access in order to make reproductive choices free of coercion, discrimination and violence
- right to access education about contraception and sexually transmitted diseases and freedom from coerced sterilization and contraception
- right to protection from gender-based practices such as female genital cutting and male genital mutilation

Reasons women give for wanting abortions, worldwide:

- disruption of education or employment
- lack of support from father
- desire to provide for existing children
- poverty, unemployment or inability to bear children
- interrelation problems with husband or partner
- a women's feels that she is too young to have a child

Bodily Autonomy: UN Population Fund (UNFPA) defines bodily autonomy as the right to make decisions over one's own life and future. **The UN Human Rights Office (OHCHR)** observes that Women's human rights include the rights to equality, to dignity, autonomy, information and bodily integrity and respect for private life and the highest attainable standard of health, including sexual and reproductive health, without discrimination. **World Economic Forum** has noted that bodily autonomy for women includes power to say no to sex with husband/partner, to decide on contraception and to make independent decisions on healthcare including reproductive healthcare which includes abortion.

The morality of Abortion

- Many of us do believe that at least a few abortions are immoral but the law should not restrict choice in this realm. For example, if abortion is permissible when a pregnancy is due to rape or incest, **that's hardly a general right to abortion or a choice gives to a female.**
- Cardiac activity in a foetus is often considered a sign of potential life. There are chances that the cardiac activity detected on ultrasound is not a true heartbeat. It may be due to the electrical activity, and the valves of the heart may not have formed yet. And the sound of the activity does not indicate the pregnancy is viable (baby can be born and have a reasonable chance of survival). "Coercing them to find out about the pregnancy and make a decision about how to manage it in such a short window (six weeks) is contradictory to ideals of ethical care.

<u>Arguments in favour</u>

- A female is considered a moral person, that is entitled to rights, including the right to life. So, abortion is deemed acceptable as the foetus is not a

person. **A list of criteria of personhood is identified, which includes consciousness, reasoning, activity, communication and self-awareness. A foetus undeniably is incapable of fulfilling these criteria**.

- The mother, who is a person, has a right to life and it supersedes the rights of the foetus to choose whether or not it remains connected to her body.
- Also, pregnancy is assumed to be a foreseeable consequence of heterosexual intercourse, that too when there is no intention to '*have a baby'.* So, denying her the right to abort the child when she was not planning for it is unwarranted.
- **Abortion in self-defence**: It may be ethical for a mother to have an abortion to defend herself from the danger to her mental or physical health than continuing with the pregnancy would cause. Abortion is considered in relation to the '**Doctrine of double effect'.**

The doctrine of double effect: The doctrine says that if performing something morally good has a morally bad side-effect it''s ethically righteous behaviour to do it

provided the bad side-effect wasn''t foreseeable. It holds even if you can anticipate that the bad effect would probably come off.

DOCTRINE OF DOUBLE EFFECT

From *Principles of Biomedical Ethics, Beauchamp & Childress; 7th Ed. 2013*

Four conditions or elements that must be satisfied for an act with a double effect to be justified. Each is a necessary condition, and together they form sufficient conditions of morally permissible action:

1. *The nature of the act*. **The act must be good**, or at least morally neutral (independent of its consequences)
2. *The agent's intention*. **The agent intends only the good effect**. The bad effect can be foreseen, tolerated, and permitted, but it must not be intended.
3. *The distinction between means and effects*. **The bad effect must not be a means to the good effect**. If the good effect were the direct causal result of the bad effect, the agent would intend the bad effect in pursuit of the good effect.
4. *Proportionality between the good effect and the bad effect*. **The good effect must outweigh the bad effect**. That is, the bad effect is permissible only if a proportionate reason compensates for permitting the foreseen bad effect

Arguments Against

- '**Future like ours' argument**: Abortion is wrong because it deprives the foetus of a potential *"future like ours"*. It suggests that death is a bad thing

because it deprives people of all the experiences, enjoyments, opportunities that would make up their future personal life. So, the foetus has an intrinsic potential future value and killing a foetus is wrong as killing an adult is wrong.

- **Killing people is wrong:** Killing an innocent human being is a moral wrong. Those who are against abortions believe that human life begins at conception, and by drawing the same analogy, the foetus is an innocent human being. So, killing the foetus is wrong and abortion is always wrong.

It's her right whether to bring the pregnancy to term or abort it:

- Abortion concerns the autonomy and dignity of the pregnant woman herself. "Autonomy" derives from Greek and means, literally, "self-rule". If a woman who is pregnant wishes to stop being pregnant, it cannot be taken away from her.
- Attitudes to pregnancy are, however, intertwined with how society views sex, women, and the fertile woman specifically. Pregnancy and birth are not trivial inconveniences, such as having a headache. They constitute a major

life event, which even when are desired causes immense discomfort and disruption to many women.

- While pregnancy increases the personal responsibilities of a woman it does not plummet her prerogative to decide whether or not to undergo medical treatment. **Her right is not diminished merely because her decision to exercise it may appear morally contrary to the existing or imposed beliefs of the society.**

The decision of whether or not to bear a child is central to a woman's life, to her well-being and dignity. She ought to be the one deciding it for herself. When Government superintends that decision for her, she is being treated as less than a fully adult human accountable for her own choices. We need to bestow much greater support to women who may want to conceive and raise their children, but opting out of it for financial, psychological, health, or relationship reasons Criminalising abortion does not stop abortions, it just makes abortion more unsafe.

Web 5.0 - the blockchain-powered digital network

Former Twitter CEO ***Jack Dorsey*** recently announced his vision for a ***new decentralized web platform*** that is being called ***Web 5.0*** and is being built with an aim to return "***ownership of data and identity to individuals***". What is Web 5.0, and how will it be different from **Web 3.0 and Web 2.0?**

What do the terms Web 1.0, Web 2.0 and Web 3.0 mean?

Web 1.0 was the ***first generation of the global digital communications network.*** It is often referred to as the "***read-only***" Internet made of static web-pages that only allowed for ***passive engagement.***

The next stage in the evolution of the web was the "***read and write" Internet.*** Users were now ***able to communicate with servers*** and other users leading to the creation of the social web. This is the ***World Wide Web*** that we use today.

Web 3.0 is an evolving term that is used to refer to the ***next generation of Internet*** - a "***read-write-execute***" web - with ***decentralization as its bedrock.***

It speaks about a digital world, built leveraging the ***blockchain technology***, where people are able to interact with each other without the ***need of an intermediary.***

Web 3.0 will be driven by ***Artificial Intelligence and machine learning*** where machines will be able to interpret information like humans.

What is Web 5.0?

Being developed by Dorsey's Both ***Web 3.0 and Web 5.0 envision an Internet without threat of censorship*** - from governments or big tech, and without fear of significant outages.

Replying to a Twitter question if there was any difference ***between Web 5.0 and Web 3.0***, Dorsey argued that ***Web 3.0 isn't truly decentralized*** or ***owned by its users***, but is instead controlled by various "***venture capitalists and limited partners***".

What are the use cases for Web 5.0?

On its website, the TBT presents two use cases for how Web 5.0 will change things in the future.

About changing the "***control of identity***", it says: "Alice holds a digital wallet that securely manages her identity, data, and authorizations for external apps and connections. Alice uses her wallet to sign in to a ***new decentralized social***

media app. Because Alice has connected to the app with her decentralized identity, she does not need to create a profile, and all the connections, relationships, and posts she creates through the app are stored with her, in her decentralized web node. Now Alice can switch apps whenever she wants, taking her social persona with her."

Talking about giving users control over their own data, it cities example of another user, Bob, and describes him as a music lover who hates having his personal data locked to a single vendor as it forces him to regurgitate his playlists and songs over and over again across different music apps.

Bitcoin business unit, ***The Block Head (TBH)***, Web 5.0 is aimed at "***building an extra decentralized web*** that puts you in control of your data and identity".

Talking about the idea on its website, the TBH says: "The web democratized the exchange of information, but it's missing a key layer: identity. We struggle to secure personal data with hundreds of accounts and passwords we can't remember. On the web today, identity and personal data have become the property of third parties."

Simply put, ***Web 5.0 is Web 2.0 plus Web 3.0*** that will allow users to '***own their identity***' on the Internet and '***control their data***'.

"Thankfully there's a way out of this maze of vendor-locked silos: Bob can keep this data in his decentralized web node. This way Bob is able to grant any music app access to his settings and preferences, enabling him to take his personalized music experience wherever he chooses," it adds.

What does US Supreme Court's decision to overturn 'Roe v Wade'

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NGT bans use of heavy machinery for sand mining in river bed

The US Supreme court has overturned its decision made in landmark Roe v. Wade judgment. The court in 1973 had struck down state-level abortion limits on a foetus before it is viable to survive outside the womb, which is considered to be the 24-28 week mark.

Implications of overturning judgment

- The U.S. joined three other countries – El Salvador, Nicaragua and Poland – that have rolled back abortion rights since 1994.
- Years of research has shown that abortion bans severely impact people of marginalised groups who already struggle to access health care, including abortion.
- The UN sexual and reproductive health agency (UNFPA) and the World Health Organization (WHO) noted that a staggering 45% of all abortions around the world are unsafe, making the procedure a leading cause of maternal death.
- The UNFPA said that it feared that more unsafe abortions will occur around the world if access becomes more restricted.

- Thirteen states have 'trigger bans' in place which means abortions are banned under most circumstances and come fully into effect with the overturning of Roe.
- Women who seek an abortion will have to travel to states where it is legal, making it an expensive proposition, not available to all.

Thus, access to legal and safe abortion is an integral dimension of sexual and reproductive equality, a public health issue, and must be seen as a crucial element in the contemporary debates on democracy that seeks to provide the just society that abhors all sort of discrimination.

Shallow and deep ecologism

National Green Tribunal (NGT) has directed Uttar Pradesh government not to permit any sand mining before completion of replenishment studies for riverbed sand.

- Such studies must be done by credible institutions, following due procedure, in accordance with Enforcement and Monitoring Guidelines for Sand Mining, 2020.
- A United Nations study calculates that humankind's total consumption of sand–more than 40 billion tons a year–is now double the number of sediments being replenishednaturally on the Earth by the sum of the world's rivers.
- UNEP in its report '**Sand and Sustainability**' highlighted that the demand for sand has increased three-fold over the last decades, driven by
    - shifting consumption patterns
    - growing populations
    - increasing urbanisation
    - rapid infrastructure development

Geology and usage of sand

- Sandis a granular material composed of finely divided rock and mineral
- Composition of sandis highly variable, depending on the local rock sources and conditions, but the most common constituent of sand in inland

continental settings and non-tropical coastal settings is silica (silicon dioxide, or SiO2), usually in the form of quartz.

- Sand is classified as a "minor mineral", as per **The Mines and Minerals (Development and Regulations) Act, 1957 (MMDR Act).**
- Sand miningis the extraction of sand, mainly through an open pit (or sand pit) but sometimes mined from beaches and inland dunes or dredged from ocean and river beds.
- The extracted sand can be used for various types of manufacturing, such as concrete used in the construction of buildings and other structures.
- The use of sand for cement-making in industrial projects has generated significant demand in India.
- The sand can also be used as an abrasive or can be mixed with saltand applied to icy roads to reduce the melting point of ice.

Minor Minerals

- The central government has the power to notify "minor minerals" under the MMDR Act, 1957.
- Under the MMDR Act, the legal and administrative control over minor minerals vests with the State Governments, who have the powers to make rules to govern minor minerals.

Major Minerals

- Major minerals are those specified in the first schedule appended in the MMDR Act 1957 and the common major minerals are Lignite, Coal, Uranium, iron ore, gold etc. It may be noted that there is no official definition for "major minerals" in the MMDR Act. Hence, whatever is not declared as a "minor mineral" may be treated as the major mineral.
- The policy and legislation relating to the major minerals are dealt by the Ministry of Mines under the Union /Central Government.

Provisions for Sand Mining in India

- As sand is a **Minor Mineral**, different State Governments have made different rules for awarding, regulating and administering the sand concessions.
- To curb Illegal mining, there have been variousjudicial interventions by the **Supreme Court (SC) and National Green Tribunal (NGT).**
- The National Green Tribunal in August 2013 passed an order banning sand mining without proper environment clearance.
- The **Ministry of Environment, Forest and Climate Change (MoEFCC)** has released "Sustainable Sand Mining Management Guidelines 2016" to promote scientific mining of sand and encourage environmental friendly management practices.
- Indian government's Ministry of Mines has also developed a Mining Surveillance System (MSS)to use space technology for facilitating State governments in curbing illegal mining activities in the country.
- UnderSections 120B read with Section 34 of Indian Penal Code, 1860, extraction of sand without a legal permit is a punishable offence.

Impact of riverbed sand mining

- **Environmental Impact**
- **Alteration of Rivers**: Excessive sand mining can alter the river bed, force the river to change course, erode banks and lead to flooding. It leads to deepening of rivers and estuaries, and the enlargement of river mouths and coastal inlets. It may also lead to saline-water intrusion from the nearby sea.
- **Damage River Biodiversity**: In stream mining can have other costly effects beyond the immediate mine sites. Degraded stream habitats result in loss of fisheries productivity, biodiversity, and recreational potential.
- Sand Mining in Chambal has impacted the population of Gharials (National Chambal Sanctuary has been established for their conservation), a critically endangered species. The mining hurts wildlife by removing basking and egg-laying habitat.
- **Alter Sediment Budget**: As the amount of sand reaching Oceans changes, rivers are not able to replenish the sand on beaches and in deltas.

- **Lead to poor water quality**: Increased riverbed and bank erosion increases suspended solids in the water at the excavation site and downstream. Suspended solids may adversely affect water users and aquatic ecosystems.
- **Socio-Economic Impacts**
- Worsen water scarcity
- Threat to Coastal Communities
- Damage Public and Private Property

Measures needed for sustainable sand mining

- Strengthen Policy Framework
- Focusing on alternatives to Sand
- Reducing consumption of sand
- Reducing the negative consequences of extraction

Sand and gravel represent the highest volume of raw material used on earth after water. Their use greatly exceeds natural renewal rates. Moreover, the amount being mined is increasing exponentially, mainly as a result of rapid economic

growth. To sustain the economic growth in future, it becomes important that the resource is used judiciously.

Freedom of Religion: The Ethical Issue?.

Article 25 of the Constitution of India provides the citizens the right to practice, propagate, and profess the religion in a way that does not disrupt public order, public health, and morality adversely. This provision, though not prohibits conversion, calls out proselytism, which is meant by involuntary forced conversion through bribery, coercion, or violence.

In the light of the same, the debate about the anti-conversion laws arises. The question here is not about how constitutional such laws are the question here is how ethical it is to force someone to convert; or how ethical to put legal restrictions on one's right to conversion.

Anti-Conversion Law

- India's Freedom of Religion Acts or "anti-conversion" laws are state-level statutes that have been enacted to regulate religious conversions. The laws are in force in the states, such as Arunachal Pradesh, Madhya Pradesh, Gujarat, Himachal Pradesh, Uttarakhand, Uttar Pradesh, etc.
- All of the laws seek to prevent any person from converting or attempting to convert, either directly or otherwise, another person through forcible or fraudulent means, or by allurement or inducement. However, the anti-conversion laws in Rajasthan and Arunachal Pradesh appear to exclude reconversions to native or original faiths from their prohibitions.
- Moreover, such a law passed by the Karnataka government held a marriage void, which has happened with the sole purpose of conversion or vice-versa *e.* conversion for the sole purpose of marriage.

Ethical Issue Arises through such laws

When the government held a marriage void under the pretext of certain conditions, there is an underlying presumption of the presence of force, threatening, coercion, and undue influence in every inter-faith marriage, which questions the autonomy, and in mandating publication of an intention to convert, it invades on the right to privacy the person as enshrined under Article 21 of the Constitution, and upheld by the Supreme Court in the case of *Justice K.S. Puttuswamy vs. Union of India.*

The right to marry of one's choice is one's Human Right as well. Moreover, the lengthier procedure to avail the approval of the administration, and the constant surveillance by the government diminishes the value of religious diversity.

The provisions prohibiting conversion for the purpose of marriage, and reconversion to original religion strike at the heart of Indian secularism. These provisions treat liberties governing ethical choice not as fundamental rights but as grants that are subject to the whims and fancies of a bureaucratic, theological state.

So, the government needs to question whether it is ethical to curb one's fundamental rights under the garb of such harsh laws. Though the fact cannot be denied that forceful conversions are a menace to our society, there could be a more inclusive, and progressive interpretation of the law, or some alternative solutions can also be resorted to curb this menace.

Road ahead

Sustainable Amendment: - The laws are required to be amended to preserve the autonomy, and liberty of the individuals. There is a need to establish a balanced approach between the Fundamental Rights of the individuals, and the state's duty to promote religious harmony. For, the same, the government needs to gather suggestions from all the stakeholders while framing such laws.

Harmonious Interpretation and Application of Law: - The fact cannot be denied that the anti-conversion laws are well-required in our society but the underlying

ideologies, majoritarianism, and objective with which such laws are enacted create the chaos, which needs to be set aside through the liberal interpretation by the lawmakers, and the judiciary.

Administrative Efficiency: - In such laws, the district administrators have been empowered to inspect, and provide approval for such inter-faith marriages; hence, the administrative efficiency should be strengthened to imbibe empathy, open-mindedness, and compassion among the public officers.

Promotion of Ethics, and Harmony: - The most important factor that is required to be done is to promote ethical values, and harmony among the common masses for the promotion of diversity, and constitutional ethos.

Anti-conversion laws should be inclusively discussed. We need to make sure that no religious community comes at a disadvantage due to the regressive

interpretations of the law. The stringent and majoritarian approach of the law can defeat the societal diversities, values, and ethos.

Direct Seeding of Rice

- Rice is a staple food for most of the population in India.
- It is a **kharif crop** which requires **high temperature, (above 25°C)** and **high humidity** with annual **rainfall above 100 cm.**
    - In the **areas of less rainfall, it is grown with the help of irrigation.**
- In **southern states and West Bengal, the climatic conditions allow the cultivation of two or three crops** of rice in an agricultural year.
    - In West Bengal farmers grow three crops of rice called **'aus', 'aman' and 'boro'.**
- About **one-fourth of the total cropped area in India is under rice cultivation.**
    - **Leading producer states:** West Bengal, Uttar Pradesh, and Punjab.

- **High Yielding States:** Punjab, Tamil Nadu, Haryana, Andhra Pradesh, Telangana, West Bengal and Kerala.

- India is the **second-largest producer of rice after China.**
  - In transplanting paddy, farmers **prepare nurseries where the paddy seeds are first sown** and raised into young plants.
  - The nursery seed bed is **5-10%** of the area to be transplanted.
  - These seedlings are then **uprooted and replanted 25-35 days later in the puddled field.**

Direct Seeding of Rice (DRS)

- In DSR, the **pre-germinated seeds are directly drilled into the field** by a tractor-powered machine.
- There is **no nursery preparation or transplantation involved** in this method.
- Farmers have to **only level their land and give one pre-sowing irrigation.**

Need for DSR

- During the transplanting of Paddy **watering has to be done practically daily** to ensure submerged/flooded conditions in the first three weeks.
    - Under DSR, the first irrigation (apart from the pre-sowing) is **necessary only 21 days after sowing.**
    - According to Punjab Agriculture Department data for last Kharif season (2021-22), **31.45 lakh hectares** were under paddy and basmati.

- As per the studies, around **3,600 litres to 4,125 litres of water** are required to grow one kg of rice depending upon the paddy variety.
    - Long duration varieties **consume more water.**
- In Punjab, 32% of the area is under the long duration (around 158 days) paddy varieties, and the rest comes under paddy varieties that take 120 to 140 days to grow.

DSR Saves Water

- According to an analysis, DSR technique can help **save 15% to 20% water.**
    - In some cases, water saving can reach 22% to 23%.
- With DSR, **15-18 irrigation rounds are required against 25 to 27 irrigation rounds in traditional methods**.
- DSR **can save 810 to 1,080 billion litres of water** every year if the entire rice crop is brought under the technique.

Advantages of DSR

- **Require Less Number of Labours:** DSR can **solve labour shortage problems** because like the traditional method it does not require a paddy nursery and transplantation of 30 days old paddy nursery into the main puddled field.
- **Avenues for Groundwater:** It offers avenues for ground water recharge as it **prevents the development of hard crust** just beneath the plough layer due to puddled transplanting.
    - It **matures 7-10 days earlier than the puddle transplanted crop,** therefore giving more time for management of paddy straw.
- **Increase in Yield:** According to the results from research trials and farmers' field survey, after this technique the yield is **one to two quintals per acre higher than puddled transplanted rice.**

Disadvantages of DSR

- **Suitability:** It is the most important factor as farmers **must not sow it in the light textured soil** as this technique is suitable for medium to heavy textured soils including sandy loam, loam, clay loam, and silt loam which accounts for around 80% area of the state.

- It is recommended **to avoid this technique in fields which are under crops other than rice (like cotton, maize, sugarcane) in previous year** as DSR in these soils is likely to suffer more from iron deficiency and weed problems.

- **Laser and Levelling are Compulsory:** The field should be laser levelled.
- **Use of Herbicides:** The spraying of herbicides **must be done simultaneously** along with sowing, and the first irrigation.

National policy on biofuels

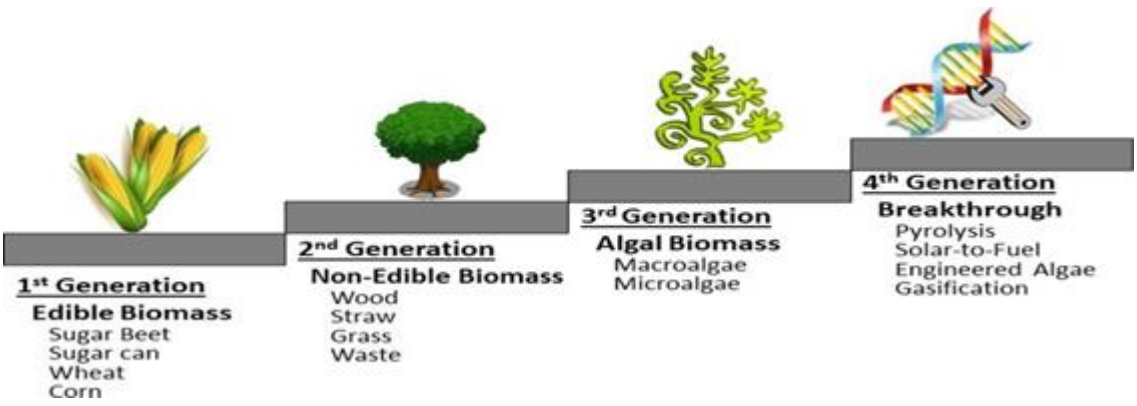
- The Cabinet has approved amendments to the National Policy on Biofuels which expands the scope of raw material for **ethanol blending** to allow more feedstock for its production.

- It aims to advance the blending of ethanol in **petrol target of 20 per cent** and promote it under the **Make in India program.**
- Biofuels have garnered global attention in recent times and it is imperative to keep up with the pace of developments in the field of biofuels. Biofuels are of strategic importance in India and augers well with the initiatives of the Government.
- India still relies heavily on crude oil imports for its domestic consumption requirements.
- However, **fluctuating crude oil prices** in the world market could affect the developing countries significantly.
- Biofuels program in India has been largely impacted due to the sustained and quantum non-availability of domestic feedstock for biofuel production which needs to be addressed.
- The National Biofuels Draft Policy came to light in 2007 and was launched by 2009.
- The existing National Policy on Biofuels came up in 2018.

Biofuels

- A hydrocarbon fuel that is produced directly or indirectly from an organic matter is known as Biofuel.
- Biofuels are usually produced through a contemporary process (rather than from a slow geological process) from biomass. They are substitutes for the conventional forms of fuels - **fossil fuels**.
- The word biofuel is usually reserved for **liquid or gaseous fuels, used for transportation**.

How are they categorized?



- **First Generation Biofuels:** These are usually made from food sources containing sugar, starch, vegetable oil, or animal fats. The process utilizes conventional technology. **Bioether**
- These kinds of biofuels usually create an imbalance in the food economy as they tend to use agricultural crops, thus, leading to increased food prices and hunger.
- **Second Generation Biofuels**: these biofuels utilize inedible parts of the plant such as stems and husk to produce biofuel. These fuels usually require biochemical or thermochemical conversions during production. **Biodiesel**
- These biofuels do not affect the food economy however their production process is quite complicated.
- These fuels, however, emit fewer greenhouse gases in comparison to the first-generation biofuels.
- **Third Generation Biofuels**: These biofuels are produced using microorganisms such as algae. Micro-organisms like algae can be grown on land and water unsuitable for food production. This in return, reduces the strain on depleted water resources. **Butanol**

- **Fourth Generation Biofuels**: plants used for the production of the fourth-generation biofuel, are genetically modified to absorb and store higher amounts of carbon which can be harvested as biomass.
- This is then converted into biofuels using chemical conversion or thermochemical conversions.
- The fuel is pre-combusted and the carbon is captured. Then the carbon is geo-sequestered, meaning that the carbon is stored in depleted oil or gas fields or in unmineable coal seams.
- These fuels are mostly carbon neutral. **Electrofuels**

Advantages of Biofuels

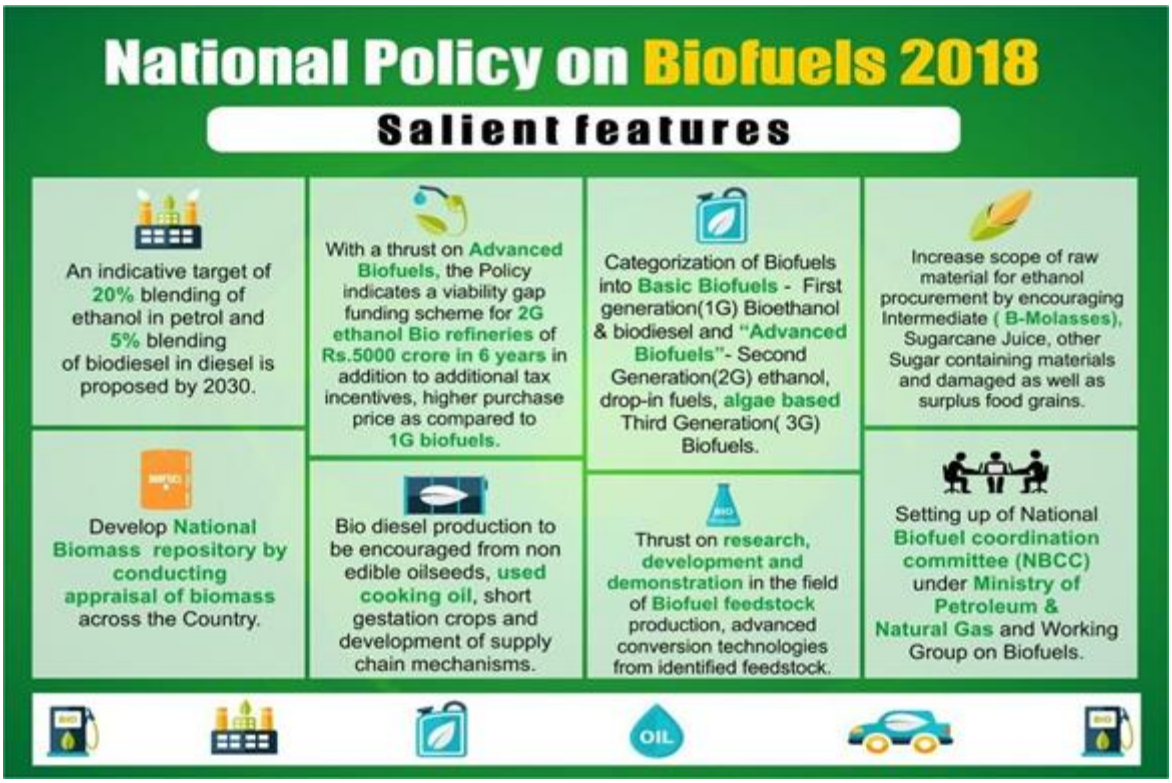
- **Availability**: since biofuels only require biomass for their production, which is ubiquitous, biofuels are easy to produce.
- **Reduction in waste**: biofuels can also be produced using waste materials such as municipal sewage waste, inedible parts of the crops. This effectively aids in the reduction of waste.

- **Reduce dependency on crude oil** and non-renewable sources of fuels.
- **Economic development**: the production of biofuels can be a labour-intensive process thus resulting in the creation of jobs. This can provide a source of employment. It can aid in the development of rural areas when the second generation biofuel production units are set up there.

Disadvantages of Biofuels

- **Low Efficiency**: The efficiency of biofuels is much lesser compared to fossil fuels, as fossil fuels produce more energy on burning.
- **Loss of biodiversity**: the genetically modified crops used for the production of fourth-generation biofuels could result in a loss of biodiversity.
- **Less availability of space**: production of biofuels requires land, and in the case of second-generation biofuels, the crops used are mostly non-food crops, thus the production of biofuels requires a lot of space.

- **Food shortage**: The first generation biofuels make use of food sources and there is an imminent threat of facing food shortage if the production of biofuels is carried out extensively.
- **Water usage**: Massive quantities of water are required for proper irrigation of biofuel crops as well as to manufacture the fuel, which could strain local and regional water resources. This is, however, not the problem in case of the third generation biofuel.



- The policy is aimed at taking forward the indicative target of achieving **20% blending** of biofuels with **fossil-based fuels by 2030.**
- The policy intends to ensure the adequate and sustained availability of **domestic feedstock** for biofuel production, increasing farmers' income, import reduction, employment generation and waste to wealth creation.
- This policy clearly exhibits the Centre's push towards strengthening the energy infrastructure of the country while promoting the agenda of sustainability.

Benefits

- It reduces the country's dependence on imports.
- It promotes a cleaner environment: It results in a reduction in the burning of crops, as the agricultural waste/residue is converted to bioethanol.
- The re-use of cooking oil presents grave health hazards however it's a potential feedstock for biodiesel.

- It also aids in Municipal Solid Waste (MSW) management. There are technologies available that can convert waste/plastic in the MSW to biofuels. One ton of such waste has the potential to provide around 20% reduction in fuels.
- The process of production of biofuels will aid in the creation of jobs.
- The conversion of surplus grains and agricultural biomass can help in price stabilization and thereby provide an additional source of income to the farmers.

Proposed amendments

- To allow more feedstocks for production of biofuels,
- To advance the ethanol blending target of 20% blending of ethanol in petrol to ESY 2025-26 from 2030,
- To promote the production of biofuels in the country, under the Make in India program, by units located in Special Economic Zones (SEZ)/ Export Oriented Units (EoUs),
- To add new members to the NBCC.

- To grant permission for export of biofuels in specific cases, and
- To delete/amend certain phrases in the Policy in line with decisions taken during the meetings of National Biofuel Coordination Committee

Need for amending the existing policy

- Till 2018, only sugarcane was used to derive ethanol. Now, the government has extended the ambit of the scheme to include foodgrains like maize, bajra, fruit and vegetable waste, etc. to produce ethanol.
- This move helps farmers gain additional income by selling the extra produce and also broadens the base for ethanol production in the country.
- As Ethanol is one of the principal biofuels, which is naturally produced by the fermentation of sugars by yeasts or via petrochemical processes such as ethylene hydration.
- Starting with 5% blending, the government has set a target of 10% ethanol blending by 2022 and 20% blending (E20) by 2030.

Challenges associated

- **Availability of sufficient feedstock on a sustainable basis**: Current regulations in the country allow production of ethanol from sugarcane, sugar, molasses, maize and damaged foodgrains unfit for human consumption.
    - Further, surplus rice with FCI is also allowed. Some states have demanded that rice procured by state governments be allowed for ethanol production.
    - However, there is the issue of diverting foodgrains from human consumption to ethanol production when hunger and malnutrition are still problems faced by many in the country.
- **Production Facilities**: Ethanol production facilities have to be augmented if the goals of 20% blending by 2030 are to be achieved. Currently, ethanol production is largely confined to the sugar producing states.
    - Sugar mills, which are the key domestic suppliers of bio-ethanol to OMCs, were able to supply only 57.6% of the total demand.
    - The mills also do not have enough financial stability to invest in biofuel plants.

- **Price uncertainty**: The prices of both ethanol and sugarcane are fixed by the government leading to concerns among investors regarding the price of bioethanol.
- **Availability of Ethanol**: Ethanol is not equally available all over the country. This leads to an increase in transportation and logistics costs.
    - Moreover, handling and storage of ethanol are also risky as it is a highly flammable liquid.
- **Challenge for vehicle manufacturers**: Vehicle manufacturers must work with vendors to develop automobile parts compatible with ethanol.
    - They should work on engine optimisation for higher ethanol blends.
- **Environmental clearances**: Currently, ethanol production plants/distilleries fall under the "Red category" and require environmental clearance under the Air and Water Acts for new and expansion projects.
    - This often takes a long time leading to delays.

In order to promote biofuels in the country, a National Policy on Biofuels was made by Ministry of New and Renewable Energy during the year 2009. Globally, biofuels have caught the attention in last decade and it is imperative to keep up with the pace of developments in the field of biofuels. Biofuels in India are of strategic importance as it augers well with the ongoing initiatives of the Government such as Make in India, Swachh Bharat Abhiyan, Skill Development and offers great opportunity to integrate with the ambitious targets of doubling of Farmers Income, Import Reduction, Employment Generation, Waste to Wealth Creation. Biofuels programme in India has been largely impacted due to the sustained and quantum non-availability of domestic feedstock for biofuel production which needs to be addressed.

Is Quad an Asian NATO?

- Leaders of the four Quad nations met in Tokyo today and discussed wide range of topics from the war in Europe to dealing with China, and their cooperation on non-security initiatives such as tech and infra.

- Following the Indian Ocean tsunami, India, Japan, Australia, and the US created an informal alliance to collaborate on disaster relief efforts.
- In 2007, then PM of Japan, Shinzo Abe, formalised the alliance, as the Quadrilateral Security Dialogue or the Quad.
- The Quad was supposed to establish an Asian Arc of Democracy but was hampered by a lack of cohesion amongst its members and accusations that the group was nothing more than an anti-China bloc.
- The early iteration of the Quad, largely based around maritime security, eventually dissipated.
- In 2017, faced again with the rising threat of China, the four countries revived the Quad, broadening its objectives and creating a mechanism that aimed to slowly establish a rules-based international order.
- In March 2021, the Quad leaders met virtually and later released a joint statement titled 'The Spirit of the Quad,' which outlined the group's approach and objectives.

Structure of Quad

- The Quad is not structured like a typical multilateral organisation and lacks a secretariat and any permanent decision-making body.
- Instead of creating policy along the lines of the European Union or United Nations, the Quad has focused on expanding existing agreements between member countries and highlighting their shared values.
- Also unlike NATO, the Quad does not include provisions for collective defence, instead it focuseson the conduct of joint military exercises as a show of unity and diplomatic cohesion.

In 2020, the trilateral India-US-Japan Malabar naval exercises expanded to include Australia, marking the first official grouping of the Quad since its resurgence in 2017 and the first joint military exercises among the four countries in over a decade.

Objectives of Quad

- According to the Spirit of the Quad, the group's primary objectives include maritime security, combating the Covid-19 crisis, especially vis-à-vis vaccine diplomacy, addressing the risks of climate change, creating an ecosystem for investment in the region and boosting technological innovation.

- Quad members have also indicated a willingness to expand the partnership through a so-called Quad Plus that would include South Korea, New Zealand, and Vietnam amongst others.
- However it is considered that despite the Quad's seeming commitment to a broad range of issues, its raison d'etre is still considered to be the threat of China.
- Each of the Quad's member states have their own reasons to fear the rise of China and curbing Beijing's regional advances is in all of their national interests.

Issues faced by members of Quad with China

- Each of the Quad members are threatened by China's actions in the South China Sea and its attempts to extend its sphere of influence through initiatives such as the One Belt One Road Project.
- The US has long been concerned about the global competition with China and successive US presidents have maintained that China aims to subvert the international rules-based order.

- Japan and Australia are likewise both concerned about China's expanding presence in the South and East China Seas.
- Japan and China have been traditional rivals and have competing territorial and maritime claims.
- For Australia in particular, relations with Beijing are at a considerable low after Australia passed foreign interference laws in 2018 which China responded to by restricting trade to Canberra.
- Australia's apprehension about China's rise has grown even more due a defence agreement signed between China and Solomon Islands which allows the former to station its armed forces on latter which is very close to Australia.
- As the only Quad country to share a land border with China, India is also suitably wary of Beijing but also reluctant to allow tensions to spill over.
- India's territorial concerns with China have grown over the last few years especially after the latter's aggressive posturing in the Ladakh region.
- The Trans-Karakoram highway built by China which passes through Pakistan Occupied Kashmir is seen by India a challenge to its security which can be answered through a multi-lateral forum.

China's response to Quad:

- China initially opposed the formation of the Quad and in the 13 years since, Beijing's position has not changed.
- In 2018, the Chinese Foreign Minister referred to the Quad as a "headline-grabbing idea" and after the joint statement that was issued Quad members in 2021, the Chinese foreign ministry accused the group of openly inciting discord among regional powers in Asia.
- Beijing sees the existence of the Quad as part of a larger strategy to encircle China and has pressured countries like Bangladesh to avoid cooperating with the group.
- China flying its fighter jets over the Japanese airspace before the recent meeting of Quad was an example of who apprehensive it is about the grouping.
- Though it has to be pointed out that there is no direct reference to China or military security in any statement issued on behalf of Quad.
- This in turn has led experts to speculate that the Quad will refrain from addressing the military threat posed by China and instead focus on its economic and technological influence.

- The Quad's decision to establish working groups on vaccine development and critical technologies can then be viewed as an attempt to constrain China but more importantly, to create a democratic, inclusive blueprint that will encourage other states to work with the Quad.

What were the outcome of the recent Quad meeting?

- The leaders of the United States, Japan, India and Australia have launched a maritime initiative to combat illegal fishing and pledged to invest more than $50bn in developing infrastructure in the Indo-Pacific as part of their efforts to counter China's growing influence in the region.
- Quad leaders also discussed climate change, technology and COVID-19, as well as the fallout from Russia's invasion of Ukraine - an issue that has risked division among the group.

India, which has close ties with Russia, is the only member that is yet to condemn Moscow's war.

- In a joint statement the leaders of member countries said the Quad's latest measures are aimed at demonstrating that the group "is a force for good" and that it is "committed to bringing tangible benefits to the region" at a time of profound global challenges.
- And while the statement did not mention China by name, the leaders said they "strongly oppose any coercive, provocative or unilateral actions that seek to change the status quo" in the Indo-Pacific.
- These include "the militarization of disputed features, the dangerous use of coast guard vessels and maritime militia, and efforts to disrupt other countries' offshore resource exploitation activities" - all accusations that have been levied against China.
- The leaders also announced a new maritime surveillance initiative - the Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA) - that it said will work with regional partners to respond to humanitarian and natural disasters and combat illegal fishing.

IPMDA will support and work in consultation with Indo-Pacific nations and regional information fusion centers in the Indian Ocean, Southeast Asia, and the Pacific Islands by providing technology and training to support enhanced, shared maritime domain awareness to promote stability and prosperity in seas and oceans of the region.

India needs parliamentary supervision of trade pacts

- Treaty making practise followed in India were Parliamentary supervision is lacking has been a cause of concern.
- India is negotiating and signing several free trade agreements (FTAs) which are economically important for India and it economic growth.
- But the lack of discussions in the Parliament or its committees on these treaties has caused the reason to question the democratic deficit in India's treaty making process.

- A greater say of Parliament in treaty negotiations and their signing is therefore something that is desirable according to some experts.

Constitutional Provisions with respect to India's treaty negotiations

- In the Constitution, entry 14 of the Union list contains the following item – "entering into treaties and agreements with foreign countries and implementing of treaties, agreements and conventions with foreign countries".
- Article 246 of the Indian Constitution states that Parliament has the legislative competence on all matters given in the Union list.
- This therefore gives the Parliament power to legislate on treaties.
- The abovementioned power includes deciding on how India will ratify treaties and thus assume international law obligations.
- It also includes Parliament's competence to give effect to treaties within the domestic legal regime by enacting laws.
- Article 253 provides power to the Parliament to implement treaties by enacting domestic laws that relate to topics which are part of the state list.

Process of treaty making in India

- It is pertinent to note that while Parliament in the last seven decades has passed many laws to implement international legal obligations imposed by different treaties, it is yet to enact a law laying down the processes that India needs to follow before assuming international treaty obligations.
- This legislative void has led to the Centre not just negotiating and signing but also ratifying international treaties and assuming international law obligations without the parliamentary supervision.
- Parliament though has been seen to exercises control over the executive's treaty-making power at the stage of transforming a treaty into the domestic legal regime.
- But this leads to a scenario of ex-post parliamentary control over the executive.
- Parliament that this stage does not debate whether India should or should not accept the international obligations; it only deliberates on how the international law obligations, already accepted by the executive, should be implemented domestically.
- And even if the Parliament does not amend or make domestic laws to transform the treaty, it will continue to be bind India.

- This lack of parliamentary oversight has been flagged by the National Commission to Review the Working of the Constitution.
- But the course of India's treaty-making process has not changed.

Role played by legislature in treaty-making in other liberal democracies

- When compared to other liberal democracies, the practise in India seems to be at variance.
- In the US, important treaties signed by the President have to be approved by the Senate.
- In Australia, the executive is required to table a "national interest analysis" of the treaty it wishes to sign in parliament, and then this is examined by a joint standing committee on treaties - a body composed of Australian parliamentarians.
- Also in Australian, the Parliament supervises the treaty-making process and acts as a check on the executive's power.
- In Canada, too, the executive tables the treaties in parliament.

Road ahead

- Indian democracy needs to inculcate these healthy practices.
- Effective parliamentary supervision will increase the domestic acceptance and legitimacy of international treaties, especially economic agreements, which are often critiqued for imposing undue restraints on India's economic sovereignty.

FPIs dumping Indian stocks???

Foreign Portfolio Investors have been on a selling spree in India. May figures of about Rs. 44,000 crore forming the highest monthly quantum of sell-off since March 2020 when India announced nation-wide lockdown in the backdrop of covid pandemic.

- Capital account of India's Balance of Payment constitutes foreign both foreign direct investments and foreign portfolio investment.

- Foreign investments are one of the major sources of foreign capital inflow for India.
- COVID pandemic has given a severe stress in the process of foreign currency inflow through foreign investment route.
- Along with covid, other several factors such as, middle-east crisis and rise in oil prices in the international market and inflationary stress as contributed to the sell-off of FPIs in the Indian economy.

FPIs

- Foreign Portfolio Investments are investments in the market outside of the home turf.
- FPIs typically includes equities, bonds and mutual funds, with having an administrative control over the company.
- FPI, being a passive mode of investment, providing a easy way for entry and exit from the market.

Benefits of FPIs

- **Inflow of foreign currency:** More FPIs increases the inflow of foreign currencies in the country, positively impacting the balance of Payment of the nation.
- **Surplus Balance of Payment:** More dollar in the forex reserve increase strengthens the balance of payment situation.
- **Appreciation of currency:** Supply of dollar in the economy limits the downfall of rupee and increases the value of rupee with respect to foreign currency.
- **Increase in Import cover:** Availability of forex reserve at surplus position makes the country's import cover stronger, essential for import dependent country like India.
- **Reduction in Import Bill:** Appreciated currency or a stronger rupee reduces the burden of out shelling of funds on imports.

Risk associated with the FPI

- **Easy way of entry and exit:** FPIs are volatile in nature, with a barrier free entry and exit method, creating a fluctuation in the Indian market.
- **Short term investment:** Due to negligible barrier for movement, there remains a scope for volatility in the investment.
- **Hot money:** Frequent inflow and out flow of dollar, increases the risk of currency volatility in the exchange rate market, further having a prolonged impact in the stock market and profitability of the domestic investors.
- **Forex stress:** Repayment of the investment money in dollar terms increases the burden on the forex reserve of the country.
- **Depreciation of rupee:** Sudden dumping of FPIs in the economy reduces the value of local currency with respect to dollars.
- **Increase in Import bills:** With a weaker rupee, India has to shell out more fund for the same amount of goods, widening the scope for imported inflation.
- **Balance of Payment crisis:** Increasing import bills and decline in foreign investment leads to outflow of dollars from the economy, creating a potential threat to the Balance of Payment.

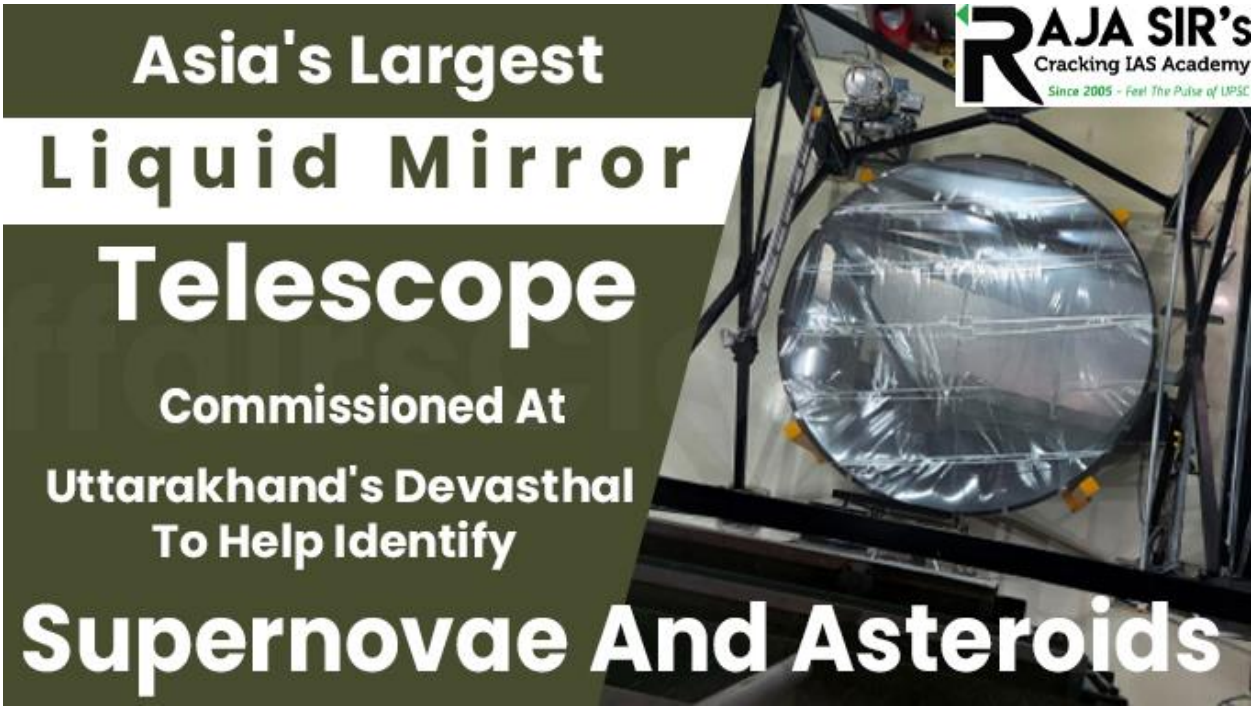
Available preventive measures

- **Tobin tax:** Tax imposed on the frequent movement of foreign currency, i.e., Hot Money, is considered as Tobin Tax. This ensures stability in the exchange rate as well as stock market of the domestic economy.
- **Convertibility of currency:** Government of India has distinguished convertibility measure for capital and current account. A partial convertibility is allowed for capital investment, reducing the risk of currency market volatility and stock market shocks.
- **Fiscal and monetary policy:** A stabilization policy measure from both fiscal and monetary side, to control various sources of inflation in the economy.
- **Differential investment routes:** Government of India follows a policy measure of differential investment routes, few type of investments require government approval where others don't.
- **Limit on several sectors:** Imposition of cap for foreign investment in several sectors is one of the preventive measures by the government.

Foreign Portfolio Investment has a significant share in the Balance of Payment of India, thus, becomes a deciding factor for India's share in world economy. Sudden decline in FPIs provides a severe stress in the exchange rate market further creating a domino effect in the stock market and inflation in the economy.

The 4 m International Liquid Mirror Telescope

India's first liquid mirror telescope first came to light in early 2022. This telescope will observe asteroid, space debris, supernovae, and all other celestial objects from an altitude of 2,450 metres in Uttarakhand.



What is international liquid-Mirror Telescope?

- It is world's first liquid-mirror telescope, that was commissioned for astronomy. Other liquid-telescopes were previously built either to track satellites or were used for military purposes.
- International Liquid-Mirror Telescope (ILMT) was set up at the Devasthal Observatory campus, which is owned by Aryabhatta Research Institute of Observational Sciences (ARIES), Nainital in Uttarakhand.
- ILMT will be the third telescope facility at Devasthal, that has become world's pristine sites for obtaining astronomical observations.

When will it be operational?

ILMT is set to commence its full-scale scientific operations in October 2022. It will work along with 3.6-metre Devasthal Optical Telescope (DOT), which is India's largest telescopes in operation.

How is ILMT different?

- Liquid-mirror telescopes are stationary telescopes which is used to image a strip of the sky at a given point of time at night as opposed to the conventional telescope which is steered to point towards celestial source of interest in sky for observations. The liquid-mirror telescope will survey and capture all possible celestial objects ranging from stars, galaxies, asteroids, supernovae explosions to space debris.
- Conventional telescopes comprise of highly polished glass mirrors, either single or a combination of curved ones. These glasses are steered in a controlled fashion to focus on targeted celestial object on specific nights. This light is then reflected to create images. While the liquid-telescope is made up of mirrors with reflective liquid. In ILMT, mercury has been used as reflective liquid.

- Conventional telescopes help in observing specific stellar sources for fixed hours in accordance with study requirement and time allotted by respective telescope time allotment committee. While, ILMT will help in capturing images of sky on all nights between two successive twilights.

Countries that developed ILMT

India, Canada, Belgium, Poland and Uzbekistan are the main countries to collaborate on setting up the ILMT. It was designed and built at Advanced Mechanical and Optical Systems Corporation and Centre Spatial de Liège in Belgium.

Lord Buddha's holy relics from India installed at Mongolia

The **Four Holy relics** of Lord Buddha are taken to Mongolia for display for 11 days to coincide with the **Mongolian Buddhist festivals of Purnima**.

- The four relics come from among 22 Buddha relics, known as the Kapilavastu relics.
- In Mongolia, the Holy Relics are on display at the **Batsagaan Temple** within the **Gandan Monastery building**
- The Holy Buddha Relics is known as the "**Kapilvastu Relics", first** discovered in 1898.
- Located at the stupa site in **Piprahwa** (near Siddharthnagar in Uttar Pradesh), an inscribed casket was found.
- This helped in identifying the ancient city of Kapilavastu.
- The inscribed casket contained relics of Buddha and Sakya, his community.
- The relics are currently housed at **Delhi's National Museum.**

Signs of the Buddha:

- As per the Buddhist belief, at the age of 80 (486-483 BC), lord Buddha obtained salvation **in Kushinagar (Uttar Pradesh)**.
- Lord Buddha was cremated as a universal king by the **Mallas of Kushinagar.**

- His **funeral relics** were collected and divided into eight shares to be distributed among them
    - Ajathsatrus of Magadha
    - Vaishali''sLicchavis
    - the Sakyas of Kapilavastu
    - Housing in Kushinagar
    - Alakappa Bullies
    - Mallas of Pava
    - the Colossians of Ramagrama once
    - Brahmana of Vethadipa
- The purpose was to place stupas on sacred relics.
- Other stupas appeared, one on top of the pipe where the remains were collected and the other on the coals.
- The remains were later excavated by Ashoka - ruler of the Maurya Dynasty, who ruled almost the entire Indian subcontinent from c. 268 to 232 B.C.
- He dispersed the remains and built stupas over them throughout his district.
- According to Ashokavadana, Ashoka had relics of Buddha placed on 84,000 stupas made up of Yakshas (usually gentle natural spirits).

India-Mongolia relationship

- Mongolia regards India as its "third" and a "spiritual neighbour". The year 2022 marks the 67th anniversary of diplomatic ties between India and Mongolia.
- The spiritual connect between India and Mongolia continues to bind the people of our two nations.
- The bilateral relationship was upgraded to a Strategic Partnership in 2015 during the historic visit of Prime Minister which has proven to be a watershed event in India's bilateral relations with Mongolia.
- Since then, bilateral cooperation with Mongolia has expanded and has seen significant growth.

Buddhism in India:

Origin:

- Siddhartha Gautam, born in 563 BC, was part of the Sakya royal family that ruled from Kapilvastu, Lumbini. At the age of 29, Gautama left home and led a life of self-denial.

- After 49 days of meditation, Gautama received enlightenment under a pipal tree at Bodhgaya in Bihar.
- Buddha made his first sermon in the village of Sarnath, near the town of Benares in the UP. The event is known as the Dharma-Chakra-Pravartana (legal wheel revolution).
- He died at the age of 80 in Kushinagara, a city in the UP. The event is known as Mahaparinibban.

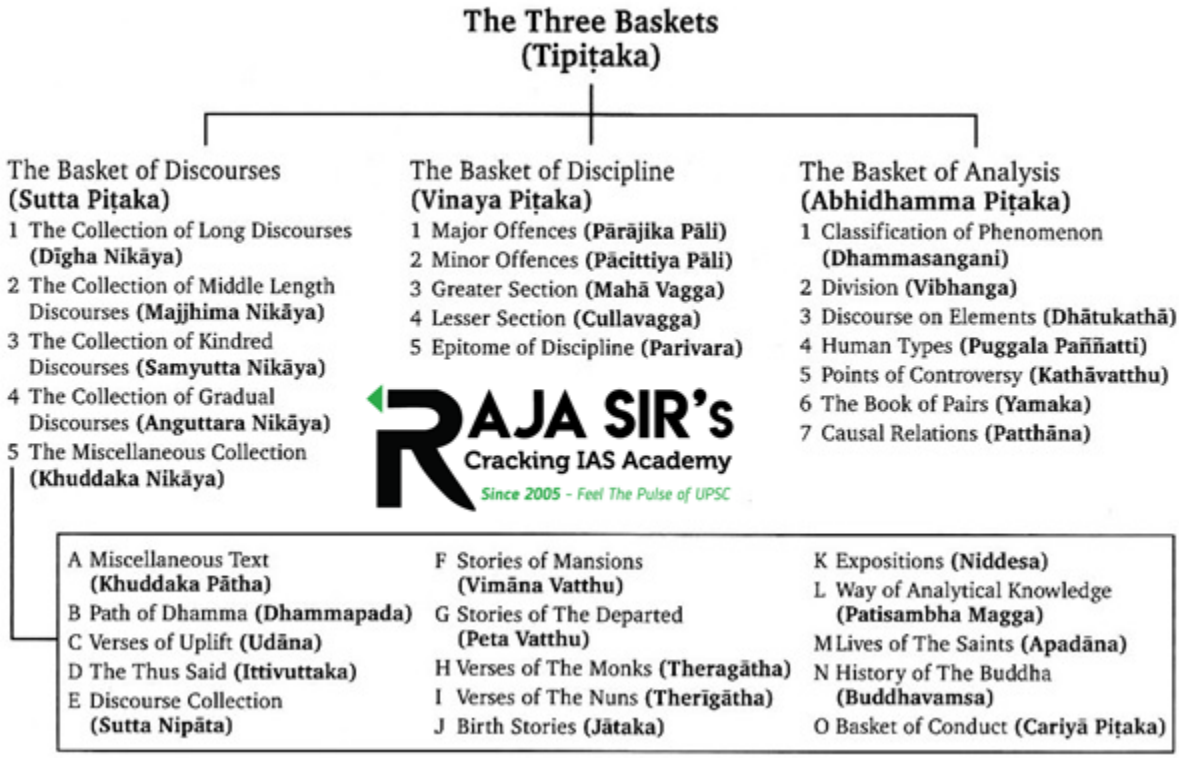
The rules of Buddhism:

- **Middle Path:** Avoid both extremes of worldly pleasure and the practice of extreme self-The Buddha instead called the "**Madhyam Marg**" or the intermediate method to be followed.
- **Four good truths:** Suffering (dukkha) is the backbone of the world, All suffering has a reason - Samudya, Suffering can end - Nirodha, Can be gained by following AtthangaMagga

- **Eight-Way Ways:** Positive Views, Proper Objective, Proper Speech, Proper Action, Proper Health, Positive Thinking, Positive Effort, Positive Concentration
- **Five Principles or Pancasil**- Violence, theft, sexual misconduct, lying or gossip, drunkenness

Major Buddhist texts:

- **Three pitakas:** VinayaPitaka (moral code), SuttaPitaka (Dhamma Buddha): Divided into five Nicayas: Digha, Majjhima, Samyutta, Anguttara, AnguttaraKhuddaka, AbhidammaPitaka (philosophical analysis)
- Other important Buddhist texts include Divyavadana, Dipavamsa, Mahavamsa, Milind Panha etc.



Buddhist councils:

- **First:** It was held in the Sattapani cave at Rajgriha shortly after Mahaparinirvan Buddha, about 483 BC under the rule of King Ajatshatru and was led by Mahakasyapa, a monk.
- **Second:** held at Vaishali under the reign of King Kalasoka in 383 BC. It was owned by Sabakami.
- **Third:** 250 BC at Patliputra under Ashoka rule and led by MoggaliputtaTissa.

- **Fourth:** held in 72 AD in Kundalvana, Kashmir. It was controlled by Vasumitra, while Asvaghosa supported him under the direction of King Kanishka of the Kushan Empire. Buddhism is divided into Mahayan and Hinayan.

Buddhist Schools:

- **Mahayana:** literally means "Great Car". It believes in the heaven of the Buddha and the idolatrous worship of the Buddha and the Bodhisattvas including the Buddha Nature.
- **Hinayana:** A small car literally. It believes in the original teachings of the Buddha or the Doctrine of the Elders. He does not believe in idolatry and seeks to gain personal salvation through self-discipline and meditation.
- **Theravada:** is a Hinayana sect, founded in Sri Lanka and later spread throughout Southeast Asia.
- **Vajrayana:** means "Car of Thunder", also known as tantric Buddhism.
- **Zen:** It is a school of Mahayana Buddhism founded in China.

How does Buddhism still operate in recent times?

- **Non-Violence:** Buddhism preached a non-violent approach, gaining significant significance in the aftermath of the Middle East crisis.
- **Middle path:** At the diplomatic front non-alignment policy is the unique example of middle path, which fosters the ideas to collaborate with every nation.
- **Mutual co-existence:** Buddhism had preached for mutual co-existence and tolerant policy for all religions, one should not disrespect others belief and faith to protect one''s own religion, promoting fraternity among the citizens.

The recent cultural exchange and soft power diplomacy will provide a stronger base to strengthen up the diplomatic relations between India and Mongolia. The urgency of Buddhist's ideology is increasing in the recent events of Middle-east crisis and societal clashes.

US passes world's first 'right to repair' law for digital electronics

Apple recently announced that consumers will have the **right to purchase** spare components of their products, following an order of the **Federal Trade Commission of the United States**.

- It is directed to the manufacturers to remedy **unfair anti-competitive practice** and asks them to make sure that consumers can make **repairs, either themselves or by a third-party agency**.

'Right to repair'

- The rationale behind the "right to repair" is that the individual who purchases a product must own it completely.
- This implies that apart from being able to use the product, consumers must be able to repair and modify the product the way they want to.
- Monopoly on repair processes infringes the customer's' "right to choose" recognised by the **Consumer Protection Act, 2019**.

In ***ShamsherKataria v Honda Siel Cars India Ltd (2017),*** for instance, the Competition Commission of India ruled that restricting the access of independent automobile repair units to spare parts by way of an end-user license agreement was anti-competitive.

Need to include Right to repair: Ending manufacturers' monopoly

- **An expensive affair:** Repairing is becoming unreasonably expensive or pretty much impossible as the technology becoming obsolete.
- **Unwanted monopoly:** Companies avoid the publication of manuals that can help users make repairs easily.
- **Incompatibility**: Manufacturers have proprietary control over spare parts and most firms refuse to make their products compatible with those of other firms.
- **Replacement than repair:** Planned obsolescenceresults in products breaking down too soon and buying a replacement is often cheaper and easier than repairing them.

- **Losing the right of warranty:** Digital warranty cards, for instance, ensure that by getting a product from a "non-recognised" outfit, a customer loses the right to claim a warranty.

'Repair laws' in India

- In accordance with the **Consumer Protection Act, 2019**, monopoly on repair processes infringes the customer's **"right to choose".**
- The right to repair has been partially acknowledged in India in the Consumer disputes jurisprudence.

International practices

- Many countries have taken initiatives, adopted policies and even tried to enact legislation that recognise the "right to repair" to reduce electronic waste.
- Some jurisdictions offer limited scope for exercising the right to repair.

- For instance, under the Australian Consumer Law consumers have a right to request that certain goods be repaired if they break too easily or do not work properly.
- The Massachusetts Motor Vehicle Owners' Right to Repair Act, 2012 requires automobile manufacturers to provide spare parts and diagnostics to buyers and even independent third-party mechanics.
- The UK also introduced the path-breaking "right to repair" in 2021 that makes it legally binding on manufacturers to provide spare parts.
- **Well-drafted legislation**will not only uphold the right to repair but may aid in striking a much-needed balance between intellectual property and competitive laws in the country.

If people want to fix things in a timely, safe and cost-effective way, whether by doing it themselves or taking it to a service centre of their choice, providing access to spare parts and information is imperative.

Clash over 'Green Gold'

Tribal residents of 50 villages in Chhattisgarh's have decided to file an FIR against the officials.

- As the official had seized **Tendu leaves** collected by tribals and they wanted to sell on their own instead of to the government.

- **Forest produce**is defined under **section 2(4)** of the Indian Forest Act, 1927.

- Minor Forest Produce (MFP) is a subset of forest produce and got a definition only in 2007 when the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, was enacted.
- **Section 2(i)** of the act defines a **Minor Forest Produce (MFP)** as all non-timber forest produce of plant origin and includes bamboo, brushwood, stumps, canes, Tusser, cocoon, honey, waxes, Lac, tendu/kendu leaves, medicinal plants and herbs, roots, tuber and the like ones.
- As per the Report of the National Committee on Forest Rights Act, submitted in 2010, in all, about **100 million people** living in and around forests derive at least part of their livelihood from collection and marketing of non-timber forest products or MFPs.
- This includes, in addition to **Tribals, Dalits, other forest dwellers** whom have not been officially declared as tribals, women, and other marginalised groups.

Issue

- **Tendu**is also called '**green gold'** and is a prominent minor forest produce in India.

- In 1964, the trade in **tendu leaves was nationalised** in then-undivided Madhya Pradesh. Until then, people were free to sell tendu leaves in markets across the country.
- Under the state provision the **state forest department** collects tendu leaves, allows their **transportation and sells them to traders**.
- Now, the villagers have claimed that the **Gram Sabhas of 13 villages** had passed a proposal to collect and sell tendu leaves on their own.
- Despite this, the forest range officer seized 250 sacks of tendu leaves.
- Even the documents related to the confiscation of these goods have not been handed over to the tribals.
- The villagers, who are enraged by the development, have consequently decided to lodge an FIR against the officer.

Forest Rights Act 2006 says

- FRA enacted in 2006 recognises the rights of forest-dwelling tribal communities and other traditional forest dwellers to forest resources on which these communities were dependent for a variety of needs, including **livelihood, habitation and other socio-cultural needs**.

- It recognizes and vests the forest rights and occupation in Forest land in Forest Dwelling **Scheduled Tribes (FDST) and Other Traditional Forest Dwellers (OTFD)** who have been residing in such forests for generations.
- It strengthens the conservation regime of the forests while ensuring livelihood and food security of the FDST and OTFD.
- **The Gram Sabha** is the authority to initiate the process for determining the nature and extent of Individual Forest Rights (IFR) or Community Forest Rights (CFR) or both that may be given to FDST and OTFD.

Role of Gram Sabha

Under the Forest Rights Act, 2006, the Gram Sabha has been assigned the following roles for implementing the provisions of the Act:

- To initiate the process for determining the nature and extent of individual or community forest rights.
- To recommend developmental projects managed by the Government which involve felling of trees not exceeding seventy-five trees per hectare.

- To consider the resettlement or alternative packages prepared by the State Governments.
- To protect the wild life, forest, biodiversity, adjoining catchments areas, water sources, other ecological sensitive areas, preserve the habitat of forest dwelling Scheduled Tribes to preserve their culture.
- To pass a resolution against any higher authority by giving a notice of not less than sixty days to the State Level Monitoring Committee.

- **Rights Under the Forest Rights Act:**
    - **Title rights**: It gives FDST and OTFD the right to ownership to land farmed by tribals or forest dwellers subject to a maximum of 4 hectares.
    - Ownership is only for land that is actually being cultivated by the concerned family and no new lands will be granted.
    - **Use rights**: The rights of the dwellers extend to extracting Minor Forest Produce, grazing areas etc.

- **Relief and development rights**: To rehabilitate in case of illegal eviction or forced displacement and to basic amenities, subject to restrictions for forest protection.
- **Forest management rights**: It includes the right to protect, regenerate or conserve or manage any community forest resource which they have been traditionally protecting and conserving for sustainable use.

Need for reforms

- **Administrative Apathy:** As tribals are not a big vote bank in most states, governments find it convenient to subvert FRA or not bother about it at all in favour of monetary gains.
  - The forest bureaucracy has misinterpreted the FRA as an instrument to regularise encroachment instead of a welfare measure for tribals.
  - Corporates fear they may lose the cheap access to valuable natural resources.
- **Dilution of Act**:

- Certain sections of environmentalists raise the concern that FRA bends more in the favour of individual rights, giving lesser scope for community rights.

- **Institutional Roadblock:**
  - Rough maps of community and individual claims are prepared by Gram Sabha which at times often lack technical knowhow and suffers from educational incapacity.

- **Misuse of FRA:**
  - The FRA has been misused and communities have rushed to file claims. Politicians across party lines have interpreted FRA as a land distribution exercise and have fixed targets for districts.

Road ahead

- It is important that the governments at Central and State levels are strengthened with human and financial resources to help implement FRA on a mission mode.

- Besides leveraging modern technology to map and monitor the implementation of FRA, the forest bureaucracy must also be reformed to serve as service providers to gram sabhas.
- **Gender inclusive initiatives** must be taken so that the work opportunities should be equal for both men and women with adequate protection of their rights.

This activity has a strong linkage to women's financial empowerment as most of the Minor Forest Produces are collected and used/sold by women. Minor Forest Produce sector has the potential to create about 10 million workdays annually in the country. Hence governments and officials should leave exploiting innocent tribals and should be paid for their resources, as MFP are not just a source for their earning but attached to their culture and social activities.

Gender Budgeting and Women Empowerment in India

Gender Budgeting (GB) is concerned with gender sensitive formulation of legislation, programmes and schemes; allocation of resources; implementation and execution; audit and impact assessment of programmes and schemes; and follow-up corrective action to address gender disparities.

- It is a powerful tool for achieving gender mainstreaming so as to ensure that benefits of development reach women as much as men.
- It does not seek to create a separate budget but seeks affirmative action to address specific needs of women.
- It Monitors expenditure and public service delivery from a gender perspective.
- It entails dissection of the Government budgets to establish its gender differential impacts and to ensure that gender commitments are translated in to budgetary commitments.

Debbie Budlender's Five-Step Framework for Gender Budgeting

Step 1: An analysis of the situation for women and men and girls and boys (and the different sub-groups) in a given sector.

Step 2: An assessment of the extent to which the sector's policy addresses the gender issues and gaps described in the first step.

Step 3: An assessment of the adequacy of budget allocations to implement the gender-sensitive policies and programmes identified in step 2.

Step 4: Monitoring whether the money was spent as planned, what was delivered and to whom.

Step 5: An assessment of the impact of the policy/ programme/scheme and the extent to which the situation described in step 1 has changed.

Rationale Behind Gender Budgeting

- According to the 2011 census, women account for 48 per cent of the total population of the country.
- Women face disparities in access to and control over services and resources.
- Bulk of the public expenditure and policy concerns are in "gender neutral sectors".
- Implications on women in the above sectors are not recognised or identified.
- Gender responsive budgets policies can contribute to achieving the objectives of gender equality, human development and economic efficiency.

Gender Budgeting in India

Gender Budget Statement (GBS) was first introduced in the Indian Budget in 2005-06. This GB Statement comprises two parts-

- **Part A**reflects **Women Specific Schemes,**e. those which have 100% allocation for women.
- **Part B**reflects **Pro Women Schemes,**e. those where at least 30% of the allocation is for women.

India's gender budgeting efforts stand out globally because they have not only influenced expenditure but also revenue policies (like differential rates for men and women in property tax rates and reconsideration of income tax structure) and have extended to state government levels.

Gender budgeting efforts in India have encompassed four sequential phases: (i) knowledge building and networking, (ii) institutionalizing the process, (iii) capacity building, and (iv) enhancing accountability.

Gender budgeting in India is not confined to an accounting exercise. The gender budgeting framework has helped the gender-neutral ministries to design new programs for women. **Gender Budgeting Cells (GBC)** as an institutional mechanism have been mandated to be set up in all Ministries/Departments.

GBCs conduct gender based impact analysis, beneficiary needs assessment and beneficiary incidence analysis to identify scope for re-prioritization of public expenditure and improve implementation etc.

Limitations

Hence, the first step to improving the effectiveness of GRB is to take a need-based approach. Accordingly, priority areas where gender inequalities are the most severe need to be identified for targeted spending. Complementary to defining targets is monitoring the outcomes. To that end, accountability systems need to be

set up to conduct gender auditing of centrally sponsored schemes and programmes for women for measuring progress.

Additionally, a closer look at the components of India's gender budget raises the question of whether they can indeed be counted among efforts towards correcting gender imbalances in modern times. Funds directed towards research projects on home science, assistance for marriage, LPG connection to poor households and other such programmes that reinforce the traditional gender roles of women do benefit women who are conforming to their gender roles, but the inclusion of these components in a in a gender budget could become contentious as ideas of women empowerment evolve. The adoption of GRB by the GoI has indisputably been a landmark move towards achieving gender equality, but at the same, it is beneficial for the approach to evolve in line with the evolution of feminist theories.

According to economist Nirmala Banerjee, "we need to push for policies that not merely assist women to fulfil their traditional roles, but also to promote them in roles that will change existing gender positions." In order to ensure that programmes do substantially lead to better outcomes for women, Banerjee

proposes categorizing expenditures on public schemes for women under three heads: Relief policies that do not address structural problems; Gender reinforcing assistance, which simply assist women for their needs in accepted gender roles; and lastly, Empowering schemes, which serve to alleviate gender-based disadvantages faced by women.

There are also methodological inaccuracies noted in the GBS since its inception. For instance, certain schemes that are reported in part A of the statement are not exactly schemes targeted at women or have women as 100% of the beneficiaries. For example, expenditure on Research Studies by ICMR under the Department of Health Research is featured in part A of the FY22 Gender Budget even though there is no clarity as to how it has 100% women beneficiaries or how it contributes to women empowerment and correcting gender imbalances. In the previous iterations of the budget, the erstwhile Indira Awas Yojana used to feature in part A, even though its beneficiaries are both men and women. The fact that this inaccuracy has been rectified now gives hope that India's Gender Budget would continue to evolve in line with new learnings and recommendations.

Road ahead

Despite some of its shortcomings, GBS is still an institutionalised tool that has allowed policymakers to assess how much the government spends on women's empowerment, and is a reflection of India's sincere efforts towards achieving its gender equality goals. It is because of a tool like GBS that civil society organisations and women's rights activists are able to pitch for greater expenditure for women. At the same time, there is also a need to revisit our approach from time to time, and tailor our budgeting practices to suit the emergent needs and trends.

Can biomass offer a soln to coal shortage and stubble burning?

Biomass co-firing is **the practice of substituting a part of the fuel with biomass** at **coal thermal plants.**

Biomass co-firing stands for adding biomass as a partial substitute fuel in high efficiency coal boilers.

- **Coal and biomass are combusted together in boilers** that have been designed to burn coal. For this purpose, the existing coal power plant has to be partly reconstructed and retrofitted.
- Co-firing is **an option to convert biomass to electricity, in an efficient and clean way,** and to reduce **GHG (Green house Gases) emissions** of the power plant.

Biomass co-firing is **a globally accepted cost-effective method for decarbonising a coal fleet**.

India is a country **where biomass is usually burnt on the field which reflects apathy towards resolving the problem of clean coal** using a very simple solution that is readily available.

Significance

- Biomass co-firing is an effective way to curb emissions from open burning of crop residue, it also decarbonises the process of electricity generation using coal.
    - Substituting 5-7 % of coal with biomass in coal-based power plants **can save 38 million tonnes of carbon dioxide emissions.**
- It can help cut emissions from combustion of fossil fuels, address India's burgeoning problem of farm stubble burning to some extent, reduce waste burden while also creating jobs in rural areas.
- India has large biomass availability as well as rapid growth in coal-fired capacity.

Challenges

- Substituting 5-7% of coal with biomass in coal-based power plants can save 38 million tonnes of carbon dioxide emissions, but the existing **infrastructure is not robust enough** to turn this into reality.

- Around 95,000-96,000 tonnes of biomass pellets are required per day for co-firing, But **India's pellet manufacturing capacity is 7,000 tonnes per day at present** despite a surplus 228 million tonnes of agricultural residue available in the country.
- This huge gap is due to the **seasonal availability and unreliable supply of biomass pellets** to the utility.
- It is challenging **to store biomass pellets for long durations at the plant sites since they absorb moisture from air quickly,** rendering them useless for co-firing.
- Only pellets **with up to 14% of moisture** can be used for combustion along with coal.

Road ahead

- Platforms need to be established **to ensure farmers have an intrinsic role in this business model of pellet manufacturing** and co-firing in power plants.

- To exploit co-firing potential without adverse environmental impact, **emerging economies need technology and policy preparation**.
- Sustainability indicators for bioenergy, including protection of soil and water resources, biodiversity, land allocation and tenure, and food prices, **need to be integrated into policy measures**.

Cost and complications of transplanting a tree

Recently, Comptroller and Auditor-General of India (CAG) in its audit report showed that only **54%** of the transplanted plants by the **Brihanmumbai Municipal Corporation (BMC), Maharashtra** have survived.

- The audit revealed that Mumbai''s transplanted tree survival percentage was considerably below the **national average of 80%.**

Tree Transplantation

- **Transplanting or replanting** is the process of **relocating a plants** from one site to another in an **agricultural field** or **garden**.
- **Tree transplants** allow plants to have longer **growing seasons.**
    - Plants can be **cultivated indoor** at first, then **outside** if the weather conditions are suitable.
- **Tree spade machine** is a specialized kind of machine that mechanizes the transplanting of large plants.
    - Larger trees may require digging, wrapping or boxing of the root ball and then transporting by truck.
- **In October 2020, the Delhi government approved a tree transplantation policy** to prevent felling of trees due to development work in the city.
    - Under the policy, agencies concerned have been asked to transplant 80% trees affected by the projects to a new location.
    - Under this policy, 10 saplings are supposed to be planted in addition to the tree being dug up with the root intact and scientifically transplanted at another location instead of being felled.

Benefits of Tree Transplantation

- It is a good method to protect young plants from **diseases** and **pests** until they mature.
- This method can avoid the problem of **germination of seeds** by direct planting the plant seedling.
- It is a **relatively convenient but less affordable technique.**
    - Planting a purchased plant immediately in the ground or in a container to grow eliminates a cumbersome stage of our gardening operations.
- Many parks and lakefronts can be **instantly covered with greenery** by transplanting mature trees.
    - Mature trees deliver much **greater eco-services** than saplings.
- The **transplantation of old trees due to development projects can help save them.**

Concerns Associated with Transplantation of Trees

- CAG in its report has pointed out some concerns regarding low survival rate of the transplanted trees.

- Transplanted trees **lack proper protection and maintenance.**
- **Proper infrastructure is not available** to facilitate the process of tree transplantation.
- **Methodology of plantations** applied by the BMC's appointed contractors are under the question.
- According to CAG the methodology used in the transplantation is **unscientific.**

- Another problem is that **not all kinds of trees can be transplanted.** While peepal, ficus, semal and sheesham are tolerant to transplantation, trees such as dak, palash, arjun, shahtoot and jhilmil are not.
  - Any tree with a tap root system cannot be transplanted as the root goes deep into the soil, and it is not possible to isolate it without damage.
- **Soil type too, is an important consideration** before transplantation. A tree growing on the Delhi Ridge will not easily acclimatise to soil in the Yamuna floodplain, as the ecosystem is different.

Road ahead

- Appropriate punishment procedures should be adopted by the concerned authority to improve the productivity and efficiency of the entire process of the transplants of the trees.
    - Rs 5.1 lakh fine has been imposed by the BMC to the contractors who have done improper plantations.
- The civic authority must order agencies to employ experienced **horticulturists** for appropriate tree transplantation.
- Technological innovation for better infrastructure is the primary concern to improve the survival of the trees.

Neobanks, the next evolution of banking

The **RBI** (Reserve Bank of India) is taking a hard look at the neobank business model where **fintechs** plug into a conventional bank's network and become **customer-facing banking service providers.**

- The concern is that the digital model business can scale up very fast and could grow to be bigger than the underlying bank in terms of customers.

  Although neobank customers continue to be accountholders of the underlying bank, the only channel available to these users is the fintech-owned digital platform.

Neobanks

- A neobank is a kind of **digital bank without any branches.** Rather than being physically present at a specific location, neobanking is entirely online.
- Neobanks are **financial institutions** that give customers a cheaper alternative to traditional banks.
- They **leverage technology and artificial intelligence** to offer personalised services to customers while minimising operating costs.
- Neobanks entered the financial system with the tag of "**challenger banks**" because they challenged the complex infrastructure and client onboarding process of traditional banks.
- In India, these firms **don"t have a bank licence of their own but rely on bank partners to offer licensed services.**

- That's because the **RBI doesn't allow banks to be 100% digital yet.**
- The RBI remains resolute in prioritising banks' physical presence, and has spoken about the need for digital banking service providers to have some physical presence as well.

- **RazorpayX, Jupiter, Niyo, Open**,etc are the examples of top Neobanks of India.

Different Operating Models of Neobanks

- **Non-licensed** FinTech (Financial Technology) firms that collaborate with conventional banks to have a mobile/Web platform and a wrapper around their partner banks' products.
- **Traditional banks** that are undertaking their digital initiatives.
- **Licensed neobanks** (usually with digital banking licences in those countries that allow it).

Differences Between Traditional Banks and Neobanks

- **Funding and customers'' trust:** Traditional banks have many advantages over neobanks, such as funding and most importantly customers'' trust.
    - However, legacy systems are weighing them down and they find it difficult to adapt to the growing needs of a tech-savvy generation.
- **Innovation:** While neobanks don't have the funds or customer base to overthrow traditional banks, they have something special in their arsenal - innovation.
    - They can launch features and develop partnerships to serve their customers much more quickly than traditional banks.
- **Underserved by traditional banks:** Neobanks cater to retail customers, and small and medium businesses, which are generally underserved by traditional banks.
    - They leverage the mobile-first model to differentiate themselves by introducing innovative products and providing superior customer service.
- **Venture capital and private equity investors:** They have been keeping a keen eye on the market opportunities for such banks and are taking an increasing interest in them.

- **Smartphone penetration:** As of 2020, India had a Smartphone penetration rate of 54%, which is estimated to increase to 96% by 2040.
    - Even though 80% of the population has access to at least one bank account, financial inclusion levels are yet to improve.

Challenges for Neobanks

- **Fulfilling the needs of a segment of the market:** The key to their success lies in fulfilling the needs of a segment of the market, and adopting the right technology, business strategy and work culture.
- **Regulatory hurdles:** Since the RBI doesn't yet recognise neobanks as such, officially customers may not have any legal recourse or a defined process in case of an issue.
- **Impersonal:** Since neobanks don't have a physical branch, customers don't have access to in-person assistance.
- **Limited services:** Neobanks generally offer fewer services than traditional banks.

Advantages of Neobanks

- **Low costs:** Fewer regulations and the absence of credit risk allow neobanks to keep their costs low. Products are typically inexpensive, with no monthly maintenance fees.
- **Convenience:** These banks offer customers the majority (if not all) of banking services through an app.
- **Speed:** Neobanks allow customers to set up accounts quickly and process requests speedily. Those that offer loans may skip the usual time-consuming application processes in favour of innovative strategies for evaluating credit.
- **Transparency:** Neobanks are transparent and strive to provide real-time notifications and explanations of any charges and penalties incurred by the customer.
- **Deep insights:** Most neobanks provide dashboard solutions with highly enhanced interfaces and easy to understand and valuable insights for services such as payments, payables and receivables, and bank statements.

Digital Banks .vs. Neobanks

- A **digital bank** and a neobank **aren't quite the same**, even though they appear to be based on the **mobile-first approach** and emphasis on digital operating models.
- While the terms are sometimes used mutually, **digital banks** are **often the online**-only subsidiary of an established and regulated player in the banking sector, a neobank, on the other hand, **exists solely online** without any physical branches and independently or in partnership with traditional banks.

Road ahead

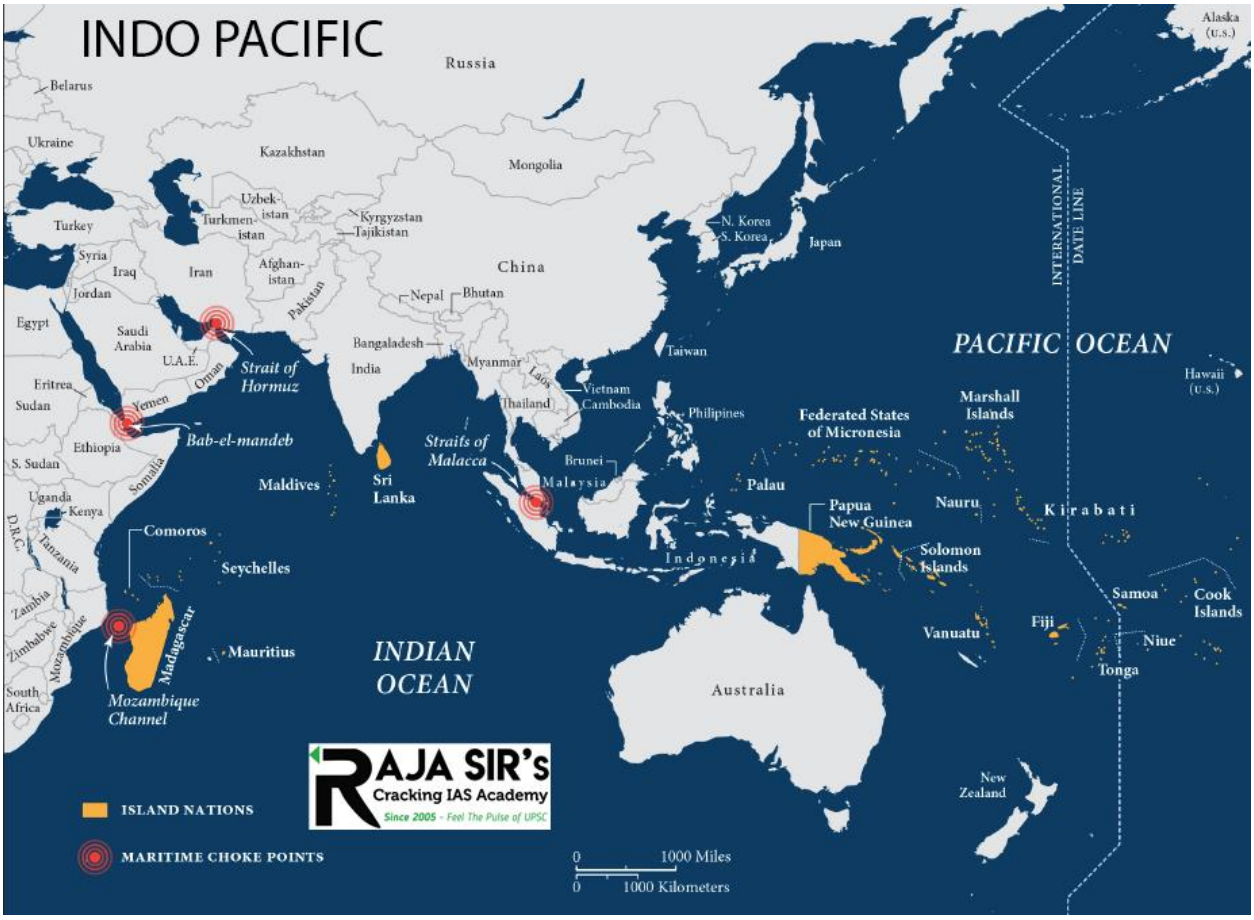
- Neobanking can work as **an extension of measures undertaken to solve the challenges of financial inclusion and bundling banking services** with other financial services–for example, services like opening of bank accounts for immigrants, facilitated through new onboarding procedures not based on traditional documentation of identification. With narrow targets initially, neobanks could expand by adding more functionalities and services over time.

- Although digital and neobanks are gathering momentum, most are yet to show sustained profitability. Nevertheless, they have great potential to be disruptors in banking and financial services, and the key towards becoming profitable entities **would be to convince traditional banks to invest in new-age technology and re-engineer processes** to provide seamless and swift customer experiences.

Dealing with the Indo-Pacific is not Easy

In recent times there has been a shifting of goal posts by major world powers from other areas of conflict to the Indian and Pacific Ocean. This has largely been due to Chinese belligerence in the **South China Sea** by hegemonizing its intention over the entire seawater defying the laid down UN conventions and **international maritime laws.**

The present geo-political situation in the Indo-Pacific is fraught with major irritants destabilising the region. There is a need to establish common standards to form the basis of deeper integration in the future and to ensure equal access to **global commons** for all the countries as a right under international law.



Recent Geo-Political Developments in the Indo-Pacific Region

- **US' Indo-Pacific Strategy:** Recently, the **US administration has announced its long-awaited Indo-Pacific strategy** which focusses on building collective capacity to deal with challenges in the region.
    - These include a focus on **challenges from China**, advancing the US relationship, a **'Major Defence Partnership' with India** and supporting its role as a **net security provider in the region.**
- **EU's Indo-Pacific Strategy:** The **European Union (EU)** has recently come up with an **Indo-Pacific strategy** that aims to enhance its engagement across a wide spectrum.
    - The EU already sees itself and the Indo-Pacific as **"natural partner regions".**
    - It is a significant player in the **Indian Ocean littoral states**, the **ASEAN** area and the Pacific Island states.
- **AUKUS Grouping:** In September 2021, the US has announced a new trilateral security partnership for the Indo-Pacific, between Australia, the UK and the US (**AUKUS**).

- The security grouping AUKUS will focus on **advancing strategic interests in the Indo-Pacific region**.
    - The major highlight of this arrangement is the sharing of US nuclear submarine technology to Australia.

- **Indo-Pacific Economic Framework:** Nearly every one of the nations in this part of the world recognises the assertiveness and aggressiveness of China.
    - To deal with China, the US at the recently held **Quad Summit** in Tokyo launched the **Indo-Pacific Economic Framework (IPEF)** to offer the region better alternatives to fulfil its developmental goals.
    - The IPEF will work on **fine-tuning four major pillars**: standards and rules for **digital trade;** resilient **supply chains; green energy** commitments; and **fair trade.**

Indo-Pacific - Significant

- The Indo-Pacific region has **more than half of the world's population** with **2 billion people living under democratic rule.**

- This region generates **a third of the world's economic output**, more than any other region of the World.
- Three of the most important allies of the United States namely Japan, South Korea and Australia are located here.
- **More than one-third of the foreign trade** of the world takes place in this region.
- The **world's largest economies are located** in the Indo-Pacific region namely, China, **India**, Japan, Indonesia, South Korea, Thailand, Australia, Taiwan, Malaysia and Philippines.

Major Challenges in the Indo-Pacific Region

- **Aggressive Policies of Certain Countries:** The Indo-Pacific region has been under pressure and East Asia, in particular. **South Korea and Japan face regular nuclear and missile threats** from North Korea.
    - **China, too, not only challenges international maritime laws** in the **South China Sea**, but also confronts Japan over the **Senkaku Islands dispute**.

- Six nations, including **China and Taiwan,** are involved in **the** dispute over the **Spratly Islands**, which are supposedly sitting on vast reserves of oil and natural gas.
- China has vigorously **militarised some portions of the disputed isles,** islets and coral reefs; and countries like Vietnam and the Philippines are anxious not to be left behind.

- **Unwillingness to Act Against China:** There is a limit to which countries in the region will want to get on the anti-China bandwagon, economic or strategic.
  - Whether it is in East, Southeast or South Asia, **every country has its own unique relationship with China.**
  - Though South Korea and Japan are part of a strong American security/strategic partnership, they will be **keen on maintaining their economic status with China**.
    - This is also true for the **ASEAN Nations.**
  - India may be a part of the Quad, but is quite mindful that it is the only country in the group that shares a **land border with China which is laced with disputes.**

- **Issues with IPEF:** The first indications are that while the IPEF may be a good idea, there is discontent that the framework does not address issues of trade and tariffs.
    - Also considering that the U.S.'s previous initiatives (the **Blue Dot Network** and the **Build Back Better World (B3W) Initiative**) have made little headway in changing the region's infrastructural needs, the IPEF faces a credibility challenge.

Pacify the Indo-Pacific

- **Pondering Over Strong Actions:** In response to geopolitical tensions, countries have increasingly emphasised resilience and national security considerations over the economic gains from free trade and investment flows but they should be very careful about taking extreme measures, preemptively before conflicts arise.
    - Whether to **disconnect themselves from global supply chains** and strive for reshoring or to go for **"friend-shoring"** and to **cut off countries that are not allies or friends**.

        - **Such actions shut off avenues for regional growth and cooperation, deepen divisions** between countries, and may precipitate the very conflicts that should be avoided.
    - Over the next decade, a range of major events could occur that would have a significant impact in this region such as large-scale interstate conflicts over disputed territories.
        - **Appropriate policies and actions** need to be taken by **India to promote and defend its own interests** in the Indian Ocean.

- **Establishing Common Standards:** The immediate focus for the stakeholders should be on establishing the common standards, which could **form the basis of deeper integration in the future.**
    - Such standards will cover **labour rights, environmental standards, protection of intellectual property rights** and rules covering the digital economy.

- **Initiatives for Peace Mongering:** The countries in the region should have equal access as a right under international law to the use of common spaces on sea and in the air that would require freedom of navigation, unimpeded commerce and peaceful settlement of disputes in accordance with international law.

- It is important to establish connectivity in the region based on **respect for sovereignty and territorial integrity**, consultation, **good governance**, transparency, viability and sustainability.

- **A Combined Indo-Pacific Strategy:** The Indo-pacific strategies of the countries have to devolve themselves on **strengthening relations with all the stakeholder countries.**
  - The areas which need addressal are **improvement in defence cooperation** so as to **strengthen each other"s military capabilities**, reduce external military threat, promote economic assistance and look at threatening environmental issues such as ozone depletion and greenhouse emissions.
  - Seven key players identified which would need to get together to enhance cooperation and counter the Chinese challenge would be the **US, India, Japan, Australia, South Korea, Indonesia and Taiwan.**

SRI method of sowing paddy saves 15-20%water

The System of Rice Intensification (**SRI**) was established in **Madagascar** in the 1980s, and numerous nations throughout the world have used it since then, including India. It claims to **conserve 15 to 20% of ground water** and enhance rice yield, which is now stagnant. It produces the same or more than conventional rice production while using **less water, seed, and pesticides**. The overall result is a significant reduction in investments in external inputs.

Requirements

- **Ploughing** is done first to prepare the field.
- Before **transplanting**, it should be laser leveled to ensure adequate water management and efficiency for a healthy crop stand.
- Then **irrigation** is provided to the field, which is less than that of a well-irrigated field but not as much as traditional techniques.
- Then, with the use of a **rope meter**, 10-12 day old nursery plants (young paddy plants) are transplanted in lines with soil particles surrounding the roots with minimal disruption to the roots.
    - The goal of constructing lines is to create a favorable environment for rice plant growth and development by spacing them out.

- To prevent a time gap between uprooting and planting, which should not be more than 30-40 minutes.
    - So that the roots do not dry out, seedlings or nurseries should be positioned near to the main field.
- Unlike DSR, which is only ideal for medium to heavy textured soils, **SRI is good for all types of soil**, even less fertile soil, where the number of seedlings can be doubled.
- In the SRI approach, **just 2kg seed** is needed to produce a nursery for one acre, compared to 5kg seed in the old method.

How is it different from DSR technique ?

- Unlike DSR, which is suitable only for mid to heavy textured soils, SRI is **suitable in all types of soil including less fertile** soil as in such soil the number of seedlings can be increased to double.
- In **traditional sowing** from the day of transplanting till the crop turns 35-40 days fields are kept under flood-like conditions.

    - And then fields are filled every week till a few weeks before harvesting. "But SRI doesn't require continuous flooding, it needs intermittent irrigation.

- Unlike DSR when **weeds are major problem** and **weedicides** are sprayed simultaneously at the time of sowing, in SRI, which permits greater weed growth because of **alternate wetting and drying of fields**, the weeds are **incorporated into the soil** by operating a cono-weeder between rows, which are made at the time of sowing, which adds nutrients to the crop like green manures.

<u>SRI technique does not require constant flooding after nursery transplantation</u>

- Fields are kept under flood-like conditions in traditional sowing from the day of transplanting until the crop turns 35-40 days. Then, until a few weeks before harvest, fields are filled every week.
- SRI, on the other hand, does not require continual flooding but **rather periodic watering.**
    - The roots of the plants should not be deprived of oxygen due to floods.

- Water is introduced to the field when the surface soil develops hairline cracks, and irrigation is administered to keep soil moisture near saturation at first.

- The intervals between irrigations will vary depending on the field conditions.
    - **During a study** in–- Gurdaspur district fields where Pusa 1121 was planted, it was discovered that 50 lakh litres of groundwater were consumed, compared to 62 lakh litres for the same variety in a puddled technique field.

Weeds management in SRI

- In DSR, where weeds are a major issue and weedicides are sprayed simultaneously at the time of sowing.
- In SRI, which allows for greater weed growth due to alternate wetting and drying of fields, the weeds are incorporated into the soil by operating a cono-weeder between rows made at the time of sowing, which adds nutrients to the crop like green manures.

- 10-12 days after planting, first weeding is undertaken. Depending on the need, more weddings can be done at 10-15 day intervals till the crop reaches panicle stage.
- Through a process of **soil aeration,** each weeding improves production.
- It is recommended that weeding and irrigation be done at the same time for a smoother and simpler functioning of the cono-weeder.

Benefits

- **Increased water availability** at the landscape level or for other consumption demands, since SRI management can cut irrigation water use by up to 50%.
- **Reduced agrochemical usage** leads to improved soil and water quality.
- Organic matter additions to soils and residues from bigger root systems result in an **increase in soil carbon reservoirs.**
- **Reduced methane emissions** from rice paddies due to non-flooded rice paddy conditions; thus far, despite the need for additional study, no offsetting rise in nitrous oxide emissions has been seen.

- Rice cultivar **biodiversity can be increased** if local types become more productive and hence more appealing to farmers to produce.

Limitations

- Increased weed growth, if left unchecked, will result in a significant **loss of yield.**

- If **organic inputs** in the soil structure are maintained, it can be sustainable.

- In addition, **scientists and farmers** must undertake more research by performing experiments on small plots of land at first, and accurate study records must be kept.
    - In **Telangana**, a large area was brought under SRI to conduct a study, and the results are quite encouraging in terms of water saving, lower input costs, and improved plant growth, adding that to save water.
    - A large area was brought under SRI to conduct a study, and the results are quite encouraging in terms of water saving, lower input costs, and improved plant growth.

The controversy around the Puri Heritage Corridor Project

The ambitious **Puri heritage corridor project** of the Odisha government has landed into a controversy. A recent affidavit filed by the **Archaeological Survey of India** in the Orissa High Court has further intensified the debate around the project.

What is the Puri Heritage Corridor Project?

Conceived in 2016, the **Puri Heritage Corridor Project** was unveiled in December 2019 to **transform the town into an international place of heritage**.

The project includes redeveloping major portions of the town and in the vicinity of the temple for visitors and tourists. A resolution for the project was passed in the state assembly unanimously in **February 2020** to begin the first phase of work estimated at a cost of Rs 800 crore. Following this, the **Shree Jagannath Temple Administration (SJTA)** approved the architectural design plan of the project at an estimated cost of Rs 3,200 crore.

A total of **22 different projects** will be executed in a phased manner. After the initial funds of Rs 800 crore from the state government's **Augmentation of Basic Amenities and Development of Heritage and Architecture at Puri (ABADHA) scheme**, another Rs 265 crore will be provided in the first phase.

The project includes **Shree Jagannath Temple Administration (SJTA)** building redevelopment, a 600-capacity **Srimandir reception centre**, **Jagannath cultural centre** including **Raghunandan library**, integrated command, and control centre, Badadanda heritage streetscape, Srimandir amenities improvement, Sri Setu, Jagannath Ballav pilgrim centre, multilevel car parking, municipal market

development, Swargadwar development, Pramod Udyan, Gurukulam, Mahodadhi market, beachfront development, Puri lake, Musa river revival plan, Atharnala and housing for sevayats.

What is the controversy about?

The **12th century shrine is a centrally protected monument**, with the ASI as its custodian. As per rules laid down under the **Ancient Monuments and Archaeological Sites and Remains (Amendment and validation) Act**, construction activities within a 100 metre around such a monument's perimeter are restricted. Constructions can only be carried out with approval from the **National Monuments Authority (NMA)**. The NMA, a body under the **Union Ministry of Culture** was set up under the provisions of AMSAR Act for the protection and preservation of monuments and sites through management of the prohibited and regulated area around the centrally protected monuments. One amongst these responsibilities of NMA is also to consider grant of permissions to applicants for construction related activity in the prohibited and regulated area.

NMA guidelines suggest that a **heritage impact assessment study** is a must for developmental work around any monument of archaeological importance with a **built-up area of over 5,000 square metre**. The **Jagannath temple is spread over 43,301.36 sq metre**.

For the heritage project, the NMA had issued a **No Objection Certificate (NOC)** to the state government on 4 September 2021 for the construction of a cloakroom, a shelter pavilion, three toilets, an electrical room and a pavement within the prohibited 75-metre zone. The NOC issued by NMA is with regard to the fact that **the public amenities do not come under the definition of construction as per the AMASR Act** and that NMA has no objection if the project is carried out under ASI's supervision. However, no such NOC has been issued by the ASI.

After a visit by the Director General, ASI on 21 February 2022 to review the developmental works of the project, ASI wrote a letter to the state government on 5 March, asking officials concerned to submit a revised proposal for the development around the **Puri srimandir**. "One point of discussion was the proposed reception centre which is at a **distance of 75 metres from the temple** (part falls under the prohibited area). The building is proposed to be used to hold devotees before they proceed to the main complex. Given that this would be very essential, it was decided that the state government would consider options to slightly move the building beyond 100 metres," the letter stated, adding that moving the building beyond 100 metres would be good in the interest of security of the temple.

Who has raised the issue?

Multiple independent bodies like the **lawyers association in Puri**, locals, civil societies active in the holy town and even the BJP, have raised concerns around the **structural stability of the 12th-century monument** as JCB machines are being used to dig up the area within the 75 metre radius of the shrine to set up public amenities. BJP MP from Bhubaneswar Aparajita Sarangi had also raised the issue in Parliament. Sarangi had alleged illegality in the implementation of the project and claimed that the state government continued with its construction work in prohibited areas near **Shree Jagannath Temple** despite a letter to stop work issued by Archaeological Survey of India.

What did the ASI affidavit state and how did the High Court respond?

In its affidavit submitted in the high court on 9 May 2022, the ASI stated that the state government was undertaking the project's construction work within the **prohibited and regulated areas of the monument** without valid permission. The court is hearing a PIL against the project, which has raised concerns over its impact on the **Puri temple's structural safety**.

The ASI's affidavit came after it undertook a joint inspection of the project site along with the state government officials on 1 May 2022 in pursuance of the court's order. The joint team consisted of ASI functionaries as well as state

government officials like the Puri collector and the **Odisha Bridge and Construction Corporation (OBCC)** managing director.

In response to the ASI's stand, Advocate General Ashok Kumar Parija told the division bench of Chief Justice S Muralidhar and Justice R K Pattanaik that a **no-objection certificate (NOC)** was granted to the project by the **Centre's National Monuments Authority (NMA)** on 4 September 2021. He also said the state government will file its reply to the ASI's affidavit.

While posting the matter for next hearing on 22 June, the court asked the state government to keep in view the ASI's observations as and when it undertakes any further project work.

How has the state government responded?

After the initial controversy surfaced, media advisor to the state government, **Manas Mangraj**, in a statement had said, The **Supreme Court of India** supported the work of the Odisha Government and also directed the ASI to cooperate and permit these developmental activities. The release further mentioned the **Supreme Court order** dated 4 November 2019 which read, "We place on record our appreciation that all stakeholders are happy with the development which is taking place at the instance of the State Government and they are cooperating with each

other in restoration of the glory of Lord Shri. Jagannath Temple. We direct ASI also to cooperate and to permit the activities of improvement.

Chang Zheng 3B

On 12 May 2022, villagers in Gujarat remained confused and curious as ***fragments of suspected debris*** "***fell from space***" at three locations – ***Bhalej***, ***Khambholaj***, and ***Rampura***.

As a team from the Forensic Science Laboratory probes the debris, we take a look as to what has been found so far, **how it is different from the debris from meteoroids** and whether there have been similar incidents in the past in India.

What do we know about the debris?

According to the local police, at around 4.45 pm on 12 May 2022, "the first large, black metal ball" ***weighing around five kilograms fell "from the sky"*** in Bhalej village in Anand, followed by two similar fragments at two other villages – Khambholaj and Rampura. The three villages are located within a 15-kilometre

radius, with one piece of the debris falling in Chimanbhai's field. Luckily, no one was injured, the authorities informed.

On 14 May 2022, similar ***sphere-shaped debris was reported at Chaklasi village*** in Anand, about 8 km away from Bhalej.

While Indian authorities have not issued any statement ascertaining what it might be, astronomer Jonathan McDowell at the Harvard Smithsonian Center for Astrophysics tweeted that **it could possibly be debris** from the re-entry of the ***Chang Zheng 3B serial Y86*** – China's orbital launch vehicle.

Responding to a query by The Indian Express, McDowell said that his deduction is based on the fact that this object "***is the only re-entry that day*** (12 May) that went anywhere near India," based on data from the US Space Force that he monitors.

Aerospace.org also predicted the same, saying that the launch vehicle will re-enter the Earth's space on 12 May at around 10.37 am (IST).

However, McDowell adds that "the predicted path was a few hundred km north of the villages in question, but that's within the uncertainties for this particular object since its orbit was more uncertain than usual".

"The problem is that the ***orbit was rapidly changing due to atmospheric drag***. So, the last Space Force Orbit we had was several hours old. The projection forward of that ***orbit is reliable in terms of its path through space***. But the position of the rocket along its track is uncertain, and you have to take into account that if it's five minutes late, the Earth has turned underneath the orbit by 5 minutes, which is equal to ***0.25 degrees*** in that said amount of time. As such, the predicted ground location also changes accordingly," McDowell said.

Gujarat's Anand district collector M Y Daxini stated that a Forensic Sciences Laboratory team is examining the samples and that the district collectorate is "in touch with" Physical Research Laboratory, Ahmedabad, and Indian Space Research Organisation's (ISRO) Space Application Centre (SAC) to determine if the debris is from a satellite or a rocket.

What is space debris?

Space debris can include **natural space debris** such as **meteoroids**, or man-made ones which can include **defunct spacecrafts and satellites**, ***stages of rockets*** which have ***launched payloads***, **dead satellites**, satellite explosions and collisions.

According to NASA, "***more than 25,000 objects larger than 10 cm are known to exist***" as space debris and the estimated population of particles **between 1 and 10 cm in diameter** is approximately ***500,000***. According to NASA's estimates, as of January 2022, the amount of material orbiting the Earth ***exceeded 9,000 metric tons***.

What is Chang Zheng 3B serial Y86, from where the debris is suspected to have fallen?

Chang Zheng 3B, commonly known as **CZ 3B**, is ***China's orbital launch vehicle***, similar to ***India's GSLV or PSLV***. 'Long March' rockets are a family of carrier rockets operated by the China National Space Administration, which carry the satellites or payloads. The 3B denotes the Long March 3B model in this family of rockets.

The model has conducted as many as **84 flights**, the last being in April 2022, carrying communications satellites. Y86 denotes the designated serial number of the 78th flight mission. This mission was launched on 9 September 2021, carrying the ***5,500 kg ChinaSat 9B communication satellite*** to the **geostationary transit orbit**.

Usually, the first and second stage of rockets make it back to earth after take-off within a week or so because of the release of these stages at lower altitudes. In such cases, the **re-entry can then be manoeuvred** in such a way that they do not affect populated landmass and cause damage. However, the third stage, which releases the satellite at the required orbit following which it remains in **sub-orbital flight**, remains outside the purview of being controlled by human intervention and ultimately re-enters earth. It is this ***third stage of the Long March 3B Y 86 rocket launch*** that is now suspected to have re-entered earth, leading to debris falling in Gujarat. The difference in impact made by a natural and man-made debris

Most pieces of space debris burn up as they enter the Earth's atmosphere, the process starting from around a ***height of 100 km from Earth's surface to 20 km***. However, sometimes, very heavy pieces may not burn completely, and some part of the object may make it down to the surface, either hitting a landmass or a waterbody.

Notably, with constellation satellites gaining traction such as **SpaceX's Starlink project**, **OneWeb Constellation** by London-based OneWeb and **Project Kuiper of**

Amazon, the common criticism has been the increase in space debris and the risk of collision.

In cases of **man-made debris**, it often disintegrates into fragments, thus hardly ever creating large-scale impact. It is usually natural debris, such as **asteroids and meteoroids** that cause relatively large-scale craters, if it ends up hitting a landmass.

How does space debris move and how are they tracked?

Tracking space debris has become an **area of interest for many astronomers**. NASA, for example, says that "***large orbital debris (> 10 cm)*** is tracked routinely by the US Space Surveillance Network" as objects as small as 3 mm can be detected by ground-based radars, "providing a basis for a statistical estimate of their numbers".

In the ***lower parts of Earth's orbit (below 2,000 km)***, debris circles the Earth at speeds of about ***7-8 km per second***. However, the average impact speed of orbital debris with another space object is approximately 10km/s, and can go up to about

15 km/s, which is about 10 times the speed of a bullet. Consequently, collisions with even a small piece of debris will involve considerable energy.

Assessments of the population of orbital debris smaller than 1 mm can be made by examining impact features on the surfaces of returned spacecraft, although this has been limited to those operating in altitudes **below 600 km**.

According to NASA ***Orbital Debris Programme Office***, "The intentional destruction of the Fengyun-1C weather satellite by China in 2007, and the accidental collision of the American communications satellite, Iridium-33, and the retired Russian spacecraft, Cosmos-2251, in 2009 greatly increased the number of large debris in the orbit – represent one-third of all catalogued orbital debris.

Have there been similar incidents in the past?

In India, a ***similar event was reported in April this year*** when six metallic balls and a metal ring, also suspected to be from China's Long March 3B rocket, fell from the sky in parts of Maharashtra and Madhya Pradesh. A team from ISRO was roped in to determine the specific nature of it.

McDowell told The Indian Express that the third-stage re-entries over populated areas occur "once every few months".

An event that stands out in terms of the damage caused by space debris is one from **February 1996**. A **Long March 3B rocket** launch failure resulted in debris from the satellite's payload, US-made Intelsat 708, falling from the sky minutes after the lift off, which reportedly **killed six** and **injured 57 others in China**, according to news agency Xinhua. The first reported incident of damage from ***space debris was in 1978 after the crash of the then USSR's nuclear-powered Cosmos 954 satellite***, which fell over Canada nearly four months after the take-off, requiring extensive clean-up of radioactive material.

Under the ***Convention on International Liability for Damage*** Caused by Space Objects, countries can claim compensation from other countries for damages incurred from space debris.

The Sedition Law: Time to erase the blot on Indian democracy

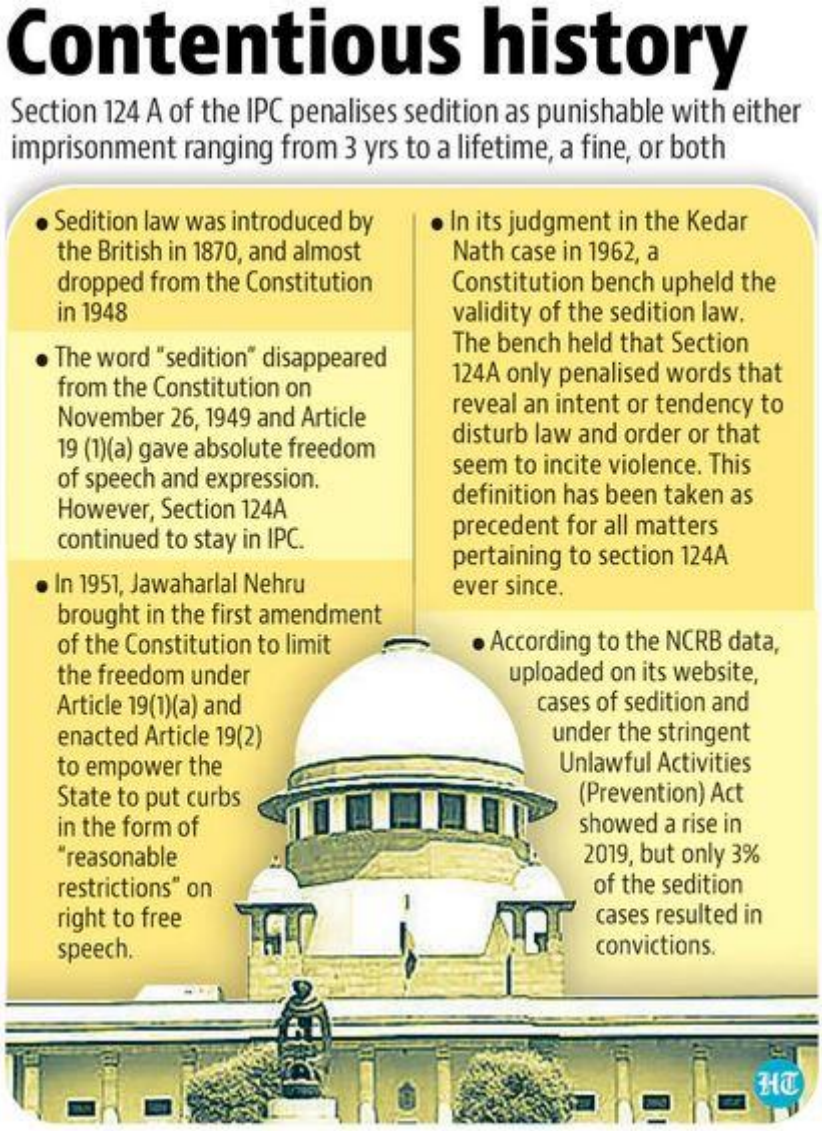
In a brief order delivered in **S.G. Vombatkere vs Union of India,** a three-judge Bench of the Supreme Court of India effectively suspended the operation of

Section 124A of the Indian Penal Code (IPC). The provision, which criminalises sedition, has been used by successive regimes, including by governments post-Independence, to suppress democratic dissent.

Previously, during oral hearings, the Bench, presided by the **Chief Justice of India, Justice N.V. Ramana**, had indicated that it was of the view that the **law was an anachronism, a colonial-era relic**.

Now, through a recent order, the Supreme Court has directed governments, both at the level of the Union and the States, to **keep "all pending trials, appeals and proceedings" arising out of a charge framed under Section 124A "in abeyance"**.

In this context, it is imperative to investigate the sedition law (Section 124A of IPC) in depth and bring out its merits and demerits.



Sedition Law

- Section 124A defines sedition as **any action – "whether by words, signs, or visible representation"** – which **"brings or attempts to bring into hatred or contempt or excites or attempts to excite disaffection towards the Government established by law in India".**

- The word "**disaffection**", the provision explains, "**includes disloyalty and all feelings of enmity**". However, comments without exciting or attempting to excite hatred, contempt or disaffection, will not constitute an offence under this section.

Basis of Consideration of Sedition Law

- Direction for consideration of sedition law was issued after the Union government filed an affidavit informing the supreme court that it had decided to re-examine the law.
- The deposition, by itself, offered no firm commitment on whether the Government would recommend to Parliament a complete removal of Section 124A.
- But the Bench believed that the offer to reconsider the provision, if nothing else, showed that the Government was in broad agreement with the Court's prima facie opinion on the matter, that the clause as it stands "is not in tune with the current social milieu, and was intended for a time when this country was under the colonial regime".

Debate in Constituent Assembly Regarding Sedition Law

- K.M. Munshi argued forcefully in the Constituent Assembly to delete the use of the "equivocal" word "sedition" as a permitted restriction on free speech.
    - In the words of K.M. Munshi, should the word not be deleted from the Draft Constitution, an "erroneous impression would be created that we want to perpetuate 124-A of the I.P.C".
    - As is only too evident, the law was always meant to be used as a restraint on dissent, to crush any and every form of opposition aimed at the government.
- Munshi's amendment sailed through. The adopted Constitution did not permit a restriction on free speech on the grounds of sedition.
    - But despite this, governments across India continued to charge people with the offence.
    - In the 1950s, two different High Courts struck down Section 124A as offensive to freedom. But, in 1962, in **Kedar Nath Singh vs State of Bihar,** a five-judge Bench of the Supreme Court reversed these verdicts.

- The Court found that Section 124A was defensible as a valid restriction on free speech on grounds of public order.
- However, while upholding the clause, the Court limited its application to "acts involving intention or tendency to create disorder, or disturbance of law and order, or incitement to violence".

- The court's decision failed to recognise that terms such as "disaffection towards the government", which are fundamentally vague, ought to have no place in a penal statute, and that, all along, the intention behind criminalising sedition was to quell the right to dissent.

Underlying Challenges of Sedition Law

- **Against the Basic Structure:** "The essence of democracy," as Munshi put it in the Constituent Assembly "is criticism of government." The sedition law disregards this core spirit. It criminalises censure and opposition and it enervates, to the point of exhaustion, the basic structure of a democratic republic.

- **Marginalised most affected:** In its application by law enforcement, the limitations imposed in Kedar Nath Singh have rarely been observed. And in recent years, there is seen an enhanced exploitation of the law, where even the most benign acts of opposition have been met with a charge of sedition.
    - As is often the case with abuses of this kind, it is the most marginalised sections of society that have faced the brunt of the harm.
- Section 124A is a **relic of colonial legacy and unsuited in a democracy**. It is a constraint on the legitimate exercise of constitutionally guaranteed freedom of speech and expression.
- **Dissent and criticism of the government are essential ingredients of robust public debate** in a vibrant democracy. They should not be constructed as sedition.
    - Right to question, criticize and change rulers is very fundamental to the idea of democracy.
- The British, who introduced sedition to oppress Indians, have themselves abolished the law in their country. There is no reason why India should not abolish this section.

- The terms used under Section 124A like "disaffection" are vague and subject to different interpretations to the whims and fancies of the investigating officers.
- IPC and **Unlawful Activities Prevention Act 2019** have provisions that penalize "disrupting the public order" or "overthrowing the government with violence and illegal means". These are sufficient for protecting national integrity. There is no need for Section 124A.
- Sedition law is being misused as a tool to persecute political dissent. A wide and concentrated executive discretion is inbuilt into it which permits blatant abuse.
- In 1979, India ratified the **International Covenant on Civil and Political Rights (ICCPR),** which sets forth internationally recognized standards for the protection of freedom of expression. However, misuse of sedition and arbitrary slapping of charges are inconsistent with India"s international commitments.

Arguments Given in Favour of Sedition Law

- Section 124A of the IPC has its utility in **combating anti-national, secessionist and terrorist elements.**
- It protects the elected government from attempts to overthrow the government with violence and illegal means. The continued existence of the government established by law is an essential condition of the stability of the State.
- If contempt of court invites penal action, contempt of government should also attract punishment.
- Many districts in different states face a maoist insurgency and rebel groups virtually run a parallel administration. These groups openly advocate the overthrow of the state government by revolution.
- Against this backdrop, the abolition of Section 124A would be ill-advised merely because it has been wrongly invoked in some highly publicized cases.

Road ahead

- **Time to Reform the Law:** It is no doubt true that a law cannot be invalidated merely because it has been subject to misuse. But in the case of

sedition, the rationale for the decision in Kedar Nath Singh and the survival of Section 124A have both become untenable with time.

- Since 1962, when the judgment was handed out, the Supreme Court's reading of fundamental rights has undergone a transformative change.
- For instance, the Court has, in recent times, struck down penal laws on grounds, among other things, of imprecision in their language, and of the chilling effect that the restrictions have on free speech.

- India is the largest democracy of the world and the right to free speech and expression is an essential ingredient of democracy. The expression or thought that is not in consonance with the policy of the government of the day should not be considered as sedition.
- Section 124A should not be misused as a tool to curb free speech. The SC caveat, given in Kedar Nath case, on prosecution under the law can check its misuse. It needs to be examined under the changed facts and circumstances and also on the anvil of ever-evolving tests of necessity, proportionality and arbitrariness.

- The higher judiciary should use its supervisory powers to sensitize the magistracy and police to the constitutional provisions protecting free speech.
- The definition of sedition should be narrowed down, to include only the issues pertaining to the territorial integrity of India as well as the sovereignty of the country.
- The word 'sedition' is extremely nuanced and needs to be applied with caution. It is like a cannon that ought not to be used to shoot a mouse; but the arsenal also demands possession of cannons, mostly as a deterrent, and on occasion for shooting.
- To protect our democracy, we must ensure that the constitutional guarantees to personal liberty and freedom do not go in vain. For that, each of our penal laws must be animated by a concern for equality, justice, and fairness

Rocket-Propelled Grenade (RPG)

Rocket-Propelled Grenade (RPG)

- The RPG is a weapon of Soviet origin, and its initials stand for Rucknoy Peotivotankovvy Granaromyot, which roughly translated means a handheld anti-tank grenade launcher.
- It is a portable, shoulder fired weapon, which is easy to operate and can cause widespread damage whether used in an anti-personnel mode, against armoured vehicles or against buildings.
- There are different versions of the RPG which are designed as per the usage of the weapon with varying capacity of the warhead, effective range and penetration levels.

Origins of RPG

- The origins of RPG lie in the various conflicts that have taken place in modern military warfare, dating back to World War I.
- There have been various such handheld weapons developed by western military powers, but the most prolific of these has been the RPG, which has made its presence felt in almost every major insurgency or terrorism-affected region in the world.

- The Soviet-origin RPGs have been used extensively in the Vietnam conflict as well as in conflicts in Afghanistan, Somalia, Syria, Iraq and even closer home, in Jammu and Kashmir. Security forces in J&K have, in the past, recovered RPGs from slain terrorists, and have also found evidence of its use.

Can such weapons be easily procured by terrorists?

- There is a thriving illicit market for Soviet-origin weapons like the RPG, which are still in circulation worldwide. Such weapons are not difficult to procure by arms smugglers, and these then find their way to terrorist organisations.
- Eastern European countries, especially those from the former Soviet Union bloc, are well known markets for the sale and purchase of these weapons.
- Many intelligence agencies of countries which want to build in an element of deniability in their distribution of weaponry to terrorist organisations in other countries also resort to purchase of such weapons through non-traceable routes.

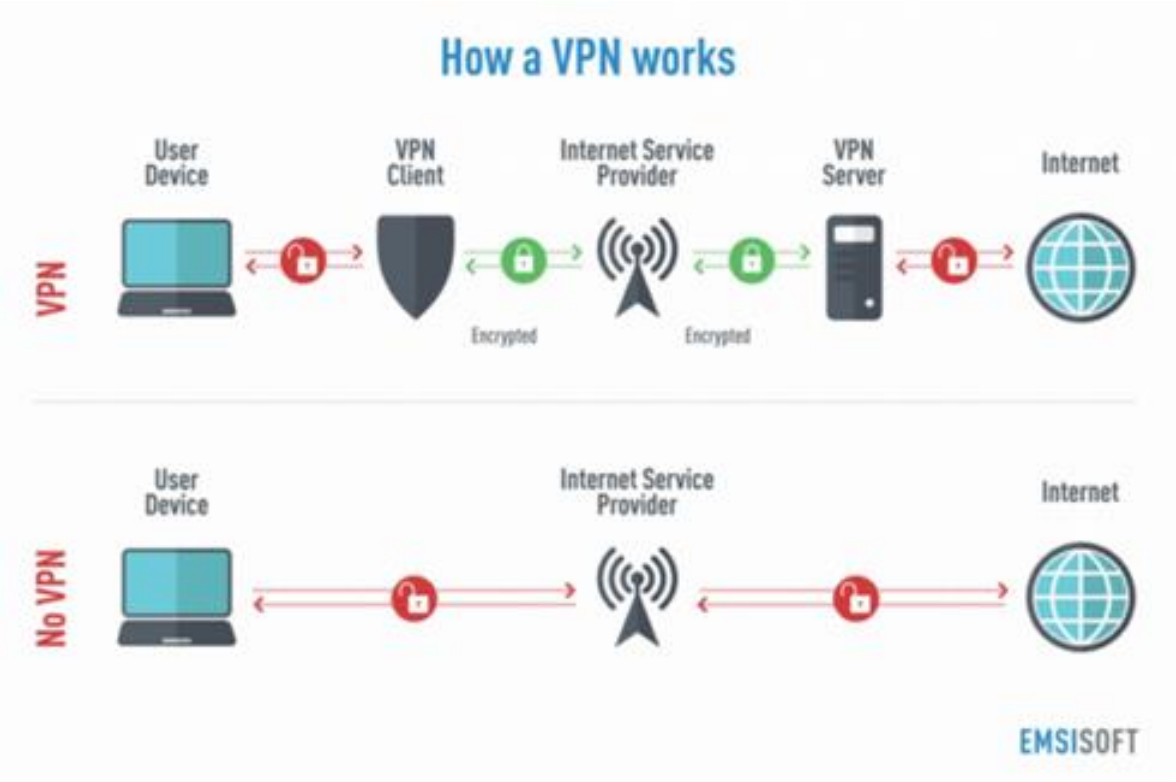
What India's new VPN rules mean for your privacy?.

Virtual private network (VPN) service providers are up in arms against a new directive of The Indian Computer Emergency Response Team or Cert-In that mandates they must maintain all customer data for five years.

What Is A VPN?

- A Virtual Private Network (VPN) creates a secure private network from a public internet connection.
    - Simply put, VPNs help you hide your internet protocol (IP) address so your online actions are virtually untraceable.
- A VPN encrypts your connection to provide greater privacy as it prevents others from seeing the data you're transferring.
- It hides you digital activity, including the search history, links you click or the files you download.

- This keeps your data secure from any spying attempts, hackers, and cybercriminals, particularly on free public Wi-Fi networks.
- A VPN encrypts your network traffic and disguises your network identity using its servers all over the world.
    - This makes it almost impossible for third parties to track your online activities and steal your data.



How do these networks function?

- Any and all devices connected to the internet are a part of a large network of computers, servers and other devices spread across the world.
- To identify each device connected to the internet, service providers globally assign a unique address to each such device called the internet protocol address or IP address.
- It is this IP address that helps websites, law enforcement agencies and even companies track down individual users and their accurate location.

What does the new CERT-IN directive say?

- VPN providers will need to store validated customer names, their physical addresses, email ids, phone numbers, and the reason they are using the service, along with the dates they use it and their "ownership pattern".
- In addition, Cert is also asking VPN providers to keep a record of the IP and email addresses that the customer uses to register the service, along with the timestamp of registration.
- Most importantly, however, VPN providers will have to store all IP addresses issued to a customer and a list of IP addresses that its customers generally use.

What does this mean for VPN providers?

- VPN services are in violation of Cert's rules by simply operating in India.
- That said, it is worth noting that 'no logs' does not mean zero logs.
- VPN services still need to maintain some logs to run their service efficiently.

Indian Computer Emergency Response Team (CERT-IN)

- CERT-IN is an office within the Ministry of Electronics and Information Technology.
- It is the nodal agency to deal with cyber security threats like hacking and phishing. It strengthens the security-related defense of the Indian Internet domain.
- It was formed in 2004 by the Government of India under the Information Technology Act, 2000 Section (70B) under the Ministry of Communications and Information Technology.

What is Charak Shapath?

The Dean of Madurai Medical College was removed after a batch of new students were administered an oath in Sanskrit attributed to the ancient Indian sage Maharshi Charaka instead of the traditional Hippocratic Oath in English.

What is the controversy over the Charak Shapath?

- National Medical Commission (NMC) suggested to medical colleges **that the Hippocratic Oath should be replaced by a** "**Charak Shapath**".
- The NMC also issued a circular on the **Implementation of new Competency-Based Medical Education** for Undergraduate Course curricula.
    - It said that **modified Maharshi Charak Shapath is recommended** when a candidate is introduced to medical education.

Hippocratic Oath

- It is an **oath of ethics** historically taken by physicians.

- It is attributed to Hippocrates of the island of Kos.
- It is one of the **most widely known Greek medical texts**.
- In its original form, it requires a **new physician to swear, by several healing gods, to uphold specific ethical standards.**

Hippocrates

- **Hippocrates of Kos** is also known as Hippocrates II.
- He was a **Greek physician** of the classical period.
- He is considered one of the most outstanding figures in the history of **medicine**.
- He is traditionally referred to as the "**Father of Medicine**" in recognition of his lasting contributions to the field, such as the use of **prognosis and clinical observation**, the systematic categorization of diseases, and the formulation of the **humoral theory**.
- He is also credited with greatly **advancing the systematic study of clinical medicine**, summing up the medical knowledge of previous schools, and prescribing practices for physicians through the Hippocratic Corpus and other works.

- He is credited with being the **first person** to believe that **diseases were caused naturally**, not because of superstition and Gods.
- He was credited by the **disciples** of **Pythagoras with allying with philosophy and medicine**.

Charaka oath

- It is a **set of instructions** by **a teacher to prospective students of medicine**.

- It states that individuals eager to learn the science of medicine must **unconditionally agree to abide by its instructions.**
- It explains the **necessity of practicing asceticism** during student life, **student-teacher relationship, the importance of devoting oneself fully and completely to the well-being of the patient**, whom to treat, how to behave with women, and several other related issues.

Charak

- He is considered the **father of ancient Indian science of medicine**.
- He was the **Raj Vaidya** (royal doctor) in the court of **Kanishka.**
- He wrote **Charak Samhita.**
- He was the first to talk about digestion, metabolism, and immunity as important for health and so medical science.
- He also knew the **fundamentals of Genetics**.

International code of medical ethics

- It was adopted by the **World Medical Association in 1949**, which was amended in 1968, 1983, and 2006.
- WMA published a proposed modernized version of the international code.
    - It **outlined physicians' duties towards their patients**, other physicians, health professionals, and society as a whole.

What could be causing the mysterious outbreak in children?

A series of unexplained cases of **Hepatitis B in children** has taken over the world.

Many countries including the **US and UK** reported mysterious cases of a few children being diagnosed with **Hepatitis B**.

From January till now, several cases of **Hepatitis B positive children** have come forward and the doctors are constantly being urged to identify the reason behind this outbreak.

What is Hepatitis B?

Hepatitis B is an infection in the liver which happens because of the **Hepatitis B virus or HBV**. The virus usually spreads through **blood**, **semen** or **other body fluids.**

It can be prevented or protected against **through vaccination.** When it is acute, the virus lasts a small time and doesn't always necessarily need treatments although it can get serious and lead to **life-threatening diseases** like **organ scarring**, **liver failure** and **even cancer.**

The most common **symptoms of Hepatitis B are jaundice**, fever, fatigue that lasts for weeks or even months, vomiting, loss of appetite, and pain in joints or belly.

There is a fair chance that the symptoms are not visible for one to six months since you catch the virus.

What do we know so far?

The **World Health Organization (WHO)** said the extent of the outbreak is such that at least **169 cases were recorded of children being diagnosed with Hepatitis B.** "Cases have been reported in the United Kingdom of Great Britain and Northern Ireland (114), Spain (13), Israel (12), the United States of America (9), Denmark (6), Ireland (<5), The Netherlands (4), Italy (4), Norway (2), France (2), Romania (1), and Belgium (1)."

Most of these cases were found in children as young as one month and **up to 16-year-olds.** While 17 children required a **liver transplant**, at least one child had died of the disease, the WHO report said.

Most of these cases were of **acute hepatitis**, which **causes liver inflammation.**

The WHO report stated that most of the cases reported symptoms like "**abdominal pain**, **diarrhoea** and **vomiting preceding presentation with severe acute hepatitis**, and increased levels of liver enzymes… and jaundice".

One concern that the doctors face is that the **viruses found in affected children** were not any of the usual viruses that are **linked to Hepatitis A, B, C, D, E.**

Instead, **Adenovirus**, which is a family of viruses that usually cause cold among other symptoms, has been found in at least 74 cases worldwide.

The WHO report also stated, "The United Kingdom, where the majority of cases have been reported to date, has recently observed a **significant increase in adenovirus infections in the community** (particularly detected in faecal samples in children) following low levels of circulation earlier in the COVID-19 pandemic. The Netherlands also reported concurrent increasing community adenovirus circulation."

Public Health Scotland's director Jim McMenamin told Reuters that 77 per cent of children in Britain had tested positive for the adenovirus.

Amidst rising cases in the US, health officials have been directed to be on the **lookout for symptoms of hepatitis in children** and **conduct tests for adenovirus** when they come across such symptoms, especially those linked to a **cold virus.** The doctors have also been urged to report any suspected cases of **Hepatitis B** in children to the state as well as the health department.

The United States **Centers for Disease Control and Prevention (CDC)** has said that it was working with the UK to understand the cause of the disease among children.

What is adenovirus and how is it leading to Hepatitis B in children?

Adenovirus is a group of viruses that commonly **cause cold or flu-like symptoms**, fever, sore throat, acute bronchitis, pneumonia, conjunctivitis, acute inflammation of the stomach, diarrhoea, vomiting, nausea and stomach pain.

Adenovirus is known to spread from one person to another through close contact, coughing, sneezing and even by touching an object containing adenovirus and then further touching the mouth, nose or eyes.

Type 41 adenovirus is suspected of causing Hepatitis B in children. While there are more than **50 types of adenoviruses**, it is **type 41 that causes diarrhoea**, vomiting and fever along with respiratory problems.

In a statement, WHO said: "**Adenoviruses are common pathogens** that usually cause self-limited infections. They spread from **person-to-person** and most commonly cause respiratory illness, but depending on the type, can also cause other illnesses such as **gastroenteritis (inflammation of the stomach or intestines)**, **conjunctivitis (pink eye)**, and **cystitis (bladder infection).**"

WHO added, "While there have been case reports of **hepatitis in immunocompromised children** with adenovirus infection, adenovirus type 41 is not known to be a cause of hepatitis in otherwise healthy children."

Experiencing a heatwave

A **heatwave has gripped the Vidarbha and Marathwada regions** of Maharashtra.

This is the **fourth heatwave in the last two months**, **Vidarbha was the hottest region in the country**.

On the same day, the state's highest maximum temperatures (in degrees Celsius) were recorded at Brahmapuri (44.7), followed by Akola (44.5), Chandrapur and Wardha (44.4 each), Gondiya (43.5), Amravati (43.2), Nagpur, Washim and Parbhani (43 each), Ahmednagar (42.3) and Solapur (41.4).

What is a heatwave?

A region is considered **to be under the grip of a heatwave** if the maximum temperature reaches **at least 40 degrees Celsius** or more in the plains and **at least 30 degrees Celsius or more in hilly regions**. When the maximum temperature departure ranges between 4.5 and 6 degrees, the **India Meteorological Department (IMD) declares a heatwave**. A **severe heatwave** is declared when the recorded maximum temperature of a locality departure from

normal is **over 6.4 degrees Celsius**. Also, if an area records over **45 degrees and 47 degrees Celsius** on any given day, then the IMD declares heatwave and severe heatwave conditions, respectively.

Maharashtra's fourth heatwave in two months

March marks the beginning of the summer season and is considered a **transition phase**, where **day temperatures gradually rise**. The peak month for heatwaves over India is May, with temperatures starting to peak in the second half of April.

However, **Maharashtra's first two heatwave** spells were recorded last month. March saw two long spells of a heatwave–March 11 to 19, and one of the longest spells from 27 March to 12 April. The **third heatwave began** on 17 April and lasted till 20 April.

While **maximum temperatures above 45 degrees Celsius** are recorded mainly over **Rajasthan and the Vidarbha region** in May, the latter recorded temperatures above 40 degrees Celsius starting in March, this season.

Lack of pre-monsoon showers

Except for the **southern peninsula and northeast regions**, the weather has remained dry across the rest of the country. Once, in the last week, parts of

Jammu and Kashmir and Delhi reported **light to moderate rainfall**. The **lack of pre-monsoon showers** has also led to an increase in the overall maximum temperature. Maharashtra recorded **63 per cent deficient rainfall** from 1 March to 26 April.

What's the weather forecast for Maharashtra?

The IMD has issued a '**yellow' alert**, warning of continuing heatwave conditions over Chandrapur, Wardha, Nagpur, Amravati, Akola, Jalgaon, Buldhana, Yavatmal, Ahmednagar and Nashik districts till 30 April. A **gradual rise in maximum temperatures by 2-3 degrees Celcius** is very likely over most parts of the state this week.

The IMD has said **heatwave conditions are very likely to prevail** in isolated pockets of Madhya Maharashtra, Marathwada and parts of Vidarbha during the next 3-4 days. Maximum temperatures will remain above normal to appreciably above normal during this period.