



## 7 PM COMPILATION

**March, 2024**

### Features of 7 PM compilation

- ❖ Comprehensive coverage of a given current topic
- ❖ Provide you all the information you need to frame a good answer
- ❖ Critical analysis, comparative analysis, legal/constitutional provisions, current issues and challenges and best practices around the world
- ❖ Written in lucid language and point format
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## [Kurukshetra Feb 2024 Summary] One District One Product (ODOP)- Explained Pointwise

Government of India has launched **One District One Product initiative** for development of Indian Agricultural Sector under the vision of Aatmanirbhar Bharat. This initiative is in sync with the government's vision that the **benefits of development must reach the last-mile citizens**. This vision can only be ensured by public policy interventions like ODOP, which are effective and sustainable.



Source- Yojana

### What is One District One Product?

**One District One Product-** 'One District One Product' (ODOP) initiative has been launched under 'Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PMFME) Scheme'.

### The major objectives of the PMFME scheme through ODOP

- (a) **Improved access to financial assistance** to micro food processing entrepreneurs for technological upgradation
- (b) **Funding outlay of Rs. 10,000 cr** to support over 2 lakh micro-food processing enterprises comprising FPOs, SHGs and Co-operatives in India
- (c) **Capacity building of micro-food processing enterprises** through skill training, enhanced technical knowledge, and hand holding services
- (d) Enabling the existing informal entities into formal registration as '**agri-based business enterprises**'.

### Products under the scheme

- a. The products under ODOP can be **perishable agricultural produce, cereal-based product**, or a **food product widely produced in a district** and their allied sectors. **For ex-** Mango, Potato, Litchi, Tomato, Tapioca, Kinnu, Bhujia, Petha, Papad, Pickle, Millet-based products, Fisheries, Poultry, Meat as well as Animal feed.
- b. **Traditional and innovative products including waste to wealth products** could be supported under the Scheme. **For ex-** Honey, Minor forest products in tribal areas, Traditional Indian herbal edible items like turmeric, amla, haldi.



### Process of approval

The State governments must carry out a baseline survey to identify the food product for a district. The Union government approves these products, which will be provided financial assistance for value addition.

Under the ODOP scheme, the Government of India has approved **137 unique products** in **713 districts** of 35 States and UTs.

### What are the components of One District One Product?

<b>Common Infrastructure</b>	The ODOP scheme has made provisions for <b>usage of common infrastructure facilities at rural areas</b> for all the FPOs, SHGs and Cooperatives. The infrastructure facilities can be utilised for <b>sorting, grading, warehousing, and cold storage</b> of ODOP products.
<b>Development of Clusters</b>	There are provisions of <b>development of multiple clusters for one product</b> or <b>one cluster being extended to multiple districts</b> depending upon the nature of products and perishable goods.
<b>Value-Addition</b>	The cluster-based approach has <b>facilitated processing</b> and <b>ensuring effective marketing ecosystem</b> for the various products under ODOP.
<b>Branding and Marketing</b>	<b>Common brand, Common packaging and Common standards</b> have been instituted to make the ODOP products available to the consumers.
<b>Institutional Architecture</b>	<b>Project Management Units (PMUs)</b> have been set up with experts and consultants to guide the <b>State Nodal Agencies (SNAs)</b> , <b>State Level Approval Committee (SLAC)</b> and <b>District Level Committee (DLC)</b> ,

### What are the benefits of the scheme?

**(a) Local and community development-** The scheme promotes local and community development by providing **in-situ employment, empowering rural women and youth, and nurturing the sustainable livelihoods** for them.

**(b) Economic Self-reliance-** The One District One Product initiative aims at promoting and preserving the local best practices and micro-enterprises, enabling the creation of local economically self-reliant ecosystem. **For ex- Promotion of tribal products through ODOP initiative makes the tribals economically self-reliant.**

**(c) Skill Development and entrepreneurship-** The initiative has facilitated the skilling, upskilling, reskilling and training of local talent, which in turn has **promoted localised entrepreneurship and region-specific innovations.** **For ex-** Rise in entrepreneurship in the Makhana producing District of Darbhanga in Bihar.

**(d) Local to global approach-** The initiative of One District One Product has **enhanced exports/foreign exchange earnings** of the nation. It has led to the **development of agri-based MSME** and to the 'Aatmanirbhar Bharat' movement.

### What are the challenges of the Scheme?

**(a) Lack of adequate storage infrastructure-** India lacks adequate and effective post harvest infrastructures like **cold-chain infrastructure** for the storage of perishable products under ODOP.

**(b) Low access to financial support-** The producers of the distinct products under the ODOP initiative lack access to adequate financial support for scaling their businesses. **For ex- Inadequate credit linkages** in the aspirational districts producing distinct products.



(c) **Market linkages-** The lack of forward and backward marketing linkages of the products is still a pertinent challenge for the success of ODOP.

(d) **Low awareness-** There is lack of awareness among the producers of these distinct products about the benefits of this initiative.

(e) **Less penetration of FPOs, SHGs in food processing sector-** There is less penetration of FPOs and SHGs in the food processing sector in the **eastern and north-eastern states** of the country.

Read More- [Food Storage Infrastructure](#)

#### What should be the way Forward?

**1. Modernization of the existing storage to include horticultural crops-** The existing warehousing infrastructure must be modernised to include **perishable commodities** like **fruits, vegetables, milk, meat, fish**, which are included in the ODOP scheme.

**2. Exploration of PPP route-** The PPP route must be explored to create modern storage systems for ODOP products and their marketing.

**3. Investment in Research and Innovation-** Investment in agricultural research and innovation to develop new technologies for climate resilient crop varieties must be scaled up. **For ex- Development of drought resistant crops varieties for ODOP products.**

**4. Improving financial access-** The awareness about the financial benefits under the scheme must be increased to improve the financial access of producers.

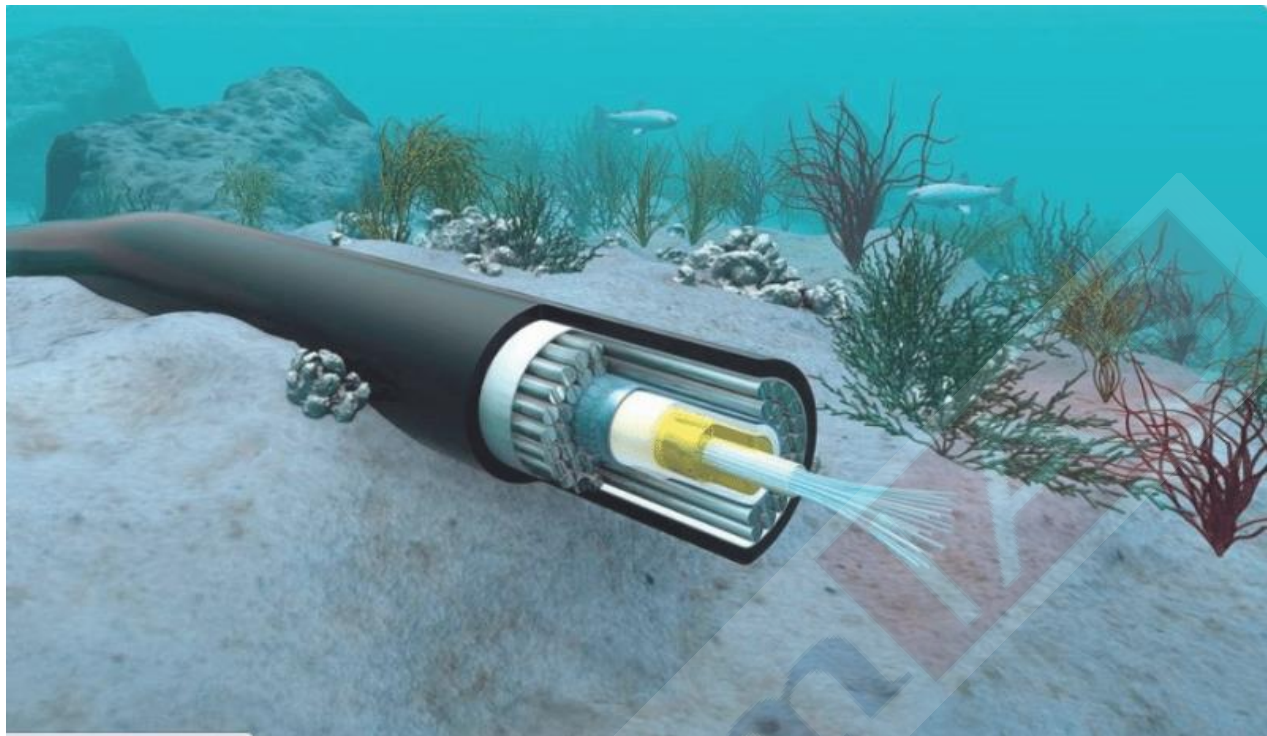
Read More- [The Indian Express](#)

UPSC Syllabus- Agricultural Marketing- GS 3

### Submarine Cables and India- Threats and Vulnerabilities- Explained Pointwise

Recently, the **damage to submarine cables in the Red Sea**, has exposed the vulnerability of Indian Telecom Sector. Three submarine cables connecting India to Global Telecom Networks- **Asia-Africa-Europe-1, Europe India Gateway**, and **Tata Global Network**– have been damaged due to targeted attacks. Major Indian Telecom operators such as **Bharti Airtel, Reliance Jio** and **Tata Communications** have been forced to reroute traffic to other cable systems.



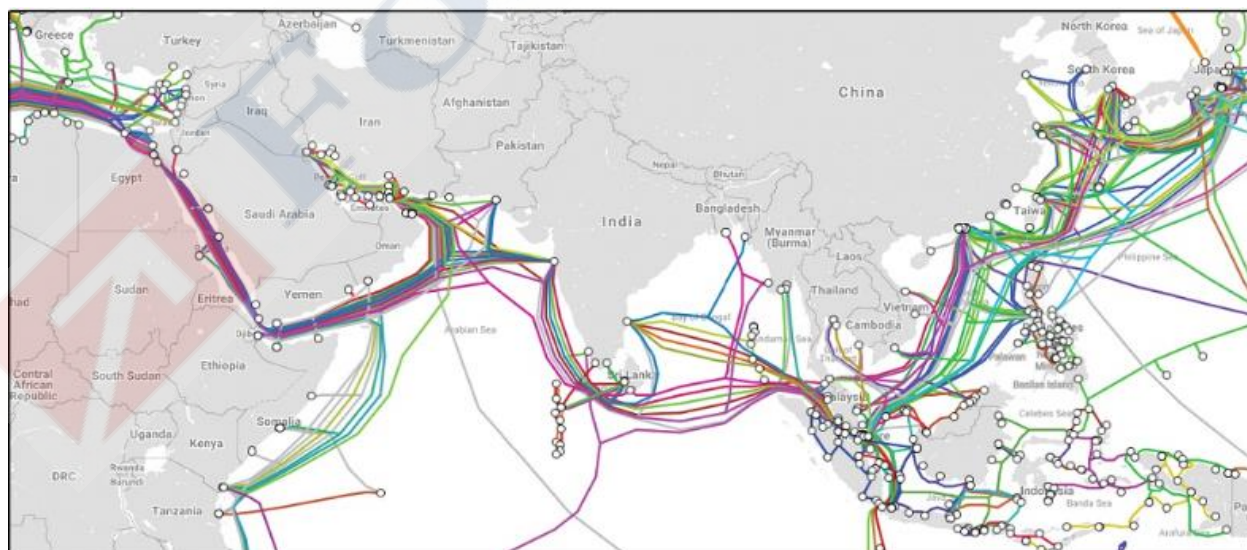


Source- National Maritime Foundation

### What is submarine cable system connecting India with rest of the world?

**Submarine Cable System-** It is a 'line link' in the form of wire, cable, optical fibre, tube, conduit, waveguide or other physical medium. It is for carrying communications by means of guided electromagnetic energy.

Rapid technological advancements have transformed the submarine communications cable from a copper-based telegraph cable in 1850 to advanced fibre-optic cables today. The cables connect continents across the globe.



Source- [Submarinecableworldmap.com](http://Submarinecableworldmap.com)



However, **India's legislations do not comprehensively define submarine cable systems**. There has also been a dearth of definition of submarine cable systems at the international level.

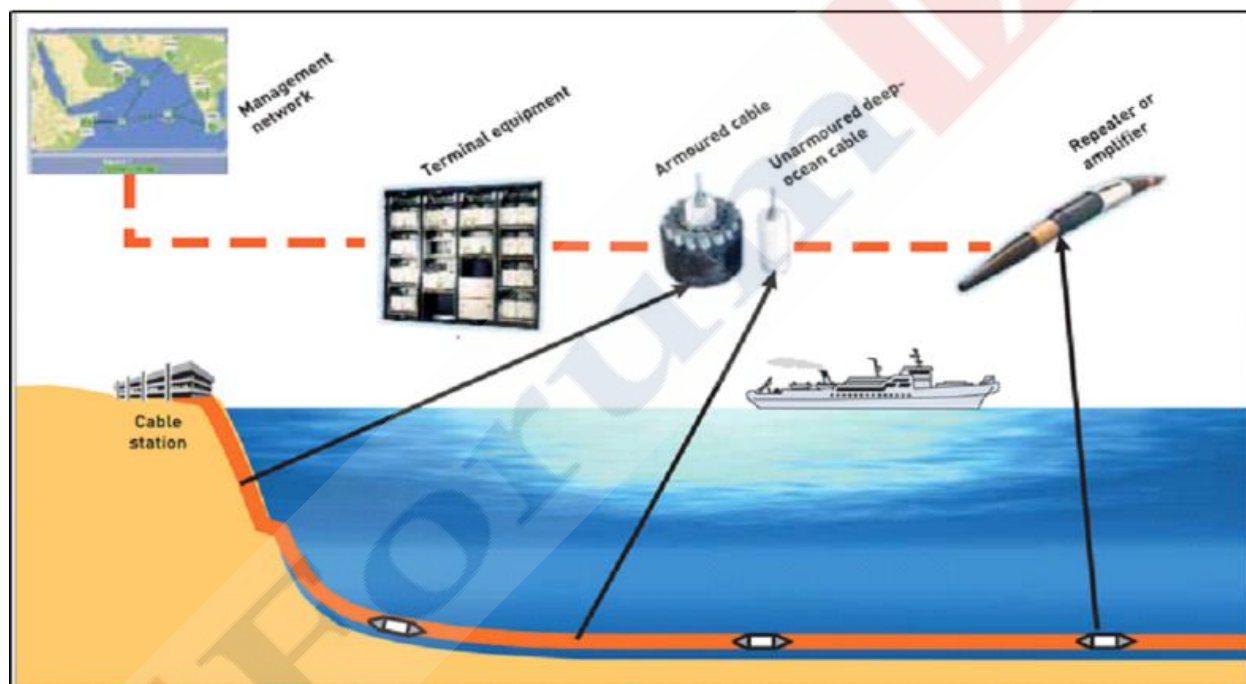
**Types-** The submarine cables are of two types-

- a. Submarine communications cables-** For Communication and internet connectivity
- b. Submarine power cables-** To transmit power from one place to another

**How are the submarine cable systems laid?**

**Submarine cable system-**

- a. Cable Station at the ground** contains the servers from/to which data is to be transmitted. All the armoured submarine cables are connected to the cable station.
- b. Cables that are laid at depths shallower than 1500m**, are **buried 60 cm under the sea bed** to prevent them from damages such as anchoring of ships, mining and dredging.
- c. Cables at depth exceeding 1500m**, are simply laid upon the seabed and not buried as there are fewer chances of accidental damages at such depths.



Source- UNEP

**Submarine cable management in India-** Indian government provided the private players the opportunity to provide international telecommunication links in **2002**. These private players are known as **International Long Distance (ILD) providers**.

Currently, there are **16 operational submarine cable systems** in India. Additional, **4 cable systems** have been planned.

Read More- [TRAI's recommendations for Submarine Cable Landing in India](#)

**What are the vulnerabilities of India to damage to underwater cable systems?**

**1. Substantial Loss to Indian service sector-** India's service sector like the **Business Processing Units** are **entirely dependent on Global connectivity** for their operations. Any damage to submarine communications cable, leads to substantial losses.



**For ex-** The **severance of multiple undersea cables** off the coast of Egypt and Dubai **in 2008**, led to loss of more than 80% of India's international service.

**2. Threat to India's Financial Stability-** India's banks use SWIFT system for international financial transfers and banking operations. This SWIFT system **relies on undersea fibre-optic cables to transmit more than 15 million messages a day**, valuing \$10 trillion of financial transfers to 208 countries.

**3. Disruption of Social security schemes-** Indian government's social security schemes based on the **JAM trinity is heavily dependent upon the modern internet**. Any disruption of these undersea cables will cause major disruptions in the implementation of these schemes.

**4. Military and National Security-** India's national security is also dependent on underwater cable communications systems for **real time communication**.

### What are the threats to these Cable Systems?

**1. Lack of route-diversity-** The route of undersea cables from Red Sea to Mediterranean through mainland Egypt, is the world's largest internet choke points. This route is susceptible to interdictions/interjections. **For ex- Five interdictions to the cables in the Red Sea region would completely isolate India from Europe.**

**2. Sabotage by Non-state actors-** The non-state actors have been involved in intentional and targeted damage to undersea cables. **For ex- Houthi rebels involvement** in targeting submarine cables **in the Red Sea region**.

**3. Human activities like fishing and dredging-** Fishing like **bottom trawling** and **dredging operations** cause damages to unarmoured submarine cable systems at the ocean bottom.

**4. Offshore activities-** Offshore activities like **oil and gas development**, the setting-up and maintenance of infrastructure for **offshore wind energy and ocean-thermal plants**, **seabed mining operations** also cause damage to submarine cable systems.

**5. Natural disasters-** Natural disasters such as **earthquakes, tsunamis, typhoons**, and **subsea landslides**, also pose significant threats to undersea cable networks.

### What should be the way Forward?

**1. Comprehensive definition of Submarine Cable System-** The **Indian Telegraph Act of 1885 should be amended** for a comprehensive definition of undersea cable system, which includes 'international' submarine cables connecting India to places outside India. **For ex- Australia's Telecommunications Act 1997** which provides the legal regime for the protection of international submarine cables landing in Australia.

**2. Inclusion in Critical Information Infrastructure System (CIIS)-** Submarine communications cables landing in India be included within India's '**Critical Information Infrastructure System**' (CIIS).

**3. Exercising 'protective jurisdiction'-** India must exercise prescriptive jurisdiction over undersea cables using the principle of "protective jurisdiction" **under the High Seas**.

**4. International legal and regulatory mechanism-** International legal and regulatory mechanism must be developed to prevent these undersea cables from damage and interception. **For ex- Agreement among governments to protect underwater infrastructure and subsea cables after Nord Stream gas pipeline explosions.**

**5. Early completion of sea cables-** The separate sea cable projects of internet giants like **Google, Facebook**, and **Microsoft** must be completed at the earliest to reroute communications in cases of failure.



**6. Securing the internet choke points-** The geographical location of Egypt, which makes it the **centre of Europe and Asia's internet connections**, can't be changed. Hence, we must aim to secure this internet choke points by **building extra landing sites like Ras Ghareb**, and **concrete duct tubes** for the cables.

Read More- [The Hindu](#)

UPSC Syllabus- GS 2- International Relations

## WTO Reforms and India- Explained Pointwise

Recently, the **13th Ministerial Conference (MC13)** of the **World Trade Organization (WTO)** ended in a status quo. **No consensus** was reached on **most of the key issues**. WTO reforms still remains an Achilles heel. However, Indian Commerce and Industry Minister Piyush Goyal emphasised that India has retained full policy space for the benefit of its farmers.



## Outcomes of 13th Ministerial Meeting of WTO and Its Implications for India

### AGRICULTURE

- 1. India's Demand-** India, along with other developing countries, has sought a **'permanent solution'** to the **public stock holding issue**.
- 2. Outcome-** **No agreement was reached** on the public stock holding issue. Developed nations, such as the **European Union**, have opposed public stock holding programs on the ground that could impact the food security of other countries.
- 3. Impact on India-** India faces no immediate threat to its public stock holding program due to the **'peace clause'**.

### FISHERIES SUBSIDIES

- 1. India's Demand-** India emphasised on the need to **curb harmful subsidies** for countries engaged in **distant water fishing**. India acknowledged the negative impact of subsidies on the fisheries sector.
- 2. Outcome-** Member nations **failed to produce an outcome document** regarding **subsidization of fisheries**. The ministerial declaration did not mention fisheries subsidies.
- 3. Impact on India-** India **retains full policy space** for the benefit of its **artisanal fisheries**. The **livelihoods of fishermen**, particularly those fishing up to 200 nautical miles beyond territorial waters, **is safeguarded**.

### E-COMMERCE

- 1. India's Demand-** India **opposed the continued exemption of Customs duties** on e-commerce or electronic transmission. India also wanted an **assessment of the moratorium's scope** and its impact on other countries.
- 2. Outcome-** WTO nations agreed to **maintain the current practice of not imposing Customs duties** on electronic transmissions until the next ministerial conference or March 31, 2026, whichever is earlier.
- 3. Impact on India-** The extension of tax breaks for Big Tech **will impact the tax revenue collection of India**. It curtails the policy space for undertaking digital industrialisation in India and escaping digital colonisation.

### DISPUTE SETTLEMENT MECHANISM

- 1. India's Demand-** India has demanded the **establishment of a fully functional dispute settlement system** for amicable resolution of disputes.
- 2. Outcome-** Countries have **resolved to establish** a fully functioning dispute settlement system accessible to all members **by the end of 2024**.
- 3. Impact on India-** The establishment of fully functional dispute settlement system will help in **faster resolution** of India related trade pacts.

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**What were the outcomes of MC 13 of WTO? What were the hits and misses for India?****Agriculture**

**India's Demand-** India, along with other developing countries, has sought a 'permanent solution' to the public stock holding issue. Public stock holding is a policy tool used by governments for procuring, stockpiling, and distributing food for domestic food security. **For ex- India's MSP Scheme.**

**Outcome-** No agreement was reached on the public stock holding issue. Developed nations, such as the European Union, have opposed public stock holding programs on the ground that could impact the food security of other countries.

**Impact on India-** India faces no immediate threat to its public stock holding program due to the 'peace clause'. It offers a shield to developing countries from legal challenges over subsidies or free distribution of grains to the poor.

**Fisheries Subsidies**

**India's Demand-** India acknowledged the negative impact of subsidies on the fisheries sector. India emphasised on the need to curb harmful subsidies for countries engaged in distant water fishing.

**Outcome-** Member nations failed to produce an outcome document regarding subsidization of fisheries. The ministerial declaration did not mention fisheries subsidies.

**Impact on India-** India retains full policy space for the benefit of its artisanal fisheries. The livelihoods of fishermen, particularly those fishing up to 200 nautical miles beyond territorial waters, is safeguarded.

**E-Commerce**

**India's Demand-** India opposed the continued exemption of Customs duties on e-commerce or electronic transmission. India has argued that the moratorium adversely affected revenue collections. India also wanted an assessment of the moratorium's scope and its impact on other countries.

**Outcome-** WTO nations agreed to maintain the current practice of not imposing Customs duties on electronic transmissions until the next ministerial conference or March 31, 2026, whichever is earlier.

**Impact on India-** The extension of tax breaks for Big Tech will impact the tax revenue collection of India. It curtails the policy space for undertaking digital industrialisation in India and escaping digital colonisation.

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Read More- [WTO new regulations](#)

**What is WTO and the ministerial meetings?**



**WTO-** The World Trade Organization is the **only international organization** that deals with the rules of trade between countries. The WTO officially commenced in 1995 under the **Marrakesh Agreement** signed by 124 nations, replacing the **General Agreement on Tariffs and Trade (GATT)**.

According to its rules, **all decisions are taken through consensus** and **any member can exercise a veto**.

### Key Agreements under the WTO framework

## Key Agreements under the WTO

- **Agreement on Subsidies and Countervailing Measures (SCM):** The WTO SCM Agreement contains the **definition of the term 'subsidy'**. A subsidy contains three basic elements: **(a)** A financial contribution **(b)** By a Government or any public body within the territory of a Member **(c)** Confers a benefit. All three of these elements must be satisfied in order for a subsidy to exist.
- **General Agreement on Trade in Services (GATS):** The GATS was inspired by essentially the same objectives as its counterpart in merchandise trade, GATT. It aimed at **creating a credible system of international trade rules** and **ensuring fair and equitable treatment of all participants** (Principle of Non-discrimination).
- **The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS):** It sets down minimum standards for many forms of **intellectual property (IP) regulation** as applied to nationals of other WTO Members. It was negotiated at the end of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) in 1994.
- **Agreement on Agriculture:** It was concluded in 1994. It was aimed to **remove trade barriers, promote transparent market access** and **integration of global markets**. It is often criticized as a tool in the hands of developed countries to exploit weak countries. Negotiations are still going on for some of its aspects.

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**Ministerial Meetings-** The Ministerial Conference is the **WTO's top decision-making body** and **usually meets every two years**. All members of the WTO are involved in the MC, and they can take decisions on all matters covered under any multilateral trade agreements.

### What have been the achievements of WTO?

1. **Facilitation of International Trade-** Binding rules for global trade in goods and services have facilitated dramatic growth in cross-border business activity. The **real volume of world trade has expanded by 2.7 times** since the inception of WTO.
2. **Reduction in Tariffs-** After the creation of WTO, average tariffs **have almost halved**, from **10.5% to 6.4%**. This has **facilitated the growth of International trade**.
3. **Boost to national incomes-** Accession to WTO has given a **lasting boost to national income** of several developing economies.
4. **Rise of global value chains-** The predictable market conditions fostered by the WTO have combined with improved communications to enable the rise of global value chains. **Trade within these global value chains** today accounts for almost **70% of total merchandise trade**.



**5. Reduction in poverty-** The free and fair trade principles has also contributed to reduction in world poverty levels. Taking into account, **the World Bank's \$1.90 threshold for extreme poverty**, the poverty level has fallen from **~33.33% in 1995** to **~10% today**.

**What are the challenges and key areas of reforms for WTO today?**

**1. Rising Protectionism and trade restrictions-** Trade restrictions by the developed and advanced economies has affected international trade (**~\$747 billion in global imports**), and **postponement of investment** by businesses.

**2. Failure of dispute resolution mechanism-** There has been a **lack of consensus among the members** regarding the reforms of the Appellate Body. The **appointment of nominees** to WTO's appellate body has at times been **blocked by developed countries**, paralysing the WTO as a judge and enforcer of global trade rules. **For ex- US blocking appointments in 2019.**

**3. Trade distortion by misusing the Special and Differential Treatment (S&DT)-** Provisions for agricultural and industrial subsidies have been misused by many developed countries, causing trade distortions. **High income countries** like **South Korea** and **China** have **misutilised** the concessions of developing countries, as developing countries are defined based on '**self-declaration**'.

**4. Shift to Plurilateral Agreements-** There has been a shift towards plurilateral agreements like the **TPP Agreement**. Plurilateral Agreements **favour developed countries** more as they are able to push their interests (developing countries have less negotiating power) unlike WTO where all agreements happen through consensus.

**5. Lack of consensus-** There is lack of consensus on WTO reforms. On one hand, the **countries of Global South demand rationalisation of fisheries subsidies, handholding of their public stock holding programs**. On the other hand, developed nations have **put their old obligations on the back-burner** and are **pushing the WTO to form rules on e-commerce**, an area where they have a clear edge.

**What are the suggested WTO reforms?**

**1. 30 for 30-** India has issued a comprehensive proposal called "**30 For 30**". It is to **bring at least 30 operational improvements** to the WTO before the Organization completes 30 years, that is by 1 January 2025. **A year long cooling-off period before hiring a diplomat** in any role in the organization, **resolving old issues before picking up new ones**, and a **time-bound work programme** to make dispute settlement more accessible for developing countries are some of the suggested operational improvements.

**2. New rules on emerging trade domains-** There must be consensus based new agreements on emerging trade domains like **electronic commerce, investment facilitation, domestic regulation** in services. It will make trade more efficient and predictable in cutting-edge sectors of the economy.

**3. Increasing participation in global trade-** Efforts must be made to make it **easier, safer** and **viable** for **women** and **smaller businesses** to participate in global trade. This would help make trade more inclusive.

**4. Depoliticisation of Appointment process-** The appointment process to dispute settlement body should be made independent of political control.

**5. Reforming the voting process-** **Clear guidelines** must be spelt as to when a **country may use its veto power**. **Veto usage needs to be weighed against the interests of all**, and in light of the WTO's mandate.



**6. Dispute settlement reform-** This includes expanding the Appellate Body panel from **seven to nine judges**, **redefining membership of the Appellate Body** from part-time to full-time, and **allocating more resources to the Appellate Body Secretariat**.

**7. Independent panel as arbiter-** An independent panel **could play the role of arbiter**, **evaluating the competing claims** and **helping to overcome the political deadlock**.

**8. Increasing transparency-** WTO members should **proactively disclose their subsidies** to develop trust and transparency among WTO members.

Read More- [Business Standard](#)

UPSC Syllabus- GS 2- International Organisations

### Obesity in India- Explained Pointwise

According to a new Lancet study, there has been a **steady increase in obesity levels** in India. The study has pointed to increase in obesity levels of both adults and children, over the last 32 years. India has become one of the countries with a high '**double burden**', with the **increase** in both **malnutrition** and **the obesity levels**.



## Obesity in India

### OBESITY AND ITS MEASUREMENT

**Obesity-** According to the World Health Organisation (WHO), obesity is defined as an abnormal or excessive accumulation of fat that poses health risks.

**How is obesity measured**

#### 1. Adults over the age of 20 years

**Obese-** Body Mass Index (BMI) of 30 kg/m<sup>2</sup> or more.

**Underweight-** Body Mass Index (BMI) is less than 18 kg/m<sup>2</sup>.

**NOTE-** BMI is a person's weight in kilograms divided by the square of height in meters.

#### 2. School-aged children and adolescents between 5 and 19 years

**Obese-** BMI is two standard deviations more than the mean.

**Underweight-** BMI is two standard deviations below the mean.

### LANCET DATA REGARDING OBESITY IN INDIA

**1. More obese women as compared to men-** Obesity in women has increased from **1.2% in 1990 to 9.8% in 2022**. There are **44 million women** living with obesity in 2022.

**2. Increase in Men Obesity-** Obesity in men has increased by **4.9% from 1990 to 2022**. There are **26 million men** living with obesity in 2022.

**3. Significant Increase In Childhood Obesity-** The number of obese boys has increased from **0.2 million in 1990 to 7.3 million in 2022**. The number of obese girls has increased from **0.2 million in 1990 to 5.2 million in 2022**.

**Data regarding underweight in India**

**1. Underweight Men and Women-** **13.7% of women** and **12.5% of men** are underweight.

**2. Underweight Children-** India has the **highest number of underweight girls (20.3%)** in the world. India has the **second highest underweight boys (21.7%)** in the world.

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**What is obesity? What does the study reveal about the levels of obesity in India?**

**Obesity-** According to the World Health Organisation (WHO), obesity is defined as an **abnormal** or **excessive accumulation of fat** that poses health risks.

**How is obesity measured****1. Adults over the age of 20 years**

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**1. More obese women as compared to men-** Obesity in women has increased from **1.2%** in 1990 to **9.8%** in 2022. There are **44 million women** living with obesity in 2022.

**2. Increase in Men Obesity-** Obesity in men has increased by **4.9%** from 1990 to 2022. There are **26 million men** living with obesity in 2022.

**3. Significant Increase In Childhood Obesity-** The number of obese boys has increased from **0.2 million in 1990** to **7.3 million in 2022**. The number of obese girls has increased from **0.2 million in 1990** to **5.2 million in 2022**.

**Data regarding underweight in India**

**1. Underweight Men and Women-** **13.7% of women** and **12.5% of men** were underweight.

**2. Underweight Children-** India has the highest number of underweight girls in the world. **20.3% of Indian girls are underweight**. **21.7% of Indian boys are underweight**, which is the second highest in the world.

Read More- [Lancet study on Global Obesity rates](#)

**What are the reasons behind the increasing obesity in India?**

**1. Unhealthy Lifestyle-** Lack of healthy lifestyle is a major reason for increasing obesity rates in India. **For ex- Lack of physical activities such as walks or gyms, lack of proper sleep.**

**2. Lack of proper diet-** **Cheaper and easily available junk food** has replaced the nutritious food in the dietary intakes of Indian population. **For ex-** According to recent **Household Consumption Survey**, Indians are spending less on cereals and pulses and more on beverages, refreshments and processed food.

**3. Increased income and urbanization-** Increased income levels have led to a rise in the consumption of foods high in **fats, sugar** and **low physical activity**.

**4. Lack of awareness-** There has been a general lack of awareness about **healthy eating habits** and **the guidelines issued by FSSAI**. Since Health is a state subject, there have been **implementation challenges** in ensuring **proper implementation of FSSAI guidelines**.



**5. Growth of Ultra-processed food industry-** Ultra processed food industry has boomed in India, leading to increased intake of trans fat in India. According to a **joint study** conducted by **WHO** and **ICRIER**, **India's ultra-processed food industry** has grown at a **CAGR of 13.37%** in terms of retail sales value between 2011 and 2021.

**6. Obesity no longer dependent on economic capacity-** Obesity is **no longer the disease of the rich in India**. Eating junk food is cheaper and easier. **For ex-** The cost of samosas and pakoras available at roadside shacks is less than fruit and vegetables.

### **What are the negative impacts of Obesity in India?**

**1. Individual Health Implications-** Overweight adults and children are at greater risk for non-communicable diseases such as **diabetes** and **cardiovascular heart disease**.

**2. Improper development of Children in formative years-** Obesity in children results in **stunted physical** and **cognitive development**.

**3. Psychosocial Impact-** Obese Individuals face psychosocial challenges like, **body image issues** and **mental health concerns** due to societal stigmas associated with weight.

**4. Economic Burden-** Obesity increases the economic burden due to **productivity losses** on account of **decreased work efficiency** and **absenteeism**.

**5. Public Health Challenges-** Obesity is a major reason behind the **growth of Non-Communicable Diseases (NCDs)**, like **diabetes**, **cancer**, **hypertension**, **cardiovascular diseases** etc. This has increased strain on the fragile public healthcare system in India.

**6. Social Inequality and Disparities-** Obesity **perpetuates a cycle of health challenges** and **economic disadvantages** among the vulnerable sections, exacerbates existing socio-economic disparities. **Women are disproportionately affected by obesity**, facing challenges related to reproductive health, maternal health, and overall well-being.

### **What are the government initiatives to reduce the obesity burden?**

The government has launched multiple initiatives which focusses on reducing obesity, and associated NCDs.

**1. National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS)-** It is being implemented under the National Health Mission. It **aims to screen** and **ensure early interventions** to **check the obesity-related risk factors** from becoming complicated.

**2. Ayushman Bharat Health Wellness Centre scheme-** Preventive aspect of hypertension and NCDs is being strengthened under Comprehensive Primary Health Care by **promotion of wellness activities** and **targeted communication at the community level**.

**3. Eat Right Movement-** The Eat Right India movement is an initiative of the **Government of India** and the **Food Safety and Standards Authority of India (FSSAI)** to transform the country's food system in order to ensure safe, healthy and sustainable food for all Indians.

**4. FSSAI limits for trans fats-** FSSAI has issued **guidelines limiting trans fatty acids in oils and fats to be not more than 2% by weight**.

**5. FSS (Labelling and Display) Regulations, 2020-** It mandates that labels should mention **food allergens**, **nutritional information including fat, trans fat**, salt, sugar, added sugar etc.

### **What should be the way forward?**



1. **Awareness about the grave dangers of obesity-** The medical community must create awareness about the NPCDCS guidelines, which recommend annual screening for excess weight in children as young as two to six years old.
2. **Improving the access to nutrient rich food-** The access of vulnerable sections to healthy nutrition must be enhanced by measures such as targeted cash transfers, vouchers for healthy foods, free healthy school meals, and primary care-based nutritional interventions.
3. **Initiatives to reduce obesity among adults-** Yoga days can be fixed in a week in offices, welfare societies. Also, under Swachh Bharat Abhiyan, cleaning of parks and other spaces can be promoted, so that adults can come for exercise.
4. **Initiatives to reduce obesity among Children-** Strict implementation of RTE act norms, by implementing mandatory minimum grounds size and other sports infrastructure in schools. Construction of parks and open spaces in colonies, so that children can play outside rather than remaining busy with indoor activity like video games, computer games.
5. **Disincentivising the ultra-processed food industry-** Higher taxes on unhealthy processed and junk food, and front-of-pack nutrition labelling to guide consumers must be implemented.

Read More- [The Indian Express](#)

UPSC Syllabus- GS 2- Government interventions for Health

### India's Nuclear Energy Program- Explained Pointwise



A historic milestone in India's nuclear programme was achieved, when the process of core-loading the indigenous Prototype Fast Breeder Reactor (PFBR) was started at the Madras Atomic Power Station in Kalpakkam, Tamil Nadu. This process marks the beginning of stage II in India's three-stage nuclear Energy Program. **Nuclear Energy program in India UPSC**





## India's 3-Stage Nuclear Energy Program

### India starts stage II of the program

#### STAGE I

**Aim-** Establishment of domestic nuclear power industry

**Fuel-** Uranium

**Type of Nuclear Reactor-** Pressurized Heavy Water Reactors (PHWRs)

##### Working Methodology

- In the Stage-I, India used the Pressurized Heavy Water Reactors (PHWRs) with natural uranium-238 (U-238) as the fuel. The U-238 contained **minuscule amounts of U-235, as the fissile material**.
- A nuclear fission process is initiated and heavy water (water molecules containing the deuterium isotope of hydrogen) slows the release of neutrons released by one fission reaction enough to be captured by other U-238 and U-235 nuclei and cause new fission.
- The reactions produce **fissile Plutonium-239 (Pu-239)** and **energy**.

#### STAGE II

**Aim-** Development of self-sustaining nuclear fuel cycle.

**Fuel-** Plutonium

**Type of Nuclear Reactor-** Fast Breeder Reactor (PFBR)

##### Working Methodology

Only U-235 can sustain a chain fissile reaction. However, it is consumed fully in stage I. Hence, Stage II aims at using the **fissile Plutonium-239 (Pu-239) produced as the end product of Stage I** with U-238 to produce **energy, U-233 and more Pu-239**. By the end of the second stage of the cycle, the reactor produces more fissile material than it consumes. Hence, it is called a '**Breeder**' reactor. In these '**fast breeder**' reactor, the neutrons aren't slowed.

#### STAGE III

**Aim-** Development of self-sustaining nuclear fuel cycle.

**Fuel-** Plutonium

**Type of Nuclear Reactor-** Fast Breeder Reactor (PFBR)

##### Working Methodology

It focuses on **combining Pu-239 with thorium-232 (Th-232)** in advanced heavy water reactors to produce energy and U-233. This stage uses the naturally available thorium-232 in India and hence will help in **achieving nuclear energy self-sufficiency**.

Created By Forum IAS

### What is India's three-stage nuclear energy program?

**Historical Background-** The roadmap of India's three-stage nuclear program was envisioned by Dr. Homi J Bhabha. The program had been conceived with the **ultimate objective** of **utilising** the country's **vast reserves of thorium-232**. India hosts roughly **a quarter of the world's thorium**, and the three stages are expected to make the country completely self-sufficient in nuclear energy.

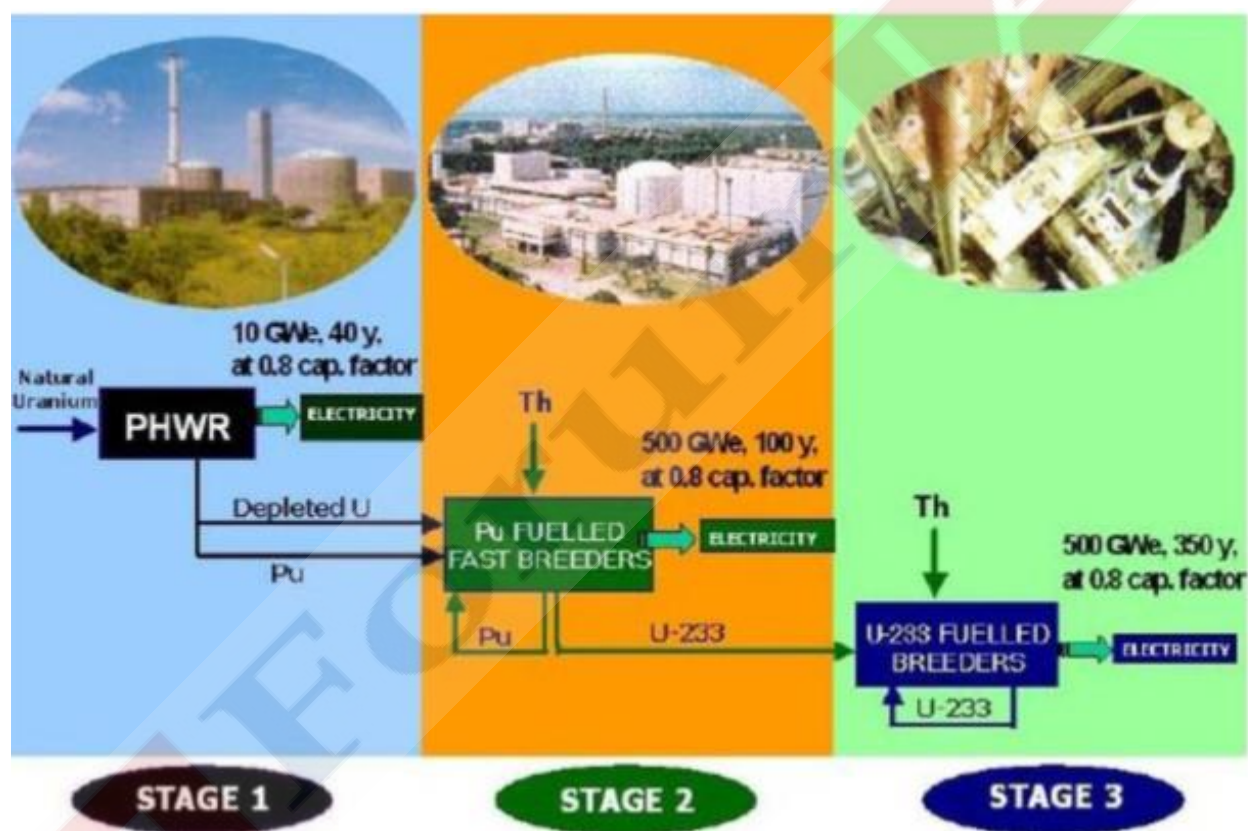
### Three-stage Nuclear Energy Program

Stages	Aim	Fuel	Nuclear Reactor
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Stage I	Establishment of domestic nuclear power industry	Uranium	Pressurized Heavy Water Reactors (PHWRs)
Stage II	Development of self-sustaining nuclear fuel cycle.	Plutonium	Fast Breeder Reactor (PFBR)
Stage III	Complete energy independence through domestic thorium resources.	Thorium	Advanced heavy water reactors (AHWRs)

### Working of 3-Stages



Source- Yojana

### Stage I

- In the Stage-I, India used the Pressurized Heavy Water Reactors (PHWRs) with natural uranium-238 (U-238) as the fuel. The U-238 contained minuscule amounts of U-235, as the fissile material.
- A nuclear fission process was initiated and heavy water (water molecules containing the deuterium isotope of hydrogen) slowed the release of neutrons released by one fission reaction enough to be captured by other U-238 and U-235 nuclei and cause new fission.
- The reactions produce fissile Plutonium-239 (Pu-239) and energy.



**Stage II**

a. Only U-235 can sustain a chain fissile reaction. However, it is consumed fully in stage I. Hence, Stage II aims at using the fissile **Plutonium-239** (Pu-239) produced as the end product of Stage I with U-238 to produce **energy, U-233 and more Pu-239**.

b. By the end of the second stage of the cycle, the reactor produces more fissile material than it consumes. Hence, it is called a '**Breeder**' reactor. In these 'fast breeder' reactor, the neutrons aren't slowed.

**Stage III**

a. It focuses on **combining Pu-239** with **thorium-232** (Th-232) in advanced heavy water reactors to produce **energy and U-233**.

b. This stage uses the naturally available thorium-232 in India and hence will help in achieving **nuclear energy self-sufficiency**.

**What are the important milestone events in India's Nuclear Energy Program?**

The establishment of several institutions has played a critical role in driving India's Nuclear Energy Program.

**Passive Phase**

<b>1945</b>	<b>Tata Institute of Fundamental Research (TIFR)</b> was established by Homi J. Bhabha with the goal of conducting research in fundamental sciences.
<b>1948</b>	<b>The Atomic Energy Commission of India (AEC)</b> was established as a government agency responsible for formulating and implementing the country's nuclear policy.
<b>1954</b>	The <b>Department of Atomic Energy (DAE)</b> was created. It has been engaged in the <b>development of nuclear power technology</b> and applications of radiation technologies in the fields of agriculture, medicine, industry, and basic research.
<b>1957</b>	<b>Atomic Energy Establishment, Trombay (AEET)</b> was established by Dr. Homi Bhabha for a multidisciplinary research program essential for the ambitious nuclear program of India. <b>In 1966, AEET was renamed Bhabha Atomic Research Centre (BARC).</b>
<b>1963</b>	The USA and India sign an <b>accord for the supply of enriched fuel</b> to India's <b>Tarapur nuclear power plant</b> .
<b>1969</b>	Nuclear Power Grid connection was established from the <b>Tarapur Plant</b> .

However, **India did not sign the NPT in 1970, did not become a member of the NSG in 1974**. After **India's first nuclear Test, Smiling Buddha in 1974**, there was widespread condemnation from the international community. There was international apartheid against India in supply of nuclear fuel.

**Active Phase**

<b>1987</b>	<b>Nuclear Power Corporation of India Limited (NPCIL)</b> was established as a public sector undertaking responsible for the generation of electricity from nuclear power.
<b>2003</b>	<b>Bharatiya Nabhikiya Vidyut Nigam Ltd. (BHAVINI)</b> was set up by the Department of Atomic Energy (DAE) as a special-purpose vehicle to implement stage II of the 3-stage nuclear power program.
<b>2022</b>	<b>22 operational reactors in India</b> with a total installed capacity of, <b>6780 MWe</b> (Megawatts electric). <b>10 nuclear power reactors</b> with a <b>total of 8000 MW capacity</b> are under construction.





Source- World Nuclear Association

**Read More-** [The status of India's nuclear program](#)

### What are the advantages of India's Nuclear Energy Programme?

**1. Energy Sovereignty-** Fossil-based energy sources contributed about 82% of the primary energy supplied in 2021. India imports a significant part of its fossil fuels (coal and gas) for energy generation. Bulk fuel imports raise economic and strategic vulnerabilities for a developing country like India. Nuclear energy can help India reduce its dependence on imported fuel.



Fuel	Consumption (EJ)	Percentage	Combined Percentage
Oil	184.21	30.95	82.28
Natural Gas	145.35	24.42	
Coal	160.10	26.90	
Nuclear Energy	25.31	4.25	17.72
Hydroelectricity	40.26	6.76	
Renewables	39.91	6.71	
<b>Total</b>	<b>595.14</b>	<b>100.00</b>	<b>100.00</b>

Source- NITI Aayog

**2. Decarbonisation of power Sector-** Thermal power plants have high carbon footprint as they contribute heavily to global warming, climate change and air pollution. Nuclear power plants will help in decarbonising the power sector.

**3. Limitations attached with other renewable energy sources-** Solar energy is land intensive, wind energy requires energy storage systems. Also, they require imported technologies and materials such as photovoltaic cells, batteries, and storage equipment. On the other hand, indigenous nuclear reactors have reduced dependency in critical imports.

**4. Cheaper to Operate-** Nuclear power plants are cheaper to operate than coal or gas plants, despite the cost of managing radioactive fuel and disposal. According to estimates, nuclear plants cost only 33-50% of a coal plant and 20-25% of a gas combined-cycle plant.

**5. Reliable and Continuous Power-** Nuclear energy provide reliable and continuous base load power, unlike solar and wind energy, which are intermittent and dependent on weather conditions.

**6. Resource Base-** India has vast thorium reserves which could be exploited using a thermal breeder reactor. A significant amount of thorium reserves are found in the monazite sands of coastal regions of South India.

#### What are the challenges to India's Programme?

**1. Capital Intensive-** Nuclear power plants are capital intensive. There have been cost over runs in recently built nuclear power plants.

**2. Insufficient Installed Capacity-** The current installed capacity is only 6.78 GW, against the vision of 650GW of installed capacity by 2050 set by the Atomic Energy Commission.

**3. Nuclear Safety-** Local communities in India have been resisting nuclear reactors due to fears of nuclear disasters like Chernobyl, 1986 or Fukushima, 2011. For ex- Locals protesting against the Mithi viridi nuclear project in Gujarat.

**4. Nuclear Liability-** India's Civil Liability for Nuclear Damage Act 2010, has been a contentious issue for foreign suppliers. Foreign suppliers have been reluctant to invest in India's Nuclear Energy Programs due to fears of being held accountable for accidents beyond their control.

**5. Hurdles created by NSG and NPT-** India's non-ratification of NPT and lack of NSG membership, has created diplomatic hurdles in accessing more nuclear fuel and better nuclear technologies.



**6. Use of outdated Technology-** Currently operational Indian nuclear reactors have become outdated and suffer from multiple operational problems. **For ex- 6 VVER (water-water energy reactor) design reactors encountering operational problems at Kudankulam.**

**What should be the way Forward?**

**1. Small Modular Reactors (SMRs)**– Indigenous Small Modular Reactors (SMRs) must be built at **coal plant sites which would be retiring** in the coming decades. SMRs offer the advantages of being **safe, economical, compact** and **adaptable**. Partnerships with NTPC and other thermal plant owners must be explored.

**2. Expansion of indigenous PHWR reactors-** The Indigenous 700 MWe PHWR, must be expanded in fleet mode to add to the installed nuclear power capacity in India.

**3. Push to the Stage-3 of Nuclear Power Program-** The second and third stages of nuclear-power programme must be propelled to utilise the existing **thorium energy potential** in the country.

**4. Development of Nuclear Fusion technology-** The development of nuclear fusion technology must be explored, which is safer than nuclear fission. The vast reserves, in the form of ocean water, will be added advantage for India.

**5. Augmentation of safety of nuclear facilities-** There must be constant updation of **safety skills of nuclear operators**. Further, masses must be comprehensively sensitised about the functioning of nuclear power plants using highly **intellectual individuals having mass appeal**. **For ex- Dr. APJ Abdul Kalam sensitizing the masses** before the establishment of the Kudankulam nuclear power plant.

**6. Ensuring Regulatory Autonomy-** The AERB, India's nuclear regulatory body, must be provided functional autonomy by **removing its reporting from the Department of Atomic Energy (DAE)**.

**Read More- [The Hindu](#)**

**UPSC Syllabus- GS 3- Science and Technology, Indigenisation of technology**

### **Miracle Drugs- Explained Pointwise**

Recently, several **Indian newspapers** have been found to be **carrying misleading advertisements** regarding unapproved miracle drugs. The **magic injection for weight loss**, containing a drug called **Semaglutide**, is being actively advertised. However, **many of these miracle drugs have not been approved for sale in India**. Despite the lack of regulatory approval, these drugs are being administered by doctors to affluent patients in India.





Source- Reuters

### What are Miracle Drugs?

**Miracle drugs-** Miracle drugs are pharmaceutical substances that have a **transformative impact on the treatment of certain medical conditions**. These drugs are often characterized by their exceptional efficacy, groundbreaking therapeutic outcomes, and the ability to significantly improve patient outcomes.

**For Ex-** **Penicillin** (Effectively treating bacterial infections), **Insulin** (Life saving drug for Diabetes treatment), **Antiretroviral Drugs for HIV/AIDS** (AIDS treatment), **Sovaldi/Sofosbuvir** (Hepatitis C treatment), **Trikafta** (cystic fibrosis medications).

**Unapproved Miracle Drugs in India-** However, several unapproved miracle drugs are being used in India. **For ex-** **Semaglutide & Fen-Phen** (Drugs used for weight loss in India), **Adcetris** (To treat blood cancers).

### What is the Drug Approval Process in India?

**Drug Approval Process in India-** The regulatory framework for drug approval in India is governed by the Drugs and Cosmetics Act, 1940, and the Drugs and Cosmetics Rules, 1945.

a. A **formal application** is submitted by the pharmaceutical company or sponsor to the **CDSCO**. The application includes **comprehensive data** on the **drug's quality, safety, and efficacy** obtained through pre-clinical and clinical trials.

b. A clinical trial is approved by the **Drug Controller General of India (DCGI)** to assess the safety and efficacy of the drug in humans. If the drug is found to be safe and effective, the DCGI grants approval for marketing and manufacturing.

c. Once approved, the **regulator mandates monitoring and reporting all adverse events for two years**.

However, many Global pharma companies sometimes choose to stay out of the Indian market and not launch drugs in India. In such circumstances, patients **can get a licence from the drug regulator based on a doctor's**



**prescription** to import these drugs for personal use. Similarly, **hospitals also apply for import licences** of these drugs.

### What are the impacts of the unapproved miracle drugs in India?

- 1. Public Health Impacts-** Unapproved miracle drugs lack clinical test data, which increases risks of medical uncertainty for patients like **cases of adverse drug reactions**.
- 2. Development of Grey Market-** The unscrupulous ways of procurement of unapproved miracle drugs have led to the **development of grey market** for unapproved weight loss injectables in India.
- 3. Problems of Drug Quality and Contamination-** There are challenges of contamination of unapproved miracle drugs as they escape regulatory oversight. **For ex- Contamination of Semaglutide by Ozempic and Wegovy**, which makes the drug harmful and unsafe. Recent scandal about **spurious imported drugs such as Adcetris** (to treat a type of blood cancer).
- 4. Cardiovascular defects-** Many of the unapproved miracle drugs have been involved in causing heart valve defects in many patients. **For ex- Fen-Phen**, which was once used as a weight loss drug, was associated with **heart valve defects in as many as a third of patients**.
- 5. Complicity of Medical Community-** There are chances of complicity of medical community in **recommending these unapproved drugs** in India.
- 6. Economic Impact-** Vulnerable populations fall into the lure of these **unapproved, costly magical drugs**, which endangers their economic security.
- 7. Public Misinformation-** Misleading medical ads, like **weight reduction due to miracle drugs**, spread misinformation. This can lead to public mistrust in scientifically proven treatments.

Read More- [Misleading Medical Advertising-Strong medicine](#)

### What should be the way Forward?

- 1. Strict implementation of Regulations-** **Drugs and Magic Remedies (Objectionable Advertisements) Act, 1954** must be strictly implemented to curb the menace of unapproved magic drugs in India.
- 2. Strict Oversight-** Increased government intervention in monitoring and regulating medical advertisements, as exemplified by the **Supreme Court criticizing the government's inaction in the Patanjali case**.
- 3. Mass Tort litigations-** Mass tort litigations must be initiated against the pharma companies involved in selling of **unapproved magical drugs**.
- 4. Ethical Responsibility of Medical Community-** The medical fraternity must exude their ethical responsibilities in recommending these drugs. The **errant doctors must be arrested and sent to jail**.
- 5. Public Awareness-** Enhance public education about scientifically proven treatments to combat the influence of misleading advertisements promoting these unapproved drugs.

Read More- [The Hindu](#)

UPSC Syllabus- GS 2- Issues related to Health



## Women Empowerment- Economic Political and Social- Explained Pointwise

8th march of each year is celebrated as **International Women's Day**. This day is to celebrate women power and remind us the crucial role women play in every domain of human life. However, women have been **marginalised as a community**, and they have been engaged in a long-drawn battle for equal women's rights. 'Women empowerment' is the only way forward to improve the status of women in the society.



Source- JavaTPoint

### What is Women Empowerment? What are the different components?

**Women Empowerment-** Women empowerment is the **promotion of women's sense of self-worth**, their **ability to determine their own choices** and their **right to influence social change for themselves and others**. It is rightly said that empowering a man leads to empowering an individual but empowering a woman empowers an entire generation.

### Types of Women Empowerment

**1. Economic Empowerment-** Economic empowerment means having **equal access to work opportunities** and ensuring their participation in all kinds of markets. This will help women break down all the barriers of inequality and defy traditional roles.



**2. Political Empowerment-** Political empowerment means women having **equal access to leadership role** in the political sphere. It also gives **increased strength to women's right voices** and issues in the political sphere.

**3. Social Empowerment-** Social empowerment aims to **uplift the social status of women**. Social empowerment aims to provide women equal say in the health, family decisions, marriage decisions, childbirth.

### What are the advantages of Women Empowerment?

#### Economic Empowerment

**1. When more women work, economies grow-** Women's economic empowerment increases **economic diversification** and **income equality for shared prosperity**. According to UN Women, it is estimated that closing the gender gap could give the **global economy a USD 7 trillion boost**.

**2. Growth of businesses-** Business companies greatly benefit from **increasing employment and leadership opportunities for women**, which is shown to increase organizational effectiveness and growth. **For ex-** According to estimates, **Companies with three or more women in senior management functions** score higher in **all dimensions** of organizational performance

#### Political Empowerment

**1. Proper functioning of Democracy-** Women's political participation is a fundamental prerequisite for **gender equality and genuine democracy**. It **facilitates women's direct engagement in public decision-making** and is a means of ensuring better accountability to women. **For ex-** **Women led SHGs and women rights movement**.

**2. Gender-sensitive policies-** Political empowerment leads to gender-sensitive governance reforms. It makes the elected officials more effective at **promoting gender equality in public policy** and ensuring their implementation. **For ex-** **Law to protect Sexual harassment at workplace**

#### Social Empowerment

**1. Social Justice-** Women's Social empowerment is essential for achieving social justice. It helps in **ending gender based discrimination, violence, and other forms of oppression**. It also helps to create a **more just and equitable society**.

**2. Sustainable Development Goals-** Promotion of social empowerment of women will help in achieving the Sustainable Development Goals in accordance with 2030 Agenda for Sustainable Development.

### What are the Challenges with empowerment of Women?

#### Economic empowerment

**1. Unequal employment opportunities-** Globally, the **gender gap in labour force participation** has been around **30% since 1990**, with men's participation at around 80% and women's at 50%. Women also experience '**motherhood penalty**' with reduction in employment opportunities for women having babies.

**2. Employment in informal and vulnerable sectors-** According to research by UN Women, nearly **60% of women's employment globally** is in the **informal economy**. In low income countries it is as high as 90%.

**3. Lack of pay parity-** Women are paid less than men. The **gender wage gap** is estimated to be **20%**. Women face the challenges of **motherhood wage penalty** and **unpaid care works**.

#### Political Empowerment



**1. Low Representation of Women in Legislature-** The representation of women in different legislative bodies **remains low** across India. **For ex-** According to the report of Inter-Parliamentary Union (IPU) and UN Women, India ranks 148 out of 193 countries in the number of elected female representatives in parliament.

**2. Lack of intra party democracy-** The political parties lack intra party democracy, which prevents the development of top women leaders. The **patriarchal nature of politics** is a major challenge to women political empowerment.

### **Social Empowerment Challenges**

**1. Gaps in Male Female Literacy Rate-** **Lack of good girls schools with proper toilets, female infanticide, early child marriage and dowry** have led to the educational disenfranchisement of women.

**2. Health care Burden-** **Lack of access to sanitary products, menstrual hygiene and high incidence of cervical and breast cancers** have increased the health burden on women in India.

**3. Social Safety Concerns-** Women are threatened by various acts such as **feticides, domestic violence, rape, trafficking**, forced prostitution, honour killings, sexual harassment at workplace. These have led to the marginalisation of women in the social sphere.

Read More- [\[Yojana September 2023 Summary\]Women Empowerment-Explained Pointwise](#)

### **What have the achievements of Indian Women?**

#### **1. Avani Chaturvedi – Sky Warrior**

Avani Chaturvedi became the first Indian proud woman to fly solo a fighter aircraft. She flew a MiG-21 'Bison', an aircraft known for its highest landing and take-off speed in the world.

#### **2. Mithali Raj – Lady Tendulkar of Indian Women's cricket**

During India's series against New Zealand Women – Mithali Raj became the first Indian woman who made India proud by playing in 200 ODI match.

#### **3. Mary Kom – Ms. Knock-out**

Mary Kom is the woman who made india proud by becoming World Amateur Boxing champion for a record six times, and the first woman from the country to win a medal in boxing at the Olympics.

#### **4. Gita Gopinath – The Fiscal Scholar**

An Indian-American economist, Gita Gopinath became the First Woman Chief Economist at the IMF (International Monetary Fund).

#### **5. Arunima Sinha – The Mount Everest Girl**

Arunima Sinha became the world's first woman amputee to climb Mount Everest in 2013.

#### **6. Usha Kiran – Youngest Female CRPF Officer**

Usha Kiran became CRPF's first woman officer to be posted in the insurgency-affected Bastar region of Chhattisgarh.

#### **7. Tessy Thomas – Missile Woman of India**

Tessy Thomas is the first woman who made india proud to head an Indian missile project. Adding to it, with the successful launch of the Agni-V missile project, she also achieved a career milestone.



**What are the government initiatives?**

<b>Economic Empowerment</b>	1. Governments has been promoting equal pay for equal work through the <b>four new labour codes</b> . 2. Government has established maternity leave and childcare policies through the <b>Maternity Benefit (Amendment) Act 2017</b> . 3. It has also provided access to finance and entrepreneurship training for women, like the <b>Mudra Yojana</b> and the <b>Mahila Udyam Nidhi Yojana</b> .
<b>Political Empowerment</b>	1. <b>Nari Shakti Vandana Adhiniyam(Women reservation Act)</b> - Passed to provide <b>33% reservation for women in the Lok Sabha</b> and state legislative assemblies. 2. <b>73rd and 74th amendment Act</b> - Provided <b>33% reservation to women in local bodies</b> . Some states like Bihar have increased the women reservation in the local bodies to 50%. 3. Govt has been encouraging political parties to nominate more women candidates and has been providing leadership training.
<b>Social Empowerment</b>	1. Government has focused on <b>ending child marriage</b> and <b>safeguarded sexual and reproductive health rights</b> through <b>The Prohibition of Child Marriage Act, 2006</b> and <b>Medical Termination of Pregnancy Amendment Act of 2021</b> . 2. Government has been protecting women's land rights through Digital India Land Records Modernisation Programme (DILRMP) and <b>implementing gender-responsive budgeting</b> , which are crucial steps towards achieving gender equality.

**What should be the way Forward?**

- 1. Better Education Opportunities**- Better implementation of **New Education Policy** to ensure the protection of girls right to education and their right to be free from discrimination within educational institutions.
- 2. Skilling and Micro Financing**- Training women in non-traditional skills in accordance with the market demand, like machine textiles. Also, we need to focus on creating more public and private sector jobs for women.
- 3. Women's Safety**- There must be strict implementation of **Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013** to ensure safe working spaces for women. Also **Panic Button, Nirbhaya Police Squad** are some good steps in the direction of women's safety.
- 5. Improvement in Basic Amenities at Rural Level**- The improvement in the health and education standards of women in rural areas will lead to all round development of women and a **productive women workforce**.
- 5. From Women Development to Women Led Development**- Women should be **reimagined as architects of India's progress and development**, rather than being passive recipients of the fruits of development.

**Read More-** [UN Women](#)

**UPSC Syllabus-** GS 1- Issues related to women

**EFTA-India Relations- Explained Pointwise**

Recently, India-EFTA relations are moving ahead as India has resumed negotiations with EFTA(European Free Trade Association) for a **Trade and Economic Partnership Agreement (TEPA)**. However, EFTA's demands for inclusion of '**Data exclusivity**' and '**Specific duration**' clauses in the agreement have been a sticking issue in the



negotiations. India has argued that these provisions will adversely impact the Indian generic drug industry.

**EFTA-India**



### What is EFTA? What is Trade and Economic Partnership Agreement (TEPA)?

<b>About</b>	It is an <b>intergovernmental organization</b> established in <b>1960</b> through the Stockholm Convention.
<b>Objective</b>	To <b>facilitate free trade</b> and <b>economic integration</b> among its members, both within Europe and on a global scale.
<b>Members</b>	Iceland, Liechtenstein, Norway, and Switzerland
<b>Function</b>	<ol style="list-style-type: none"> <li>1. The <b>organization works</b> alongside the European Union (EU).</li> <li>2. Unlike the European Union (EU), it does not <b>function as a customs union</b>.</li> <li>3. All four member states participate in the <b>European Single Market</b> through European Economic Area (EEA) Agreement.</li> </ol>

### Trade and Economic Partnership Agreement (TEPA)

The TEPA is a **comprehensive agreement** that covers trade in goods, trade in services, investment, intellectual property rights, competition, government procurement, trade facilitation, trade remedies, dispute settlement, and other areas of mutual interest.

#### Objective

1. It **aims to eliminate/reduce tariffs and non-tariff barriers** on a wide range of products. It will create opportunities for trade and investment between India and EFTA.
2. It aims to **ensure fair and transparent market access conditions** for service providers and investors. It will also **enhance cooperation on intellectual property rights** protection and enforcement.
3. TEPA aims to establish **effective mechanisms for dispute resolution**.

### What is the Significance of EFTA for India?



**1. Deep Economic Relations-**

- a. EFTA is India's 9th largest trading partner, accounting for about 2.5% of India's total merchandise trade in 2020-21.
- b. The main items of India's exports to EFTA are textiles, chemicals, gems, and jewellery, machinery, and pharmaceuticals.
- c. The main items of India's imports from EFTA are machinery, chemicals, precious metals, and medical instruments.

**2. Innovation and Competitiveness-** EFTA nations are leaders in innovation and competitiveness. EFTA companies are world leaders in pharmaceuticals, biotechnology, machinery manufacturing, R&D-driven technology products, geothermal-related technologies, marine technology, energy-related services, financial services, banking, and insurance.

**3. Success History of EFTA's Trade Agreements-** FTAs with EFTA have been favourable for other countries of the world. 29 free trade agreements (FTAs) with the EFTA are currently in operation.

**4. Support of India's permanent membership of UNSC-** The EFTA countries recognise the growth of India as a world leader and support India's permanent membership of UNSC.

**What are the benefits of free trade agreement between India-EFTA?**

**1. Increase in Trade Opportunities-** A free trade agreement between India and EFTA would lead to increased trade opportunities for India. For ex- It would give India market access to high per capita European countries.

**2. Increase in Investment-** It would give a further push to EFTA investments, which is around \$35 bn in sectors such as machinery, electrical engineering and metals, pharmaceuticals, banking, financial services and insurance, construction, and fast-moving consumer goods (FMCG)

**3. Enhanced cooperation in service sector-** A free trade agreement between India-EFTA would give a further push to the services sector cooperation. It would create more business opportunities for skilled Indian service providers.

**4. Push to Green energy sector in India-** EFTA countries are leaders in green energy. EFTA states can help India to meet its green growth aspirations of 50% renewable energy by 2030, with their cutting-edge technologies.

**5. Promotion of Democratic values-** Deepening of economic cooperation between India and EFTA states would further promote the shared democratic values such as sustainable development, inclusive growth and gender equality.

**What are the Challenges in India-EFTA Relations?**

**1. Data exclusivity and specific Duration Clauses –** Data exclusivity safeguards the clinical trial information of a pharmaceutical company, about a particular medication. During the exclusivity period, generic competitors cannot use the originator's data to get approval for similar drugs. These provisions would promote monopolization for foreign pharmaceutical companies and would be a setback for the Indian generic industry. This will also lead to a rise in the cost of affordable medicines in India.

**2. Differences in Economic Structures –** Bridging the differences in the economic interests of different economic structures of India (developing country with low per capita) and EFTA countries (developed economies with high per capita income) is a formidable challenge.



**3. Intellectual Property Rights Protection** – Challenge of protection of IPR of the EFTA companies engaged in **pharmaceuticals, biotechnology, and machinery manufacturing.**

**4. Market access challenges** – There are issues regarding **tariffs, quotas, and non-tariff barriers** which are hindering the free market access between the two parties. Further, there are wide-ranging differences in regulations, standards, and legal frameworks.

Read More- [India rejects EFTA's data exclusivity demand in trade talks](#)

#### **What should be the way Forward?**

**1. Address the issue of data exclusivity-** The high-level delegates from EFTA and India should work towards resolving outstanding issues such as **data exclusivity, specific duration clauses**, that hinder the conclusion of a mutually beneficial TEPA.

**2. Identification of areas of Mutual Benefit-** Both the parties should identify areas of mutual benefit, such as **technology transfer, R&D and innovation.** Cooperation must be enhanced in these mutually beneficial sector before the FTA is concluded.

**3. Strong Political Involvement and Guidance-** Strong political involvement and guidance must be provided for an early conclusion of the TEPA agreement between the two nations.

Read More- [The Hindu](#)

UPSC Syllabus- GS 2- India's relations with developed economies

### **Water Crisis in India – Explained Pointwise**

The recent Bengaluru water crisis has put the spotlight again on the looming water crisis in India. Water starved Bengaluru is facing the **looming threat of Day Zero** (when government will shut down water connections for homes and businesses). A **BBC report**, based on UN-projections, had listed **Bengaluru in the second position** after **Brazil's São Paulo** among the 11 global cities that are likely to run out of drinking water.





# Bengaluru Water Crisis

## WATER CRISIS IN INDIA

The World Bank refers to water scarcity as a condition when the **annual per-capita availability** is **less than 1000 cubic metres**.

According to **NITI Aayog's Composite Water Management Index report**, India is undergoing the worst water crisis in its history. Nearly **600 million people** are facing **high to extreme water stress**. About 200,000 people die every year due to inadequate access to safe water.

## REASONS BEHIND BENGALURU'S WATER CRISIS

- 1. Reduced Rainfall leading to Empty Water Reservoirs-** Water levels in **Cauvery Basin reservoirs** like **Harangi, Hemavathi, and Kabini** are at **39%** of their total capacity as of 2024 due to **deficient North-East Monsoon**.
- 2. Depletion of Groundwater-** **Excessive extraction** of groundwater by the bore wells and lack of proper implementation of rain water harvesting systems.
- 3. Destruction of natural water bodies-** Concretisation and destruction of natural lakes has reduced their storage capacity from **35 tmcft in 1800** to **2 tmcft**
- 4. Mismanagement and Inequitable Distribution-** Inefficient water management practices, including **wastage, leakage, and unequal distribution of water resources**

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**What is Water Crisis? What is the situation in India?**

**Water Crisis-** Water crisis refers to the situation where the available potable, safe water in a region is less than its demand. The World Bank refers to **water scarcity** as a condition when the **annual per-capita availability** is less than **1000 cubic metres**.

**Water Crisis Situation in India**



<b>Water Crisis</b>	<ol style="list-style-type: none"> <li>1. India possesses only <b>4% of the world's freshwater resources</b>, despite supporting <b>17% of the world's population</b>.</li> <li>2. A/C NITI Aayog's "<b>Composite Water Management Index (CWMI)</b>", report India is undergoing the worst water crisis in its history. Nearly <b>600 million people</b> were facing high to extreme water stress.</li> <li>3. India's <b>annual per capita availability</b> of <b>1,486 cubic meters in 2021</b> is in the <b>water stress category</b> (less than 1700 cubic meters). As per Govt estimates, this may reduce to <b>1,341 cubic metres by 2025</b> and <b>1,140 cubic metres by 2050</b>.</li> </ol>
<b>Lack of Access to Safe Drinking Water</b>	<p>According to <b>NITI Aayog CWMI Report</b></p> <ol style="list-style-type: none"> <li>a. <b>200,000 people</b> die every year due to inadequate access to safe water.</li> <li>b. <b>75% of the households</b> in the country do not have access to drinking water.</li> <li>c. <b>40% of India's population</b> will have <b>no access to drinking water</b> by 2030.</li> </ol>
<b>Overexploitation and pollution of Groundwater</b>	<ol style="list-style-type: none"> <li>1. India is the <b>largest groundwater user</b> in the world, with its total use exceeding 25% of the global usage.</li> <li>2. Nearly <b>70% of Ground water is contaminated</b>. India is placed at the rank of 120 among 122 countries in the water quality index.</li> </ol>

#### What are the reasons for the Water Crisis in India?

- 1. Rising water demand-** According to NITI Aayog, India's water demand is increasing at a rapid rate. **India's water demand** will be **twice** the **available supply** by 2030. Also, the **rate of depletion of groundwater** in India during **2041-2080** will be thrice the current rate.
- 2. Groundwater use for agriculture** – There is **high groundwater usage** in agriculture due to faulty cropping patterns. **For ex-** Water-intensive paddy cultivation in the states of **Punjab** and **Haryana**.
- 3. Encroachment of Natural Water Bodies-** There has been destruction of lakes and small ponds to meet the infrastructure needs of burgeoning populations. **For ex-** **Encroachment of lakes in Bengaluru**.
- 4. Climate Change-** Climate Change has led to **erratic monsoon** and **reduced water levels** in many rivers. This has induced water crisis in India.
- 5. Discharge of Pollutants-** There has been contamination of groundwater resources by the **discharge of industrial chemicals, sewers** and **improper mining activities**.
- 6. Lack of proactive management policies-** Water management policies in India have failed to keep pace with changing demands of time. **For ex-** **The Easement Act of 1882 granting groundwater ownership rights** to the landowner leading to indiscriminate use of water resources.
- 7. Governance issues-**
  - a. **Water governance** in India has been **fragmented**. The centre and the states have their respective departments for governing various issues related to water.
  - b. There have been separate departments for surface water and groundwater. **Central Water Commission (for surface water)** and **Central Ground Water Board (for groundwater)**.
  - c. **Politicization of inter-state disputes** by the political parties have hindered the quick resolution of disputes.
- 8. Detached Citizens-** Since water is a free resource, it is not valued by the citizens. Citizens are completely detached from the water issues.

#### What are the impacts of Water Crisis in India?



**1. Economic Impact-**

- a. As per World Bank, **India's GDP** could **decline by as much as 6% by 2050** due to water scarcity.
- b. Water scarcity will result in **decline of food production**. This will hamper India's food security and have serious impacts on the livelihood of farmers and farm labourers.
- c. **Decline in industrial production** as Industrial sectors such as textiles, thermal power plants, etc. may suffer due to water shortage

**2. Ecological Impact**

- a. Water scarcity may lead to **extinction of flora and fauna**.
- b. **Heavy metal contamination** (Arsenic, cadmium, nickel etc.) and oil spills in rivers and oceans respectively may **threaten the marine biodiversity**.

**3. Social Impact**

- a. Deterioration of health of children due to **intake of contaminated water**. It leads to a reduction in human capital.
- b. The **increased out-of-pocket expenditure on medical expenses** adversely impacts the poorest and the most vulnerable sections.
- c. Increased hardships for women like school dropout, '**water wives**' to fetch water in **drought prone regions**.

**4. Federal Relations-**

- a. Amplification of the existing **inter-state water disputes** like Kaveri, Krishna, Godavari. There will be emergence of new disputes in the future.
- b. There will be a rise in **parochial mindset** and **regionalism** among states and may hinder growth of national unity.

**5. International Relations-** Water scarcity can lead to conflict among nations to get control over the water bodies. **For ex- Impact on India-China relations due to Chinese building of dams over Brahmaputra river.**

**What are the government initiatives?**

<b>Jal Shakti Abhiyan (JSA)</b>	It was started in 2019 as a movement for <b>water conservation, recharge, and rainwater harvesting</b> in 256 water-stressed districts. The JSA now covers all 740 districts in the country.
<b>Atal Bhujal Yojana</b>	The programme lays emphasis on the <b>recharge of groundwater resources and better exploitation</b> of the groundwater resources.
<b>Amrit Sarovars</b>	Centre has decided to build <b>50,000 water bodies</b> (Amrit Sarovar), with an approximate area of one acre, across the country for water conservation.
<b>Nal Se Jal Scheme</b>	The scheme ' <b>Nal se Jal</b> ' was started to ensure <b>pipied drinking water</b> to every rural household by 2024. It is a <b>component of the government's Jal Jivan Mission</b> . The nodal agency of the scheme will be Jal Shakti Ministry.
<b>Namami Gange program</b>	It is a <b>comprehensive program</b> with twin objectives of <b>effective abatement of pollution in Ganga</b> (Nirmal Dhara), <b>conservation and rejuvenation of Ganga</b> (Aviral Dhara).
<b>Jal Shakti ministry</b>	Jal Shakti Ministry has been formed by <b>merging the Ministry of Water Resources, River Development and Ganga Rejuvenation and the Ministry of Drinking Water and Sanitation</b> . Its aim includes-providing clean drinking water, implementing the Namami Ganga project, resolving the inter-state water disputes, cleaning Ganga.



<b>National Water Policy</b>	The policy focuses on the <b>conservation, promotion</b> and <b>protection</b> of water. It promotes measures like <b>rainwater harvesting</b> for meeting the demand of water.
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### What should be the Way Forward?

- 1. Promotion of Water Conservation-** Encouraging rainwater harvesting to capture monsoon run-off. Also, **traditional water conservation practices** like Kudimaramath practice (Tamil Nadu), Ahar Pynes (Bihar), Bamboo Drip irrigation System(North-East) **must be revived**.
- 2. Demand-side Management-** States can adopt a participatory approach with the involvement of local communities. **For ex-** The **Swajal model adopted by Uttarakhand** focussing on community-based management of water resources. **Revival of Johads** in Rajasthan desert by Rajendra Singh (Waterman of India).
- 3. Nature-Based Solutions-** **Nature-based solutions** refer to the **solutions that mimic natural processes** to provide **human, ecological** and **societal benefits**. **For ex-** **Artificial Floodplains** to increase water retention, **Forest management** to reduce sediment loadings.
- 4. River Basin Management-** River basin management must be done through **hydrological-basin approach** rather than **administrative boundaries**. Also, steps must be taken to **promote interlinking of rivers**, while addressing its environmental concerns.
- 5. Evidence-based policy-making-** We must create robust water data systems with real-time monitoring capabilities. **For ex-** Andhra Pradesh's online water dashboard for mapping of hydrological resources for better policymaking.
- 6. Implementing the Mihir Shah Committee Report-** The Mihir Shah Committee recommendations must be implemented for restructuring the water governance in India:
  - a. Establishing National Water Commission** by merging Central Water Commission(CWC) and Central Groundwater Board(CGWB). It would ensure that the surface and the groundwater are taken as a single entity.
  - b. Focussing on management and maintenance of dams** rather than construction of dams.
  - c. Adopting a participatory approach** to water management.


**Read More-** [The Times of India](#)

**UPSC Syllabus-** GS 1- Issues related to water resources (Geography), GS 3- Environment

### Citizenship Amendment Act (CAA) Rules- Explained Pointwise

Recently, government has **notified the rules** for the implementation of the **Citizenship Amendment Act (CAA) 2019**. With the notification of the rules, the Central Government has eased the process of granting Indian citizenship to members of **Hindu, Sikh, Buddhist, Jain, Parsi** and **Christian** communities from **Pakistan, Bangladesh** and **Afghanistan**, who entered India before December 31, 2014.



	<h1>Notified CAA Rules</h1>
<h3>NO REQUIREMENT OF VALID PASSPORT</h3> <p>The rules have <b>done away with the earlier mandatory requirement of passport</b> of Pakistan, Bangladesh or Afghanistan and a residential permit issued by India.</p> <p>Any document that shows that either of the parents or grandparents or great-grandparents of the applicant is or had been a citizen of one of the three countries.</p>	<h3>NO REQUIREMENT OF VISA</h3> <p>The rules have <b>removed the mandatory requirement of Visa</b> and have provided that <b>even a certificate issued by an elected member of a local body</b> would be sufficient.</p>
<h3>NO REQUIREMENT OF LANGUAGE CERTIFICATE</h3> <p>The rules have <b>done away with the requirement of producing a certificate from an educational institution</b> that the applicant knows one of the languages mentioned in the Eighth Schedule of the Constitution. <b>According to the new rules, just a declaration to that effect</b> and being able to speak the language will be enough.</p>	<h3>PROOF OF ENTRY INTO INDIA BEFORE DECEMBER 31, 2014</h3> <p>The rules provide that any one of the listed <b>20 documents provided in the rules</b> would be admissible.</p>
<h3>LIMITED POWERS OF STATE GOVERNMENTS</h3> <p>The rules tweak the process of grant of citizenship in a manner that state governments would have limited participation in the process. The new rules provide for an <b>empowered committee to be instituted by the Centre</b> for receiving and processing the applications</p>	

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## What is the Citizenship Amendment Act (CAA) 2019?

### Citizenship Amendment Act (CAA) 2019

- The legislation grants **citizenship to six minorities** (Hindu, Sikh, Buddhist, Jain, Parsi, and Christian) **fleeing religious persecution** from **Pakistan, Afghanistan, and Bangladesh**.
- The citizenship will be granted to those who entered India from these countries **on or before December 31, 2014**.

### Relaxation of Naturalisation Process to acquire citizenship

CAA 2019 amends the Citizenship Act of 1955. The amendment relaxes the **residence requirement for naturalization** of these migrants from eleven years to five.



**Exemption from Criminal cases and Deportation**

CAA exempts the members of the six communities from any criminal case and deportation under the **Foreigners Act, 1946** and the **Passport Act, 1920**.

**Exceptions to the Act**

The provisions on citizenship for illegal migrants will not apply to two categories-

- a. States protected by the '**Inner Line Permit**'
- b. Areas covered under the **Sixth Schedule of the Constitution**

**What are the provisions of the notified CAA rules?**

**1. No requirement of valid passport-** The rules have **done away with the earlier mandatory requirement of passport** of Pakistan, Bangladesh or Afghanistan and a residential permit issued by India.

**Earlier rules for citizenship-** Earlier the **applicant required all the mentioned documents-**

- a. A copy of a valid foreign passport along with a copy of a valid residential permit;
- b. A copy of bank challan in original amounting to Rs 1,500;
- c. An affidavit from self (applicant) and two affidavits from two Indians testifying to the character of the applicant;
- d. Two newspaper cuttings of different dates or of different newspapers notifying his/ her intention to apply for citizenship, among other documents.

**According to the new rules-** The requirement of valid passport and valid residential permit have been removed. Now, **any one of the mentioned document** would serve as evidences of nationality or citizenship of these countries-

- a. Birth or educational institution certificate
- b. Identity document of any kind
- c. Any licence or certificate
- d. Land or tenancy records
- e. Any other document issued by these countries which proves their citizenship.
- f. Any document that shows that either of the parents or grandparents or great-grandparents of the applicant is or had been a citizen of one of the three countries.

**2. No requirement of Visa-** The rules have **removed the mandatory requirement of Visa** and have provided that **even a certificate issued by an elected member of a local body** would be sufficient.

**3. No requirement of certificate for eighth schedule languages-** The rules have done away with the requirement of producing a certificate **from an educational institution** that the applicant knows one of the languages mentioned in the Eighth Schedule of the Constitution.

**According to the new rules-** A declaration to that effect and being able to speak the language will be enough.

**4. Proof of entry into India before December 31, 2014-** The rules provide that **any one of the listed 20 documents would be admissible**.

**Documents of entry proof-** Valid visa, Residential permit issued by FRRO, Slip issued by Census enumerators in India, Driving licence, Aadhaar card, Ration card, Any letter issued by the government or court, Indian birth certificate, Land or tenancy records, Registered rent agreement, PAN card issuance document, Document issued by Centre, state, PSU or bank, Certificate issued by an elected member of any rural or urban body or officer thereof or a revenue officer; Post office account; Insurance policy; Utility bills; Court or tribunal records; EPF documents, School leaving certificate; academic certificate; municipality trade licence; and marriage certificate.



**5. Limited participation and powers of the state governments-** The rules **tweak the process of grant of citizenship** in a manner that state governments would have limited participation in the process.

**Earlier rules for grant of Citizenship-** Citizenship applications were made to the **district collector**, who is under the administrative control of the state government.

**New rules for grant of Citizenship-** The new rules provide for an **empowered committee** and a **district level committee to be instituted by the Centre** for receiving and processing the applications, which are to be submitted electronically.

**Composition of the empowered Committee-** Empowered committee would be **headed by a director (census operations)**,

**Members-** Deputy secretary or above officer of the Subsidiary Intelligence Bureau, FRRO, State informatics officer of the National Informatics Centre, postmaster general of the state.

**Invitees-** A representative from the office of principal secretary (home) or additional chief secretary (home) of the state government or Union Territory concerned; and a representative of the Railways' jurisdictional divisional railway manager.

### What are the arguments in favour of the Citizenship Amendment Act 2019?

**1. Dignified life for refugees-** The CAA would help to **remove legal barriers to rehabilitation and citizenship** and give a dignified life to refugees who have suffered for decades.

**2. Protection of Rights-** Citizenship rights will protect the **cultural, linguistic, and social identity** of the refugees while ensuring **economic, commercial, free movement and property purchase rights**.

**3. Relief to victims of Partition-** CAA provides relief to the victims of partition who were facing **religious persecutions** on account of becoming religious minorities after the **subsequent conversion** of **Pakistan, Bangladesh and Afghanistan** into **theocratic Islamic republics**.

### What are the arguments against the Citizenship Amendment Act 2019?

**1. Against the right to equality-** Critics have argued that using **religion as a qualifier or a filter violates the fundamental right to equality** granted by Article 14 of the constitution.

**2. Violation of Secularism-** Making religion a ground for eligibility for citizenship violates secularism, which is a **basic feature** of the Constitution

**3. Discriminatory towards Muslims-** Critics have argued that the **National Register of Citizens (NRC) in Assam** to identify illegal immigrants, **along with the CAA** which provides citizenship to all illegal immigrants except Muslims, will result in the **targeting of Muslims**.

**4. Exclusion of other persecuted minority groups-** Other persecuted minority groups like the **Tamil Hindus in Sri Lanka**, the **Rohingya in Myanmar**, or minority Muslim sects like **Ahmadiyyas and Hazaras in Pakistan, Afghanistan** have been excluded from the Act.

**5. North-Eastern States concerns to protect their Identity-** North-eastern states have opposed the CAA as they are fearful that **illegal migrants** would pose a **threat to their cultural and linguistic identity** and put a strain on resources and economic opportunities.

**6. Violation of Assam Accord-** There have been protests in Assam citing the violation of Assam Accord by **extending the cut-off date for citizenship** to illegal migrants. CAA has extended the cut-off date to **31st Dec 2014** from the cut-off date of **March 25, 1971** provided in the original Assam Accord.

### What Should be the Way Forward?



Now, when the government has notified the rules and with challenge to the constitutionality of CAA pending in the SC, the following should be the way ahead:

- 1. Allay the fears of Muslim Community-** The government must **allay the fears of a nationwide NRC** among the Muslim community, which they feel can deprive them of their citizenship rights in case of failure to provide the requisite documents.
- 2. SC Verdict on Constitutionality of the Act-** The SC must provide its verdict on the petitions challenging the Act as done in the recent contentious cases of **Electoral Bonds** and **Art 370**.
- 3. Assurance to international community and neighbouring countries-** Government should assure its neighbours about the effective implementation and no discrimination against Muslims regarding CAA provisions.
- 4. Inclusion of other persecuted minorities-** Other persecuted minorities like **Tamil Hindus in Sri Lanka**, the **Rohingya in Myanmar**, or minority Muslim sects like **Ahmadiyyas and Hazaras in Pakistan, Afghanistan** should be gradually included in the Act.
- 5. Federal Cooperation-** The central government must **assuage the fears of the North-eastern states like Assam** regarding the impact of CAA on their cultural and ethnic identity.

**Read More-** [The Indian Express](#)

**UPSC Syllabus- GS-2** Issues related to fundamental rights

### India-EFTA TEPA- Explained Pointwise

**India-EFTA TEPA (Trade and Economic Partnership Agreement)** is the latest trade agreement in the series of free trade agreements being signed by the Narendra Modi Government. PM Narendra Modi has termed the signing of the trade pact as a '**watershed moment**' in India-EFTA relations.

Recently, the **Narendra Modi Govt is on a spree to conclude comprehensive trade pacts with major nations and groups** in line with **FTA 2.0 approach**. Under its new FTA 2.0 approach, India has recently signed three comprehensive trade pacts with **Mauritius, UAE and Australia**. Comprehensive Trade Talks are also on with the UK and the EU.





# INDIA- EFTA TEPA

PM Narendra Modi has termed the signing of India-EFTA TEPA as a '**watershed moment**' in India-EFTA relations

## ABOUT EFTA

The EFTA is an intergovernmental body comprising **Switzerland, Norway, Iceland, and Liechtenstein**. These countries that are all in Europe but not a part of the EU.

**ECONOMIC SIGNIFICANCE OF EFTA-** EFTA countries have a **combined GDP of over \$1 trillion**. EFTA nations are the **world's ninth-largest merchandise trader** and its fifth largest in commercial services. **India is the EFTA's fifth-largest trading partner** after the European Union, the United States, Britain and China.

## FEATURES OF INDIA-EFTA TEPA

**INVESTMENT AND EMPLOYMENT-** EFTA nations have **committed to invest \$100 billion** in India in **15 years**. (\$50 bn in the first 10 years and \$10 bn in the next 5 years). It also aims to **create 1 million direct jobs** within 15 years.

**TARIFF REDUCTION-** India has offered **83% of its tariff lines**, which covers **95.3% of the EFTA grouping's exports**. This eliminates duties on most of industrial goods like Swiss watches, pharmaceutical products, chocolates etc.

**VITALITY OF SERVICE SECTOR-** Different provisions in the agreement provide improved market access to different services like **financial, telecommunication, maritime personnel**

**TECHNOLOGY TRANSFERS-** Investments and key technology transfers in the **agricultural sector, renewable sectors, pharmaceuticals, garments, and medical instruments**

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### What is India-EFTA TEPA?

**India-EFTA TEPA-** It is a trade deal signed between-India & four European countries (Members of EFTA)- **Iceland, Liechtenstein, Norway and Switzerland**.

The EFTA is an intergovernmental body comprising Switzerland, Norway, Iceland, and Liechtenstein. These countries that are **all in Europe** but **not a part of the EU**.

### Economic Significance of EFTA Bloc

- EFTA countries have a **combined GDP of over \$1 trillion**.
- EFTA nations are the **world's ninth-largest merchandise trader** and its **fifth largest** in **commercial services**.
- India is the EFTA's **fifth-largest trading partner** after the European Union, the United States, Britain and



China.

d. EFTA is among the **most important trading partners in goods and services** for the EU.

Read More about EFTA- [EFTA-India Relations- Explained Pointwise](#)

### Objective of the Deal

a. EFTA nations have committed to invest **\$100 billion in India** in 15 years. (\$50 bn in the first 10 years and \$10 bn in the next 5 years).

b. It aims to create **1 million direct jobs** within **15 years**.

c. It aims to **eliminate/reduce tariffs and non-tariff barriers** on a wide range of products and create **opportunities for trade and investment** between India and EFTA.

d. It aims to ensure **fair and transparent market access conditions** for service providers and investors. It will also enhance cooperation on **intellectual property rights protection and enforcement**.

e. TEPA aims to establish **effective mechanisms for dispute resolution**.

### What is the Current Status of India-EFTA Trade Relations?

**1. Trade Deficit of India with EFTA countries-** India has a huge trade deficit with the countries in EFTA. In 2023, India-EFTA bilateral trade was around \$25 billion. India's exports to the EFTA touched \$2.8 billion and imports were about \$22 billion during that period.

**2. India-EFTA trade Merchandise Trade-** In 2022-23, the combined EFTA-India merchandise trade stood around \$6.1 billion.

The main imports into EFTA States from India consisted of **organic chemicals (27.5%)**.

The main imports into India from EFTA consisted of **Machinery (17.5%)** and pharmaceutical products (**11.4%**).

### 3. Investment and Trading Partners-

a. EFTA investment stood at **\$10.7 billion in 2022**.

b. **Switzerland is India's largest trading partner** in EFTA, followed by Norway. Switzerland accounts for 91% of trade between India and EFTA.

**4. High tariffs on EFTA goods-** Goods arriving from the EFTA group face high tariffs. **For ex-** India levies an **import duty of 20% on Swiss watches** and **30% on chocolates** from European countries.

### What are the features of India-EFTA TEPA?

**1. Tariff Reduction-** India has offered 83% of its tariff lines, which covers 95.3% of the EFTA grouping's exports. This **eliminates duties** on most of industrial goods like **Swiss watches, pharmaceutical products, fertilizers, chocolates, minerals, textiles, smartphones, iron and steel products**.

**2. Market Access-** EFTA's **market access offer covers 100% of non-agri products** exported from India. Further, EFTA has offered 92% of its tariff line.

**3. Vitality of Services Sector-** Different provisions in the agreement provide improved market access to different services like **financial, telecommunication, maritime personnel** etc.

**4. Investments and Technology Transfers-** Investments and key technology transfers in the **agricultural sector, renewable sectors, pharmaceuticals, garments, and medical instruments**.



**5. Collaboration in Infrastructure Sector-** Swiss transport companies to collaborate in the **development and advancement of the Railways**. Collaboration with **Flughafen Zürich AG**, the operator of the Zürich airport for improved air-transport connectivity.

### What is the Significance of India-EFTA TEPA?

**1. Comprehensive Trade Pact-** India-EFTA TEPA is a wide-ranging agreement which delves into a **multitude of issues that would be crucial to economic ties** in the coming decade. It covers **labour issues, human rights**, apart from the trade in goods and services, strong rules of origin clause and strong intellectual property rights (IPR). It is India's **second most comprehensive trade pact** after its pact with the UAE.

**2. Template for other Trade Agreements-** 'Behind-the-border' requirement included in the India-EFTA TEPA is a **condition that lowering of tariffs must be complemented with mobilization of large-scale investment** by the EFTA countries. This could serve as a template when India negotiates trade agreements with other developed countries like EU and UK.

**3. Better Prices for Indian Middle Class Customers-** The reduced tariff rates would lower the prices on **seafood such as tuna and salmon, Swiss chocolate, biscuits, watches, medical equipment, and energy drinks**. Indian incomes are set to rise by 70% by 2030 to breach a per-capita level of \$4,000 (Standard Chartered Report).

**4. Enhanced cooperation in service sector-** The agreement would help to stimulate services exports in areas such as **information technology, audio-visual capabilities and facilitate the movement of key skilled personnel**.

**5. Facilitate Technology Transfer-** The technology transfer as part of the India-EFTA deal will **increase India's productivity and export competitiveness** in agricultural sector, renewable sector, pharmaceutical, garments, and medical instruments.

**6. Employment Generation-** The increased trade and investment opportunities due to TEPA will help to **generate ~1 million jobs in direct employment**, particularly in the manufacturing and services sectors.

**7. Increased Investment opportunities-** The trade deal aims to spur financial investment in India through Switzerland's banking sector, Norway's sovereign wealth fund and Liechtenstein's ESG (environment, social, governance) investing sector.

**8. Diversification of India's trade-** It would help in diversifying India's trade channels, and reduce India's heavy import dependence on China. (India had a **negative trade balance of over \$100 bn with China** in 2022-23)

### What are the challenges associated with this deal?

**1. No reduction on Gold Tariffs-** Gold Trade is the biggest component of trade between India-EFTA (**Out of the \$19 billion India-EFTA trade, \$13 billion was just gold imports from Switzerland**). Since no real tariff benefits are being offered on gold, the **impact of the deal is limited to the remaining \$6-7 billion bilateral trade**.

**2. Switzerland's policy of tariff-free entry-** Switzerland's policy of tariff-free entry for all industrial goods from any country would **affect benefits to Indian companies**.

**3. Non-tariff Barriers-** The presence of non-tariff barriers in Switzerland, like **quality standards and approval requirements**, would affect India's agricultural exports to Switzerland.

**4. Exclusion of Agricultural Products-** Sensitive agricultural items like **dairy, soya** have been kept in the exclusion list.



**5. Possibility of Trade Distortions-** Iceland, Liechtenstein, Norway are part of the European Economic Area (EEA) which allow the free movement of goods, capital, services, and persons within the EU single market. Switzerland has also achieved these linkages through bilateral deals with the EU. They are all also part of the Schengen area. Hence, the India-EFTA deal in the absence of India-EU FTA may create trade distortions.

#### What Should be the Way Forward?

**1. Early conclusion of India-EU FTA-** India-EU FTA must be concluded at the earliest to prevent any trade distortions in the India-EFTA TEPA.

**2. Proactive Measures-** Proactive measures such as Establishment of Dispute Resolution Mechanisms, establishment of EFTA offices to fully reap the benefits of India-EFTA TEPA.

**3. Strong Political Involvement and Guidance-** Strong political involvement and guidance must be provided for fructification of the TEPA agreement between the two parties.

**Read More-** [The Indian Express](#)

**UPSC Syllabus- GS 2-** India's relations with Developed nations, International organisations, GS-3 Indian Economy

#### Issues with Judges and Bureaucrats Joining Politics- Explained Pointwise

The Contentious issue of Judges and Bureaucrats joining politics has hit the headlines again. Recent case of a Calcutta High Court judge and a senior IPS officer in West Bengal resigning from their posts and joining political parties, has raised questions of propriety about independent constitutional authorities like Judges and bureaucrats.





## Judges and Bureaucrats Joining Politics

Recent case of a **Calcutta High Court judge** and a **senior IPS officer in West Bengal** resigning from their posts and joining political parties, has raised questions of propriety about independent constitutional authorities like Judges and bureaucrats.

### Cases of Judges and Bureaucrats Joining Politics and Political Nominations

1952	Appointment of <b>Justice Fazl Ali</b> as the Governor of Orissa, shortly after his retirement from the Supreme Court.
1958	Resignation of Chief Justice of Bombay High Court <b>M C Chagla</b> in order to become India's Ambassador to the US.
1967	Resignation of Chief Justice of India <b>Koka Subba Rao</b> to contest elections for President
1983	Resignation of Supreme Court judge <b>Baharul Islam</b> to contest the Lok Sabha polls from Assam
2002	Appointment of former CAG <b>T N Chaturvedi</b> as the Governor of Karnataka
2004	Nomination of Former Chief Election commissioner <b>M.S. Gill</b> as the member of Rajya Sabha and appointment as minister
2020	Nomination of Former <b>CJI Ranjan Gogoi</b> to Rajya Sabha within four months after his retirement

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### What are the Constitutional restrictions preventing post retirement benefits?

The Indian constitution has laid down certain restrictions on the employment of various constitutional posts after demitting office. These constitutional restrictions have laid down **to avoid favouritism**, during the period of holding such positions, towards the government in power with an **intent of securing any post-retirement benefit**.

### Constitutional Restrictions on Post-Retirement Benefits

Article 124(7)	A judge of a Supreme Court after ceasing to hold office cannot appear as a lawyer before any court or authority in India.
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<b>Article 220</b>	<b>A judge of a High Court</b> after ceasing to hold office cannot plead or act in any court or before any authority in India except the Supreme Court and the other High Courts.
<b>Article 148(4)</b>	<b>The Comptroller and Auditor-General</b> shall not be eligible for further office either under the Government of India or under the Government of any State after he has ceased to hold his office.
<b>Article 319</b>	<b>Chairman and members of the Union Public Service Commission</b> shall be ineligible for further employment either under the Government of India or under the Government of a State

However, there are no restrictions when it comes to joining political parties, contesting elections or being nominated to certain posts.

### What are the cases of Judges and Bureaucrats Joining Politics?

There are several notable instances of persons who held independent constitutional posts and later went on to join politics or were nominated to various posts.

<b>1952</b>	Appointment of <b>Justice Fazl Ali</b> as the <b>Governor of Orissa</b> , shortly after his retirement from the Supreme Court.
<b>1958</b>	Resignation of Chief Justice of Bombay High Court <b>M C Chagla</b> in order to <b>become India's Ambassador to the US</b> .
<b>1967</b>	Resignation of Chief Justice of India <b>Koka Subba Rao</b> to <b>contest elections for President</b>
<b>1983</b>	Resignation of Supreme Court judge <b>Baharul Islam</b> to contest the Lok Sabha polls from Assam
<b>2002</b>	Appointment of former CAG <b>T N Chaturvedi</b> as the Governor of Karnataka
<b>2004</b>	Nomination of Former Chief Election commissioner <b>M.S. Gill</b> as the member of Rajya Sabha and appointment as minister
<b>2020</b>	Nomination of Former CJI <b>Ranjan Gogoi</b> to Rajya Sabha within four months after his retirement

Numerous bureaucrats have also joined political parties and contested elections after resigning from service or soon after their retirement. **For ex-** **Mani Shankar Aiyar** (IFS), **Asim Arun** (IPS), **Rajeshwar Singh** (IRS).

### What are the issues with Judges and Bureaucrats Joining Politics?

**1. Breach of oath-** **Third Schedule of the Constitution** requires a constitutional authority (like judges, CAG) to swear that he/she will perform his duties without fear or favour, affection or ill-will. Joining political parties for electoral office **raises questions over impartiality and propriety**.

**2. Undermines independence of Constitutional Positions-** Independence of Constitutional authorities is of paramount importance for preserving the sanctity of constitution. **For ex-** **Fears of politically biased judgement** and **actions in return for favours from political executives**.

**4. Dichotomy in application of 'Cooling-off Period'-** CCS Rules ([Rule 10 (1)] for Central Service Group 'A') prescribe a 'cooling off' period for senior bureaucrats before joining a private job after retirement. However, the **lack of 'cooling-off'** period before joining politics, points to an inherent dichotomy.

**4. Violation Of Bangalore Principles of Judicial Conduct (2002)-** The declaration enlists certain judicial values including **independence, impartiality, integrity** and **propriety**. Post-retirement, joining of political parties is a violation of Bangalore principles of Judicial Conduct.



**5. Breach of public trust-** The Supreme Court in *All India Judges' Association v. Union of India* (1991) and *C. Ravichandran Iyer v. Justice A.M. Bhattacharjee* (1995) held that post-retirement benefits enjoyed by the judges is a breach of public trust.

Read More- [Time to prohibit judges from joining politics](#)

#### What are the recommendations and judgements?

**EC Recommendation-** Election Commission in 2012 recommended to the Union government to **provide for a cooling-off period for top bureaucrats after their retirement** before they could join political parties and contest elections.

**Government rejected the EC recommendation based on AG's opinion-** Attorney General had opined that 'cooling-off' period for commercial employment is based on intelligible differentia to avoid conflicts of interest. However, **such a restriction** against officials contesting polls may not be a valid classification and **would not be in harmony with democratic principles in the Constitution**.

**SC Observations-** The Supreme Court had **dismissed a writ petition** in May 2022 that sought a direction from the top court to the legislature to frame a law **imposing a cooling-off period for retired bureaucrats** before joining politics. The court observed that it is for the **legislature to determine whether a cooling-off period is required for bureaucrats** before they join politics after retirement.

#### What should be the way Forward?

It is imperative to remember the famous judicial quote that **'justice should not only be done but should also be seen to be done'**. Extending this principle for post-retirement benefits of constitutional authorities will have a salutary effect. Following steps will **demonstrate the application of principle of Justice**—

**a. Legislation prescribing a two year 'Cooling off Period'**- As recommended by the SC, the **Parliament by law must prescribe a cooling-off period** of at least two years for joining political parties or being nominated to political posts by the government.

**b. Increasing the retirement age of Judges-** Increasing the **age of retirement from 60 to 70** would guard against the risk of conflicts of interest arising in relation to post-retirement employment for a judge.

**c. Prescribing conditions for appointment in tribunals-** The conditions like **constitutional matters or PILs heard, number of years of practice, research expertise, number of years that the judge has served on a bench that decided matters of similar nature**, must be placed before deciding post-retirement appointments.

**4. Self-regulation on part of people occupying constitutional positions-** Self-regulation would be the guiding light for people occupying constitutional positions. **For ex-** Retired Justices **Chelameswar** and **Kurian Joseph** and Former CJs **Kapadia**, **Lodha** and **Thakur**, **denial of post-retirement plunge in politics or nomination to political posts**.

Read More- [The Hindu](#)

UPSC Syllabus- **GS 2-** Issues related to bureaucracy and judiciary



## Kovind Panel Report on Simultaneous Elections

Recently, the **Kovind Panel Report on simultaneous elections** was submitted to the President Droupadi Murmu. This high level committee on One Nation, One Election **has recommended simultaneous elections**.

It has recommended that elections to the **Lok Sabha and state Assemblies should be held at the same time**. Subsequently, **elections to local bodies** should be synchronised, so that they are held **within 100 days** of the **simultaneous state and national elections**.



## Constitutional Amendment Recommendations of Kovind Panel Report on Simultaneous Elections

The committee has suggested **15 amendments to the Constitution of India** to be carried out through **two Constitution Amendment Bills**

### 1. FIRST CONSTITUTIONAL AMENDMENT BILL

This Bill deals with the **transition to a simultaneous election system**, and the **procedure for fresh elections to Lok Sabha or a state Assembly** before the expiration of their stipulated five-year term.

**Passage of the Bill-** The Bill can be passed by Parliament without the requirement for consultation with state governments or ratification by state Assemblies.

#### Provisions of the Bill

- 1. Insertion of a new article 82A-** Article 82A will **establish the process** by which the country will move to a **system of simultaneous elections** for Lok Sabha and state Assemblies.
- 2. Amendment of Art 327-** Power of Parliament under Article 327 should be **expanded to include "conduct of simultaneous elections"** as well
- 3. Amendments to Art 83 and 172-** To ensure simultaneous elections when Lok Sabha or state Assembly **is dissolved before 'full term' ends**
- 4. Amendment of Laws of UT for Simultaneous Election-** Amendment of the following UT laws for simultaneous elections- a. The Government of Union Territories Act, 1963, b. The Government of National Capital Territory of Delhi Act, 1991 and c. The Jammu and Kashmir Reorganisation Act, 2019.

### 2. SECOND CONSTITUTIONAL AMENDMENT BILL

This bill deals with municipal and panchayat elections, which fall under Entry 5 of the State List titled 'Local government'.

**Passage of the Bill-** This bill needs to be **ratified by at least half of the state legislatures** in the country before it can be passed by the Parliament.

#### Provisions of the Bill

- 1. Inclusion of a new Article 324A-** **Empower the Parliament to make laws to ensure that municipality and panchayat elections** are held simultaneously with the General Elections (to Lok Sabha and state Assemblies)
- 2. Addition of Article 325(2)-** **Single Electoral Roll** for Lok Sabha, State legislature and local bodies

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**What are the recommendations of the Kovind Panel Report on Simultaneous Elections?**



To give effect to its recommendation, the committee has suggested **15 amendments to the Constitution of India**—in the form of both new provisions and changes to existing provisions- to be carried out through **two Constitution Amendment Bills**.

### FIRST CONSTITUTIONAL AMENDMENT BILL

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**Passage of the Bill**- The Bill **can be passed by Parliament without** the requirement for **consultation with state governments** or **ratification by state Assemblies**.

### Provisions of the Bill

**1. Insertion of a new article 82A**- Article 82A will **establish the process** by which the country will move to a **system of simultaneous elections** for Lok Sabha and state Assemblies.

<b>Provisions of Article 82A(1)</b>	The President will issue a <b>notification bringing Article 82A into effect</b> , on the <b>date of the first sitting of the House of the People</b> after a general election. The date of this notification <b>"shall be called the Appointed date"</b> .
<b>Provisions under Article 82A(2)</b>	<b>All the Legislative Assemblies</b> constituted in any general election held <b>after the appointed date</b> shall <b>come to an end</b> on the <b>expiry of the full term of the House of the People</b> .
<b>Provisions under Article 82A(3)</b>	<b>ECI to hold General elections</b> to the House of the People and the Legislative Assemblies <b>simultaneously</b>
<b>Provisions under Article 82A(4)</b>	If the ECI believes that <b>elections to any legislative assembly cannot be conducted simultaneously</b> , "it may make a recommendation to the President, to declare by an Order, that the election to that Legislative Assembly may be conducted at a later date"
<b>Provisions under Article 82A(5)</b>	Even in cases where the state Assembly election is deferred, "the <b>full term of the Legislative Assembly</b> shall <b>end on the same date</b> as the <b>end of the full term of the House of the People constituted in the General Election</b> "

### 2. Amendment of Art 327

Art 327 gives **Parliament the power to make laws** relating to elections to **Lok Sabha, Rajya Sabha, and state legislatures**, including the preparation of electoral rolls and delimitation of constituencies.

Kovind Panel Report on Simultaneous Elections has recommended that the **power of Parliament under Article 327** should be **expanded to include "conduct of simultaneous elections"** as well.

### 3. Amendments to ensure simultaneous elections when Lok Sabha or state Assembly is dissolved before 'full term' ends

**Amendment of 83(2) (Duration of Houses of Parliament) and 172 (1) ("Duration of the State Legislatures")**- The committee has recommended that the **five-year duration** of the House of people and state legislatures should be referred to as **"the full term"**.

**Amendments to Articles 83(3) and 172(3)**- If Lok Sabha or a state Assembly is dissolved before the expiry of the full term, the remaining period will be referred to as the **'unexpired term'**.

**Addition of Articles 83(4) and 172(4)**- Lok Sabha or state Assembly that replaces the previously dissolved Lok Sabha or state Assembly **will serve only for the remaining 'unexpired term'**.



#### 4. Amendment of Laws of UT for Simultaneous Election

Kovind Panel on Simultaneous elections has recommended amendment of the following UT laws for simultaneous elections.

- a. The Government of Union Territories Act, 1963
- b. The Government of National Capital Territory of Delhi Act, 1991
- c. The Jammu and Kashmir Reorganisation Act, 2019

#### SECOND CONSTITUTIONAL AMENDMENT BILL

This bill deals with **municipal and panchayat elections**, which fall under Entry 5 of the State List titled 'Local government'.

**Passage of the Bill-** This bill needs to be **ratified by at least half of the state legislatures in the country** before it can be passed by the Parliament.

#### Provisions of the Bill

##### 1. Inclusion of a new Article 324A

It would empower the **Parliament to make laws** to ensure that **municipality and panchayat elections are held simultaneously with the General Elections** (to Lok Sabha and state Assemblies).

##### 2. Amendment of Article 325

**a. Addition of Article 325(2)-** This new sub-clause proposed by the committee will create a **Single Electoral Roll** for every territorial constituency for election in the House of the People, Legislature of a State or to a Municipality or a Panchayat.

**b. Addition of Article 325(3)-** The single electoral roll shall be made by the Election Commission in **consultation with the State Election Commissions** and shall substitute any electoral roll prepared earlier by either the **Election Commission under Art 325** or the **State Election Commissions under Art. 243K and Art. 243ZA**.

#### What is the Kovind Panel on Simultaneous Elections?

**About the Committee-** The Union government on **September 2, 2023** had constituted a committee under the headship of former President of India Ram Nath Kovind to look into the **feasibility of 'one nation one election'**.

**Members of the Committee-** The Committee was headed by Ramnath Kovind. The members include- Home Minister **Amit Shah**, former Leader of Opposition in the Rajya Sabha **Ghulam Nabi Azad**, former Finance Commission chairperson **N K Singh**, former Lok Sabha secretary-general **Subhash C Kashyap**, senior advocate **Harish Salve** and former Chief Vigilance Commissioner **Sanjay Kothari**.

Read More- [One Nation One Election – Explained, pointwise](#)

#### What are the arguments in favour of 'One Nation One Election'?

**1. Reduction of Financial burden on state exchequer-** Continuous election cycles are a **financial burden on the state exchequer**. 'One Nation One election' will reduce the overall expenditure on political process by ECI. **For ex-** The 2014 Lok Sabha polls cost Rs 3,870 cr to the exchequer and the 2015 Bihar elections alone cost the exchequer 300 cr. ECI has estimated the cost of 'one nation one election' to be around Rs.4500 cr.



**2. Better utilisation of financial resources by political parties-** Simultaneous elections will reduce the campaign expenditure of political parties and the candidates. This will **help smaller regional parties** in better management of financial resources.

**3. Reduced duration of 'model code of conduct'**- Frequent imposition of the Model Code of Conduct (MCC) during polls stalls all development work for months at a time. It will **reduce 'policy paralysis'** that results from the imposition of the Model Code of Conduct during election time.

**4. Focus on governance instead of being in 'election mode'**- One nation one election will ensure continuity of policies and programmes of the central and state governments. It will **reduce disruption of normal public life** as political rallies will be kept to a minimum. It will **improve the delivery of essential services to public**.

**5. Increase of administrative efficiency-** During elections the entire state machinery as well as high-ranking officers from other States are also deputed as observers in the poll-bound State. 'One nation one election' will increase efficiency of administrative system.

**6. Improvement of Internal security-** **Frequent deployment of security forces during elections** use a considerable size of armed police forces which can otherwise be better deployed for better management of internal security problems like naxalism.

**7. Reduced use of 'black money'**- Elections involve **considerable expenditure by prospective candidates most of which is black money**. 'One nation one election' will reduce the circulation of black money in economy.

**8. Reduction of populist measures-** **Frequent elections** forces the political class to think in terms of **immediate electoral gains rather than focus on long-term programs and policies** which impacts the focus of governance and policymaking. Simultaneous elections would reduce the populist measures.

**9. Increase of voter turnout-** According to the Law Commission, **simultaneous elections will increase voter turnout** because it will be easier for people to cast many votes all at once.

**10. Improvement in social harmony-** **Frequent elections perpetuate caste, religion, and communal issues across the country** as elections are polarising events that have accentuated casteism, communalism, and corruption. Simultaneous elections would **reduce the fault lines between communities** created due to multiple elections.

### **What are the arguments against 'one nation one election'?**

**1. Reduced Accountability-** **Regular elections** ensure that the government is under an **obligation to listen to the will of the people regularly**. Regular state elections serve as **feedback mechanism** for the political parties. Critics argue that if the government is assured of a fixed term it might lead to **autocratic tendencies**.

**2. Undermining of Federal Power-** In recent years, issues affecting the states have gained political value, which is demonstrated with **more regional parties forming state governments** like DMK in Tamil Nadu, TDP in Andhra Pradesh & Biju Janata Dal in Odisha. Due to simultaneous elections **union elections might overshadow the state election**.

**3. Disadvantage for regional parties-** Critics argue that simultaneous election would hamper the prospects of regional parties as national issues would dominate the political narrative instead of local issues. **Regional parties would not be able to compete against national parties** in both **money** and **election strategies**.

**4. Against Spirit of Democracy-** Critics argue that forcing simultaneous elections is against democracy because trying to force an **artificial cycle of elections** and **restricting the choice for voters** is not correct.



**5. Influences choices and electoral behavior-** Voters may vote for the same party both at the national and state level which might put regional parties at a disadvantage. According to research report by IDFC Institute, if elections are held simultaneously, there's a 77 percent likelihood of voters favoring the same political party or alliance for both state assemblies and the Lok Sabha. This figure drops to 61 percent if elections are held six months apart.

**6. Threat to internal security-** Deployment of heavy security forces for simultaneous elections is a logistical challenge and might endanger the internal security in the country.

**7. Tampering with the democratic will-** The present system has been consciously chosen by our forefathers to uphold the will of democracy by providing for regular elections so that people can express their will through the right to vote. Modifying the election system and cycle would mean tampering with the power of people to express their democratic will.

### What Should be the Way Ahead?

**1. Build All party Consensus-** The government must build an all party consensus before introducing the two constitutional amendment bills as recommended by the Kovind Panel Report on Simultaneous Elections.

**2. 22nd Law Commission Report on simultaneous polls-** The government must also wait for the recommendations of the 22nd Law Commission Report on simultaneous polls before moving ahead with the idea.

**3. Public awareness-** Public awareness must be created around the issue of simultaneous election through media deliberations.

Simultaneous election is an idea whose time has come. However, since the issue is concerned with the federal structure of the Constitution, it needs to be discussed and debated properly across the political spectrum to assuage the concerns of regional parties. This will make it easier to implement the idea in the country.

If India opts for 'one nation, one election', the world's biggest democracy will set another unique example as India will be the 4th country in the world after Belgium, Sweden and South Africa which will conduct simultaneous election.

**Read More-** [The Indian Express](#)

**UPSC Syllabus-** GS 2- Issues related to elections

### India's R&D Funding Status- Explained Pointwise

India's R&D Funding has received a major boost with the announcement of a corpus of ₹1 lakh crore in the interim Budget for 2024-25, to bolster the research and innovation ecosystem within the country.

The decision to rebrand the slogan, 'Jai Jawan Jai Kisan' (by Lal Bahadur Shastri) to 'Jai Jawan, Jai Kisan, Jai Vigyan' (A.B. Vajpayee) to now 'Jai Jawan, Jai Kisan, Jai Vigyan, Jai Anusandhan' (by the Prime Minister) is intended to reinforce the foundation of research and innovation for development. However, there is need to scale up India's R&D Funding to make India a developed economy by 2047.

India's R&D sector has demonstrated both positive and negative status in India.



## Comparison of research productivity and innovation metrics in selected countries (2021-22)

Country	Researchers per million inhabitants (2021) (FTE)	PhDs produced annually (2021) (Rank)	Publication output (2022) (Rank)	Top 1% most cited articles (% share)	Patents granted (2022) (Rank)
India	262	40,813 (3)	3,06,800 (3)	0.7	30,490 (6)
The U.S.	4,452	69,525 (1)	15,06,000 (1)	1.88	3,23,410 (2)
The U.K.	4,491	27,366 (5)	2,87,200 (4)	2.35	10,578 (15)
China	1,687	53,778 (2)	9,78,100 (2)	1.12	7,98,347 (1)
S. Korea	9,082	13,882 (11)	1,09,200 (16)	1.02	1,35,180 (4)
Japan	5,638	15,804 (10)	1,71,000 (9)	0.88	2,01,420 (3)

Source: Publications data has been extracted from OpenAlex on February 7, 2024.

Source- The Hindu

### What is the Positive status of India's R&D Funding?

- 1. Significant Growth in R&D expenditure-** India's R&D is witnessing significant growth, with a notable increase in Gross Expenditure on Research and Development (GERD) from ₹6,01,968 million in 2010-11 to ₹12,73,810 million in 2020-21.
- 2. Powerhouse in producing academic talent-** India generates an impressive 40,813 PhDs and is in third place after the United States and China. This achievement reflects India's commitment to fostering intellectual capital and contributing significantly to global research endeavours.
- 3. Substantial research output as part of R&D investment-** India ranks third position globally in terms of scientific and research publication, with over 3,00,000 publications in 2022.
- 4. High number of Patent Grants-** India has also demonstrated commendable performance in patent grants compared to the R&D Funding. India has secured the sixth position globally with 30,490 patents granted in 2022.
- 5. Emphasis on Autonomous R&D Laboratories and Institutions-** These autonomous laboratories serve a pivotal role in driving research and technology development with strategic implications. According to the R&D statistics (2022-23) of the Department of Science and Technology, India's total investment in R&D reached \$17.2 billion in 2020-21. Within this sum, 54% (\$9.4 billion) is allocated to the government sector and predominantly utilised by four key scientific agencies — the DRDO (30.7%), the DoS (18.4%), ICAR (12.4%), and DEA (11.4%). Rest 46% has been used by the autonomous R&D laboratories and Institutions.

### What is the Negative status of India's R&D Funding?



**1. Low R&D investment as percentage of GDP-** India's R&D investment as percentage of GDP stands at **0.64%**. India falls behind major developed and emerging economies in R&D investment as % of GDP, such as **China (2.4%)**, **Germany (3.1%)**, **South Korea (4.8%)** and the **United States (3.5%)**.

**2. Less Contribution by Private Sector-** In India, the private sector industry contributes only **36.4%** of Gross Expenditure on Research and Development (**GERD**) during 2020–21. In India, **GERD is primarily driven by the government sector** (central government (43.7%), State governments (6.7%), Higher Education Institutions (HEIs) (8.8%), and the public sector industry (4.4%)). In leading innovative economies such as China, Japan, South Korea, and the U.S., **a significant portion (>70%) of R&D funding is from private industries**.

**3. Under-Utilisation of Allocated Funds-** In 2022-2023, the Department of Biotechnology (**DBT**), used only **72% of its estimated budget allocation** on Centrally Sponsored Schemes (CSSs)/Projects while the **DST used only 61% of its allocated budget**. This points to massive under-utilisation of allocated funds.

**4. Lack of Adequate Funding Support from state governments-** As per the RBI's report, **State Finances: A Study of Budgets of 2023-24**, the R&D expenditure of state governments was 0.09% of the GSDP on average.

#### What are the Other Challenges Facing R&D Sector in India?

**1. Lack of Skilled R&D Personnel-** The best talent of India in R&D migrates to foreign countries, resulting in **brain drain**.

**2. IPR violation-** Poor IPR compliance discourages foreign investment flow into the field of R&D in India.

**3. Outdated Curriculum and Pedagogy-** The curriculum in many **eminent universities** is still **focused on rote learning** and oriented to getting jobs. Many eminent universities are unable to duly utilise the research grant provided to them.

**4. Lack of focus on application-** Indian university system has been **focussing on basic research rather than application research**. That has limited its value to industry, and hence diminished the industry support.

#### What are the Government Initiatives to boost R&D in India?

<b>National Deep Tech Startup Policy (NDTSP)</b>	This Policy aims to <b>promote technological progress and innovation</b> , especially in private sector engagement.
<b>Anusandhan National Research Foundation (ANRF) Act</b>	This Act has been enacted to catalyse research and innovation, focusing on development. The Act is designed to bridge India's R&D investment gap and <b>nurture a robust research culture</b> within Higher Education Institutions (HEIs).
<b>Atal Innovation Mission</b>	It aims to promote innovation and entrepreneurship across the length and breadth of the country. AIM's objectives are to <b>create and promote an ecosystem of innovation and entrepreneurship</b> across the country at school, university, research institutions, MSME and industry levels.

#### What Should be the way Forward?

**1. Encouraging Private Sector Collaboration in R&D-** Incentives for private investment, including **relaxation of foreign direct investments (FDIs)**, **tax rebates**, and **clear regulatory roadmaps for products** will encourage private sector collaboration in R&D.

**2. Increasing R&D Expenditure as Percentage of GDP-** India must spend **3% of its GDP every year until 2047** on R&D for science to have a meaningful impact on development.



3. **Ensuring the Increased Role for HEIs in India-** Government should **promote Government-Industry-Academia partnership** to support the R&D Ecosystem in India. HEIs would play an integral role in the partnership.

4. **Strong IPR protection-** **National IPR policy of 2016** should be duly adhered in order to gain investor confidence and attract more investment in R&D.

5. **Mandating Proper Utilization of Allocated Funds-** The allocated funds and budgets to the research organisations must be properly utilized.

Read More- [The Hindu](#)

UPSC Syllabus- GS 3 Indian science and technological development and Research  
GS 3 Indian Economy

### Open Book Exam – Significance and Challenges – Explained Pointwise

The CBSE has decided to conduct a **pilot comprehensive study** to assess the viability of implementing **Open Book Exam (OBE)** for students from classes 9 to 12. The pilot will be held in select schools in November-December for subjects like **English, Mathematics** and **Science** for **Classes 9 and 10**, and **English, Mathematics** and **Biology** for **Classes 11 and 12**.



## Open Book Examination

The CBSE has decided to conduct a pilot comprehensive study to **assess the viability** of implementing **Open Book Exam (OBE)** for students from **classes 9 to 12**.

### Open Book Examination

This is an examination pattern where **students are allowed to refer to their books and notes** to answer questions.

### Types of Open Book Examination (OBE)

There are 2 types of open book examination.

- 1) **Restricted open book assessment-** Students are allowed to **refer only the study material** approved by the exam-conducting authority.
- 2) **Free type open book assessment-** Students are allowed to **bring any material** of their choice.

### Open Book Examination (OBE) not a new concept for Indian Students

1. **2014-** CBSE introduced **Open Text Based Assessment (OBTA)** which was implemented in **Class 9 (Hindi, English, Mathematics, Science, and Social Science)** and **Class 11 (Economics, Biology, and Geography)**. It was aimed to ease the burden of memorization and promote information processing skills. However, **it was discontinued in the 2017-18 academic year** due to its failure to develop critical thinking skills among students.

2. **2019-** **All India Council for Technical Education (AICTE)** permitted open book exams in **engineering colleges** following a recommendation from an advisory body.

3. **2020 and 2021 COVID-19 Lockdown-** Various Central Universities, like **Delhi University, Jamia Millia Islamia, Jawaharlal Nehru University, Aligarh Muslim University, IIT Delhi, IIT Indore, and IIT Bombay** have conducted open book tests to evaluate students.

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## What is Open Book Examination (OBE)? What is the History of OBE in India?

**Open Book Examination-** This is an examination pattern where **students are allowed to refer to their books and notes to answer questions** during the examination.

**Types of Open Book Examination (OBE)-** There are 2 types of open book examination.

- 1) Restricted open book assessment-** Students are allowed to refer **only the study material approved** by the **exam-conducting authority**.
- 2) Free type open book assessment-** Students are allowed to **bring any material** of their choice.

**OBE not a new concept for Indian Students-** Open-book exams are not a new idea for India.

**1. 2014-** CBSE introduced **Open Text Based Assessment (OBTA)** which was implemented in **Class 9 (Hindi, English, Mathematics, Science, and Social Science)** and **Class 11 (Economics, Biology, and Geography)**. It was aimed to ease the burden of memorization and promote information processing skills. However, it was **discontinued in the 2017-18** academic year due to its failure to develop critical thinking skills among students.

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## Why CBSE introduced Open Books Examination(OBE) in India?

**1. Transformation of Culture of assessment in line with NEP 2020-** The **National Education Policy 2020** has recommended implementing various modes of exams for the benefit of students. CBSE is exploring Open Book Examination (OBE) as an alternative for regular exams.

**2. On the lines of National Curriculum Framework –** The CBSE has proposed this form of assessment based on the **National Curriculum Framework (NCF)** released last year. The National Curriculum Framework for School Education has highlighted the need to **reform the current assessment process**, which is **‘focused on measuring rote learning’**.

## What are the advantages of Open Book Examination (OBE) in India?

**1. Shift of Focus from ‘rote learning’ to ‘conceptual understanding’-** Open Book Examination will help the students focus on **core concepts, high-order foundational skills, and self-peer assessments**.

**2. Promotion of critical and creative thinking-** OBE helps to assessment of **learner readiness**, application of **course content to real-life scenarios, analysis of case studies** and connection of **content with real-world situations**.

**3. Prevents the proliferation of coaching industry-** The examination system using an open book would **prevent the proliferation of board-exam based coaching industry**.

**4. Encourages Resource Management Skills –** Through the use of Open Book method of examination, students learn to efficiently navigate and use reference materials. This leads to the development of a **valuable skill in quickly finding relevant information**, which is of **great help in academic and professional settings**.



**5. Reduction in examination related stress of Students-** According to a **2021 study** involving medical students from **All India Institute of Medical Sciences (AIIMS) Bhubaneswar**, it was found that open book exams were less stressful. OBE will reduce the exam related cases of **student suicides in India**.

#### **What are the Challenges/limitation with the system of OBE?**

**1. Challenge for Indian Teachers-** There is **lack of creativity on part of Indian school teachers** to design innovative Open Book assessments. Questions in an open book exam, unlike a traditional exam, cannot be direct.

**2. Reduction in student's motivation for studies-** Students often get complacent in an open book examination assessment system, by completely **ignoring** the **strong memorization** or **critical thinking skills**.

**3. Challenges of Time Management-** Students may spend too much time searching for information in their materials leading to **incomplete or rushed answers**.

**4. Exacerbation of Inequality among students-** The availability of different resources can create inequality among students. **Students with better access to high-quality materials** may have an **advantage over their peers**.

**5. Logistical Challenges-** Organizing and administering OBEs can be logistically difficult for the teachers, with the students **trying to bring too many books** into the exam environment.

**6. Risk of plagiarism-** There are risks of plagiarism, with students being **tempted to copy answers** or use unauthorised materials.

#### **What Should be the way Forward?**

**1. Implementation of Yash Pal Committee Report –** The Yash Pal Committee Report, '**Learning Without Burden**', had recommended reducing the burden of exams and introduction of measures like OBEs to **reduce the 'catch up' syndrome**.

(Catch up syndrome is the popular belief that India needs to catch up with the explosion of knowledge had occurred in the West through strict curriculum and rigorous examinations)

**2. Development of spirit of critical pedagogy-** Teachers must **engage in a meaningful dialogue** with young students. They should remove their whole attention from "completing" the official syllabus in time.

**3. Training of students-** Students must be trained on **how to write an open book exam**, and **develop the necessary skills of analysing concepts** to get the benefits of Open Book Exam.

**4. Training of teachers-** Teachers must be **trained on formulating comprehensive, unique questions for an OBE** different from the **formulaic and archaic questions** in a regular exam.


**Read More-** [The Indian Express](#)

**UPSC Syllabus-** GS Paper 2 Social Justice – Issues relating to Education, Human Resources.

### **India's Nuclear Deterrence and Agni-V- Explained Pointwise**

The **successful test** of Agni-V ballistic missile dubbed as **Mission 'Divyastra'** is a **watershed moment** in the development of India's Nuclear Deterrence capabilities. Agni-V's impressive range of 5000 kms and enhanced potency due to **Multiple Independently Targetable Re-entry Vehicles (MIRVs)**, has bolstered India's nuclear Deterrence.



 <h2>Modernization and Missile Development Efforts for Nuclear Deterrence</h2>	
Land Based Deterrence	
Agni Series	These <b>ballistic missiles</b> are among India's most prominent strategic weapons. The series includes <b>Agni-I</b> (700-1,250 km range), <b>Agni-II</b> (2,000-3,000 km range), <b>Agni-III</b> (3,000-5,000 km range), <b>Agni-IV</b> (4,000 km range), and <b>Agni-V</b> (5,000 range and Multiple Independent Re-entry Vehicles tech )
Prithvi Series	Prithvi series comprises <b>short-range ballistic missiles</b> which can carry both <b>conventional and nuclear warheads</b> .
Shaurya	Land-based <b>hypersonic missile</b> designed to deliver nuclear payloads with precision at hypersonic speeds within <b>range of around 700-1,000 km</b>
Sea Based Deterrence	
INS Arihant	India's <b>first indigenous Ballistic Missile Submarine (SSBN)</b> with firing capacity of submarine-launched ballistic missile (SLBM)
S-4	India's <b>third indigenous nuclear ballistic missile submarine (SSBN)</b> after INS Arihant and Arighat, with <b>more space for nuclear-tipped ballistic missiles</b>
Air Based Deterrence	
Rafale	Rafale aircraft has provided the Indian Air Force with a <b>sophisticated aircraft with nuclear-warhead-carrying capability</b>

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**What is Nuclear Deterrence? Where does it fit in India's Nuclear Policy?**

**Nuclear Deterrence-** Nuclear deterrence is a **strategy employed by states possessing nuclear weapons** to **prevent adversaries from initiating a nuclear attack** by convincing them that the costs and consequences of such an attack would outweigh any potential benefits.

**Principle Behind Nuclear Deterrence-** Nuclear Deterrence operates on the principle of **Mutually Assured Destruction (MAD)**, where both sides possess sufficient nuclear capabilities to inflict unacceptable damage on each other, thereby deterring any hostile actions.

**India's Nuclear Policy and Nuclear Deterrence-** Maintenance of credible nuclear deterrence is one of the foremost priorities of India's Nuclear Policy.

**a. Credible Minimum Deterrence-** India would maintain a sufficient number of nuclear weapons to deter a

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nuclear attack, but it would not seek to match other countries' arsenals in size.

**b. Retaliation to a Nuclear Attack-** If India is subject to a nuclear attack, it would retaliate, causing massive damage to the aggressor.

### How has India's Nuclear Deterrence developed over the years?

#### Development of India's Nuclear Deterrence

<b>1947</b>	Post Independence, India pursued development of nuclear weapons capability, particularly in <b>light of regional tensions</b> and the <b>emergence of nuclear-armed neighbours</b> , namely <b>China</b> and <b>Pakistan</b> .
<b>1974</b>	India conducted its first nuclear test, codenamed ' <b>Smiling Buddha</b> '. This test demonstrated India's nuclear deterrence capabilities.
<b>1974-1998</b>	During this phase, <b>India maintained nuclear ambiguity</b> , neither confirming nor denying the <b>possession</b> of nuclear weapons. This ambiguity served as a form of deterrence, maintaining uncertainty about India's nuclear status.
<b>1998</b>	The <b>Pokhran Tests of 1998</b> , which comprised of five nuclear detonations, both fission and fusion, marked India's evolution as a nuclear weapons state.
<b>After 1998 Tests</b>	Following the 1998 tests, India outlined its Nuclear Doctrine. The key elements of India's nuclear doctrine include a <b>No First Use (NFU)</b> policy, <b>minimum credible deterrence</b> , and <b>retaliation</b> only in the event of a nuclear attack. India also established Strategic Forces Command (SFC) to oversee the management, deployment, and operational control of India's nuclear forces.

#### Modernization and Missile Development Efforts for Nuclear Deterrence

India has pursued an extensive missile development program as part of its nuclear deterrence strategy. These efforts have aimed to enhance its capability to deliver nuclear weapons effectively and establish a credible nuclear deterrence posture.

<b>Land Based Deterrence</b>	
<b>Agni Series</b>	The Agni <b>series of ballistic missiles</b> are among India's most prominent strategic weapons. The series includes <b>Agni-I (700-1,250 km range)</b> , <b>Agni-II (2,000-3,000 km range)</b> , <b>Agni-III (3,000-5,000 km range)</b> , <b>Agni-IV (4,000 km range)</b> , and <b>Agni-V (5,000 km range)</b> . Agni-V, intermediate-range ballistic missile (IRBM) with Multiple Independent Re-entry Vehicles, capable of reaching targets as far as Europe and China.
<b>Prithvi Series</b>	<b>Developed by DRDO</b> , the Prithvi series comprises short-range ballistic missiles designed for tactical use. These missiles, including <b>Prithvi I (150 km range)</b> and <b>Prithvi II (250-350 km range)</b> , <b>can carry both conventional and nuclear warheads</b> , providing India with a flexible deterrence option against regional threats.
<b>Shaurya</b>	Shaurya is a <b>land-based hypersonic missile</b> developed by India, designed to <b>deliver nuclear payloads with precision at hypersonic speeds</b> . Its <b>range is around 700-1,000 km</b> , enhancing India's deterrence capabilities by introducing a fast and maneuverable delivery system.
<b>Sea Based Deterrence</b>	
<b>INS Arihant</b>	India's <b>first indigenous Ballistic Missile Submarine (SSBN)</b> . There has been test-firing of nuclear-capable submarine-launched ballistic missile (SLBM) from the Arihant in October 2022. This has added to India's nuclear deterrence capabilities.



<b>S-4</b>	It is India's <b>third indigenous</b> nuclear ballistic missile submarine (SSBN) after <b>INS Arihant</b> and <b>Arighat</b> . The S-4 submarine is bigger than the INS Arihant and Arighat, with <b>more space</b> for <b>nuclear-tipped ballistic missiles</b> .
<b>Air Based Deterrence</b>	
<b>Rafale aircraft</b>	The induction of the Rafale aircraft has provided the Indian Air Force with a sophisticated aircraft with nuclear-warhead-carrying capability.

### What is the Significance of Agni V missile?

- 1) Enhanced nuclear deterrence against adversaries like China-** Agni-category missiles form the backbone of India's land-based nuclear deterrence. The missile is the core of the India's deterrence in the larger context of the **Sino-Indian power equation**. **For ex-** China's **Hong qi (HQ-19) ground-based ballistic missile interceptors**, cannot intercept MIRV Capable Agni-V carrying multiple nuclear warheads.
- 2) Enhanced Nuclear retaliation to first strike-** Agni-V helps us develop the **credible nuclear retaliation after the first strike**, as India's nuclear doctrine commits to "no first use". This retaliation with the help of MIRV capable Agni-V would **inflict maximum damage** to the other warring side.
- 3) Intercontinental Range Ballistic Missile (ICBM) Club-** Agni-V's range of **5,000km (about 3106.86 mi)** can **bring the farthest parts of China and even some of Europe** within India's strike radius. The development of this rocket has put India in the nations developing Intercontinental Range Ballistic Missile with increased ranges.
- 4) Boost to India's defence capabilities-** India's defence arsenal has received a significant boost with Agni-V induction.

Read More- [Agni-5 trial: A blast-off for superior deterrence](#)

### What are the Challenges to India's development of deterrence capabilities?

- 1) Inadequate nuclear testing facilities-** The lack of sufficient testing **undermines** the extent to which the **re-entry vehicles could be designed to carry the warheads**.
- 2) Opacity surrounding the warhead numbers-** There is opacity around the number of warheads Agni-V, can carry due to its classified nature. However, specialists suspect that it at present, **it can carry at most only three warheads**.
- 3) Low yield of the nuclear Warheads-** There are concerns that the **yield of the nuclear warheads will be limited** due to the small number of atomic tests conducted by India.
- 4) Problems with Sea based nuclear deterrence-** There are problems of **deep-sea communications with SSBN** because the very low-frequency systems in use on the submarine are prone to disruption at great depths.
- 5) Swift Expansion of Chinese Nuclear Arsenals-** Beijing has been making **brisk advancements** with its missile and missile defence programmes.

### What Should be the Way Forward?

- 1. Early testing of long-range Submarine Launched Ballistic Missile (SLBM)-** India must add punch to its nuclear arsenal by testing its **long-range Submarine Launched Ballistic Missile (SLBM)** which can be launched by its **nuclear submarines**.
- 2. Investment in Missile Defence Systems-** To counter the growing threat from China's modernizing nuclear arsenal, India should invest in developing and deploying advanced missile defence systems, like **expediting development of Agni VI**.



**3. Strengthening of Conventional Capabilities-** While maintaining a credible nuclear deterrent, India **should also focus on strengthening its conventional military capabilities**. This can help deter conventional conflicts that may escalate to the nuclear level.

**4. Cooperation with Allies-** India should continue to cooperate with its allies and partners, such as the **United States**, to deter potential aggressors. This could involve **sharing intelligence, conducting joint military exercises, and coordinating on defence strategies**.

**Read More-** [The Hindu](#)

**UPSC Syllabus- GS 3-** India's achievement in Science and Tech

**GS 2-** India and its neighbourhood relations

### Patent Rules 2024- Significance and Challenges- Explained Pointwise



Recently the **Patents Rules 2024** has been notified which marks a **significant milestone** in the patent regime of India. These rules introduce several provisions which aims to **simplify the process of obtaining and managing patents** to facilitate a conducive environment for inventors and creators. It also aims to accelerate economic development of the nation through science and technology to fulfil the **Sankalp of Viksit Bharat**. **Significance and Challenges Patent Rules 2024**





# Provisions of Patent Rules 2024

Certificate of Inventorship	A new ' <b>Certificate of Inventorship</b> ' has been introduced to acknowledge inventors' contributions to the patented invention
Incorporation of Form 31	The provision for <b>accessing Grace period benefits</b> under Section 31 has been streamlined through the introduction of new forms like Form 31
Reduction in Time frame	The time restriction for providing foreign application filing details in Form 8 has been modified from <b>six months from the date of filing</b> to <b>three months</b> from the date of issuing of the first examination report.
Decreased Time Restriction for filing a request for inspection	Given the rapid advancement of technology, the time restriction for filing a request for inspection has been <b>decreased from 48 months to 31 months</b> from the date of priority of application or the date of filing of application, whichever occurs first
Reduction in Renewal Fees	Renewal fees have been <b>reduced by 10%</b> if paid in advance via electronic method for at least four years
Reduced Frequency of filing patents	Patent statements in Form 27 are now <b>required every three fiscal years instead of annually</b> . Additionally, a provision allowing a three-month delay in filing upon request has been added.

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## What are the Notified Patent Rules 2024?

- 1. Introduction of Certificate of Inventorship-** A new '**Certificate of Inventorship**' has been introduced to acknowledge inventors' contributions to the patented invention.
- 2. Incorporation of Form 31-** The provision for **accessing Grace period benefits** under Section 31 has been **streamlined** through the introduction of new forms like **Form 31**.
- 3. Reduction in Time frame** – The time restriction for providing foreign application filing details in Form 8 has been **modified from six months from the date of filing** to **three months from the date of issuing of the first examination report**.



**4. Decreased Time Restriction-** Given the rapid advancement of technology, the time restriction for filing a request for inspection has been **decreased from 48 months to 31 months** from the date of priority of application or the date of filing of application, whichever occurs first.

**5. Extension in Time Limit** – The provision for extending the time limit and **forgiving filing delays has been streamlined** and **made more explicit** to make it easier to use. The period for performing any act or action may now be **extended up to six months** upon request in a regulated manner.

**6. Reduction in Renewal Fees** – Renewal fees have been **reduced by 10%** if paid in advance via electronic method for at least four years.

**7. Reduced Frequency of filing patents** – **Patent statements in Form 27** are now required **every three fiscal years instead of annually**. Additionally, a provision allowing a three-month delay in filing upon request has been added.

**8. Streamlining of Pre-Grant representation-** The procedure for filing and disposing of the Pre-grant representation by way of opposition under **section 25(1) has been further streamlined** and made more explicit by providing ways to dispose of the representation and establishing filing fees.

Read More- [Patent Rules 2024](#)

### What is Patent Regime in India?

**Patent-** A patent is a form of **intellectual property granted by the government** to inventors. It provides the owner with the legal right to prevent others from making, using, or selling an invention for a specific period.

**Patent Regime in India** – In India, patents are governed by the **Patents Act, 1970**.

Under the act, patents are granted if the invention fulfils the following criteria:

- (a) It should be novel;
- (b) It should have inventive step/s, or it must be non-obvious;
- (c) It should be capable of industrial application; and
- (d) It should not attract the provisions of section 3 (what cannot be qualified as patents) and section 4 (inventions related to atomic energy) of the Patents Act 1970.

**Indian Patent Act of 1970 was amended** to align with the **Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement of WTO**. The Amended Indian Patent Act of 2005, introduced patents for pharmaceutical products.

### What are the advantages of Strong Patent Regime with these Notified Patent Rules 2024?

**1. Promotes a culture of research and grassroots innovation-** A robust patent regime is a basic requirement for creating a culture of research and designing innovative products suited to the local needs and demands. **For ex- Low cost menstrual pad manufacturing machine in India.**

**2. Greater foreign investment-** These streamlined patent rules attract greater FDI inflows from the MNCs. **For ex- China's patent protection regime attracted manufacturing sector FDI.**

**3. Promotes exports-** Strong patent regime helps in development of niche technologies which can be used to increase exports from India. **For ex- COVISHIELD and COVAXIN in vaccine technology.**

**4. Social benefits-** Patents play a pivotal role in solving the contemporary social issues of climate change, poverty, hunger. **For ex- Patents in the Carbon Capture, Use and Storage technologies to solve global warming.**



**5. Fulfilment of India's obligations-** A strong and robust IPR regime fulfils India's obligations in implementing the international conventions of which it is a signatory, like **TRIPS, Berne convention** and **Budapest treaty** etc. It enhances India's global image.

### What are the prevalent challenges in Patent System in India?

**1. Low expenditure by the private sector in patent development-** India spends around 0.7% of its GDP on R&D, with most of the expenditure borne by the government. Other developed countries, spend more on the R&D for product development like US (2.8% of GDP), China (2.1% of GDP), with most of their expenditure coming from the private sector.

**2. Provisions of Compulsory licensing** – Compulsory Licensing is the grant of permission by the government to entities to use, manufacture, import or sell a patented invention without the patent-owner's consent. The fear of misuse of the provision of compulsory licensing has been a major deterrent in patent development in India. **For ex- Compulsory licence used by India in case of Naxavar, a crucial drug for kidney and liver cancer sold by Bayer.**

**3. Provisions against evergreening of patents-** Evergreening of patents is a corporate, legal, business, and technological strategy for extending / elongating the term of a granted patent in a jurisdiction that is about to expire, in order to retain royalties from them, by taking out new patents. **Section 3(d) of the Indian Patent Act 1970, does not allow evergreening of patents.** This issue has been a concern, especially for the pharma industry, which usually relies on such strategies. **For ex- Novartis vs. Union of India case where Novartis drug was prohibited from patent on account of evergreening.**

**4. Abolition of the Intellectual Property Appellate Board (IPAB)-** The IPAB was abolished in 2021 and its functions were assigned to the country's Commercial Courts and High Courts. This has made dispute resolution cumbersome and increased the pendency of cases in the commercial and HC.

**5. Poor implementation of patent laws & poor enforcement mechanisms for patent violation** – Recent **U.S. Trade Representative's Special 301** report has criticized India for having stricter patent laws along with poor implementation that discourages patent filing. India lacks strong enforcement mechanism for violation of the patents. **For ex- Pharma sector.**

**6. Infrastructure and Human resources issues** – Due to poor infrastructure and limited resources, Indian patent offices are working at suboptimal levels, leading to delays in filing and grant of patents. **For ex- India has far less number of patent officers than US.**

**7. Protection of generic medicines in India** – India has been **reluctant in giving patents to foreign pharma industries** to protect its generic pharma industries.

### What Should be the Way Forward?

**1. Post-facto analysis of patent quality** – India should carry out a post-facto analysis of patent quality, under the aegis of the **Office of Principal Scientific Adviser**. It could assess a patent's value by the volume of subsequent citations it receives.

**2. Robust Intellectual property regime** – India must focus on making its Intellectual Property Rights regime even more robust, which in turn will **incentivize more firms and research institutions** to file high-quality patents.

**3. Re-establishment of Intellectual Property Appellate Board (IPAB)-** There is a need to re-establish IPAB and empower it with more **structural autonomy, infrastructural, and administrative reforms** for early disposal of patent violation cases.



**4. Public awareness** – Public awareness should be created about the economic, social and cultural benefits of IPRs among all sections of society.

**Read More-** [PIB](#)

**UPSC Syllabus- GS 3-** Issues relating to Intellectual Property Rights

### PIB's Fact-Check Unit- Explained Pointwise

Government of India has **notified the PIB's Fact-Check Unit (PIB-FCU)** under the Ministry of Information and Broadcasting (MIB) as the fact check unit of the Central Government. **Ministry of Electronics and Information Technology (MeitY)** has notified the **PIB's FCU** as the fact check unit under the provisions of **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021**.



**Ministry of Electronics and Information Technology (MeitY)** has notified the **PIB's FCU** as the fact check unit under the provisions of **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021**.

**ESTABLISHMENT-** The Fact Check Unit was established under PIB in **November 2019**.

**OBJECTIVE-** Its objective is of acting as a **deterrent to creators and disseminators** of fake news and misinformation.

#### MANDATE

1. The PIB-FCU is mandated to **counter misinformation** on Government policies, initiatives and schemes either suo motu or under a reference via complaints.
2. The PIB-FCU **actively monitors, detects, and counters disinformation campaigns**, ensuring that false information about the Government is promptly exposed and corrected.

#### FACT CHECKING PROCEDURE

The PIB fact-check unit categorises any information received by it into three categories- **fake, misleading, and true**

**Fake News-** If a piece of information is completely false and can **“deceive or manipulate the audience, with or without the intention to cause potential harm”**, it is classified as ‘fake news’.

**Misleading-** If a content uploaded has **“selective presentation of facts or figures or with distortion of facts or figures”** and can mislead or deceive readers, it is classified as ‘misleading’ by the fact-check unit.

**True-** Content that the fact-check unit finds **factual after review** is classified as ‘true’.

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### What is PIB's Fact-Check Unit (PIB-FCU)?

**PIB's Fact-Check Unit (PIB-FCU)-** PIB's Fact-Check Unit was established in **November 2019** with a **stated objective of acting as a deterrent** to creators and disseminators of fake news and misinformation. It also provides people with an **easy avenue to report suspicious and questionable information** pertaining to the Government of India.

### Functions/Mandate of PIB-FCU

- a. The **PIB-FCU is mandated to counter misinformation** on Government policies, initiatives and schemes either suo motu or under a reference via complaints.
- b. The **PIB-FCU actively monitors, detects, and counters disinformation campaigns**, ensuring that false information about the Government is promptly exposed and corrected.
- c. When this unit flags a **piece of content as fake**, **social media platforms** will have to **take it down as part of their due diligence requirement** under the IT Rules. Also, the **internet and telecom service providers like Jio and Airtel** will have to block the web link of a particular fake news information.

### What is Govt's rationale for notifying PIB's Fact-Check Unit (PIB-FCU) as the Central Govt's Fact-check Unit?

1. **Addressing the issue of fake news-** This fact-checking body can help to **address the issue of fake news and misinformation on online platforms**, which can potentially cause harm to society.
2. **Improved accountability of Social Media Intermediaries-** The notification of PIB's Fact-Check Unit as the Govt's Fact-checking unit will **increase accountability** of social media intermediaries like **Facebook, Twitter** etc., which will now be required to remove false and misleading content.
3. **Enhancement of Cybersecurity-** PIB's Fact-Check Unit can improve the cybersecurity by preventing the misuse of online platforms for illegal or harmful activities. **For ex- Regulation of Sharing of Deepfakes.**
4. **Prevention of Hate Speech and Violence-** The Fact-Check unit seeks to ensure compliance with Indian laws like IT Act and laws related to national security. This **helps to prevent the misuse of social media platforms** and other digital media outlets **to incite violence or spread hate speech.**

Read More- [Controlling Fake News in India and associated challenges](#)

### What are the Concerns with notification of fact-check Unit by the Government of India?

1. **'Chilling effect' on freedom of speech and expression-** There are concerns that PIB's fact-check unit and its power to censor content could have a **chilling effect on free speech and expression provided under Art 19(1)(a)**. There are concerns that people may be hesitant to express their opinions online for fear of being censored or facing legal consequences.
2. **Potential for Misuse by the Govt-** The fact-check unit's power **could be misused by the government to silence dissenting voices or criticism** of government actions. This could have serious implications for democracy and human rights.
3. **Conflict of interest-** The role played by the fact-checking unit has a significant conflict of interest as it plays the **role of judge, jury and executioner.**
4. **Lack of clarity on what constitutes "fake or false or misleading" information-** There is lack of a clear definition of **what types of information qualify as 'fake or false or misleading'**. This lack of clarity **creates ambiguity** and can **lead to arbitrary censorship** by the government.



**5. Short-circuiting established legal procedures-** The notification of a **fact-checking unit with powers to issue directions to take down content**, short-circuit the procedures, safeguards and conditions laid out in **Shreya Singhal v. Union of India** and **Section 69A of the IT Act**. The judgement extends the right to free speech into the online space.

#### What Should be the Way Forward?

**1. Early Judgement of the Bombay High Court-** The **Kunal Kamra v. Union of India (2023)** case challenging the notification of fact-check unit of the Central Government, must be decided by the Bombay High Court at the earliest which will establish its constitutionality.

**2. Building consensus among political parties-** With Opposition political parties **criticising the notification of PIB's fact-check unit** as the Govt's official fact check body, the government must build consensus by assuring them of 'credible' functioning of the body.

**3. Develop a more transparent and participatory process-** The government should work with **civil society, media organizations**, and **other stakeholders** to develop a more transparent and participatory process for determining what content should be considered fake or misleading.

**4. Need an independent and non-partisan fact-checking body-** The government should ensure that **anybody tasked with fact-checking is independent and non-partisan**, with clear guidelines for how decisions are made.

**5. Ensure functioning according to judicial and legal guidelines-** The government should ensure that any takedown requests are made in accordance with the procedures and safeguards laid out in **Shreya Singhal v. Union of India** or **under Section 69A of the IT Act**. These define and restrict the conditions under which government can take down online content.

**Read More-** [The Indian Express](#)

**UPSC Syllabus-**

**GS 3 Security Issues** – The role of media and social networking sites in internal security challenges

**GS 2-** Government Interventions for regulation of the sector

### Status of Inequality In India- Explained Pointwise

The recent working paper by World Inequality Lab titled '**Income and Wealth Inequality in India, 1922-2023: The Rise of the Billionaire Raj**' has put the spotlight on the status of inequality in India. According to the estimates of the paper, **post-independence till the early 1980s**, inequality declined in India. After 1980 inequality began rising and inequality has skyrocketed since the early 2000s.

The report combines data from **national income accounts, wealth aggregates, tax tabulations, rich lists**, and **surveys on income, consumption**, and **wealth** to arrive at the results.





## Income and Wealth Inequality in India, 1922-2023: The Rise of the Billionaire Raj

- 1. Growth in average incomes-** India's average income grew at **2.6% per year in real terms** between 1960 and 2022.
- 2. Emergence of very high net worth individuals-** The number of high net worth individuals has increased from **1 to 52 to 162 in 1991, 2011 and 2022 respectively**.
- 3. Rise in the percentage of income taxpayers-** The share of adult population filing an income tax return has increased from **1% till the 1990s to 5% in 2011 to 9% between 2017-2020**.
- 4. Extreme levels of inequality in India-** In 2022-23, **India's top 1% own 22.6% of India's national income and 40.1% of the country's wealth**. The 'Billionaire Raj' headed by India's modern bourgeoisie is now **more unequal than the British Raj** headed by the colonialist forces.
- 5. Extreme wealth concentration at the very top-** Between 1961 and 2023, the **top 1% wealth share has increased threefold**, from 13% to 39%.
- 6. International comparison of income and wealth inequality-** India's **top 1% income share and wealth share is among the very highest in the world**, behind only perhaps Peru, Yemen and a couple of other small countries.
- 7. Policy solution to reduce inequality-** Implementing a **super tax on Indian billionaires** and multimillionaires, **restructuring the tax schedule** to include both income and wealth, and **finance major investments** in education, health

Created By Forum IAS

### What are the main takeaways of the report?

- 1. Growth in average incomes-** India's average income grew at **2.6% per year** in real terms between 1960 and 2022.
- 2. Emergence of very high net worth individuals-** The period between 1990 to 2022 witnessed a rise in national wealth and the emergence of very high net worth individuals (**those with net wealth exceeding \$1 billion at market exchange rate**). The number of high net worth individuals has increased from **1 to 52 to 162 in 1991, 2011 and 2022 respectively**.
- 3. Rise in the percentage of income taxpayers-** The share of adult population filing an income tax return has increased from **1% till the 1990s to 5% in 2011 to 9% between 2017-2020**.

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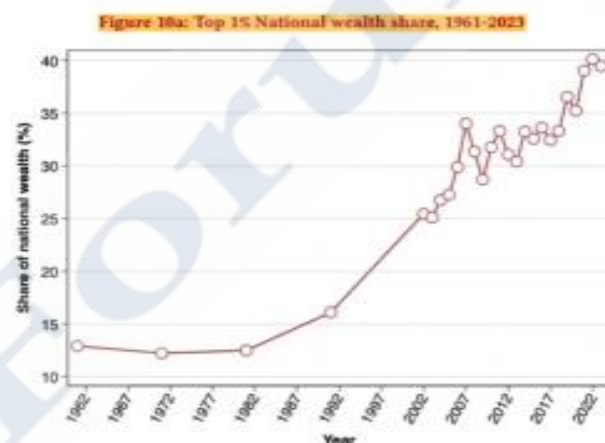


**4. Extreme levels of inequality in India-** In 2022-23, India's top 1% own 22.6% of India's national income and 40.1% of the country's wealth. The 'Billionaire Raj' headed by India's modern bourgeoisie is now more unequal than the British Raj headed by the colonialist forces.



Source- Indian Express

**5. Extreme wealth concentration at the very top-** Between 1961 and 2023, the top 1% wealth share has increased threefold, from 13% to 39%.



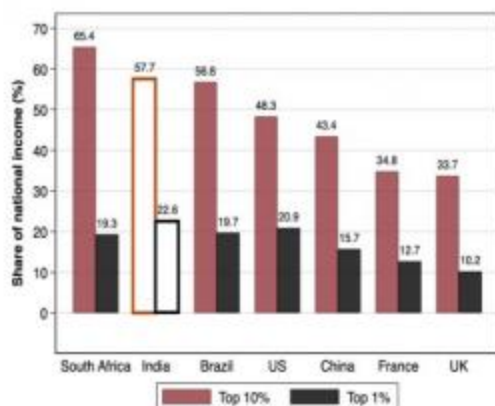
Note: The figure presents the distribution of per-adult national wealth.

Source- Indian Express

**6. International comparison of income and wealth inequality-** India's top 1% income share and wealth share is among the very highest in the world, behind only perhaps Peru, Yemen and a couple of other small countries. India has one of the highest wealth and income inequality in the world.



Figure 15a: Top income shares in global perspective, 2022-23



Note: The figure compares India's top 10% and top 1% income shares with a handful of countries that include some of the most unequal ones. In 2022-23, India's top 1% income was not only the highest among these countries but among the very highest anywhere in the world.

Figure 1. Source- Indian Express

situations like **Pandemic, Disasters** etc.

**2. Hampers progress of Future Generations-** Lack of access to income and wealth hampers the ability of the poor to access the levers, like education, that enable upward mobility. Children born in poor families remain perpetually trapped in poverty.

**3. Undermines Dignity-** People with less resources have to work day and night without any day off, unlike the affluent section. They starve for food, clothing and other basic things, which undermines their right to a dignified life under Article 21.

**4. High Crime Rates-** Inequitable distribution of wealth leads to lower social trust and higher crime rates.

#### What are the challenges in addressing inequality?

**1. Low Female Labour Force Participation Rate-** Lack of Education, Early Marriage, household responsibilities etc. force women to opt out of jobs which reduces their income and increases income inequalities.

**2. Poor Coverage of Schemes-** There is poor coverage of health and education schemes, which increases the out-of-pocket expenditure of poor people and exacerbates income and wealth inequalities.

**3. Global Uncertainties-** The continuation of COVID-19 and Russia-Ukraine conflict have pushed the inflation levels in the country, thereby increasing income and wealth inequality in India.

**4. High level of in-formalisation of economy-** A significant portion of India's workforce is engaged in the informal sector, which typically lacks job security, social protections, and access to formal financial services. Workers in the informal sector often face exploitative working conditions and lower wages compared to their counterparts in the formal sector.

**5. Skewed Economic Growth Patterns-** High growth rates have primarily benefited certain sectors and regions, leading to a concentration of wealth and opportunities among a relatively small portion of the population.

#### What steps have been taken by the government to reduce inequality in India?

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**7. Poor Economic data-** Quality of economic data in India is notably poor, and it has seen a decline recently, leading to likely underestimation of level of inequality.

**8. Policy solution to reduce inequality-** Implementing a super tax on Indian billionaires and multimillionaires, restructuring the tax schedule to include both income and wealth, and finance major investments in education, health and other public infrastructure, could be effective measures to reduce inequality in India.

#### What are the implications of rising inequality in India?

**1. Higher Vulnerabilities to Extreme Events-** Poor people have little to no savings or wealth which makes it very difficult for them to survive in extreme



<b>JAM Trinity</b>	It focuses on mobile numbers, Aadhaar Card and post office accounts as <b>alternative financial delivery mechanisms</b> to ensure that benefits reach the poor households seamlessly.
<b>Ayushman Bharat</b>	It focuses on providing care through <b>Health Wellness Centres (AB-HWC)</b> covering child and maternal health services, non-communicable diseases, and free drugs and diagnostic services.
<b>Samagra Shiksha Abhiyan</b>	It is an Integrated Scheme for School Education. This programme subsumes the three erstwhile Centrally Sponsored Schemes of <b>Sarva Shiksha Abhiyan (SSA)</b> , <b>Rashtriya Madhyamik Shiksha Abhiyan (RMSA)</b> and <b>Teacher Education (TE)</b> .
<b>MGNREGA</b>	It <b>guarantees 100 days of work a year</b> to every rural household with an aim to enhance the livelihood security of people.

#### What Should be the Way Forward?

- 1. Super Tax or Wealth Tax-** The government should levy wealth tax and super tax on Indian billionaires and multimillionaires. This will reduce levels of income inequality in India.
- 2. Raising minimum wage rate-** The government should raise the minimum wage rate especially in **the unorganized sector** wherein people get very less social security benefits like gig workers and gig economy.
- 3. Higher investment in Education and Health-** The government of India must **invest 6% of GDP in Education** and **2.5% of GDP in Health** to ensure equitable development and reduce inequalities in the country.
- 4. Reduce exclusion error in schemes-** There should be **greater focus on digitization** and **JAM usage** in order to reduce inclusion and exclusion errors in schemes.

Read More- [The Indian Express](#)

UPSC Syllabus- GS 3- Inclusive Growth In India

#### [Yojana March 2024 Summary] Folk Art Reimagined Using Modern Techniques- Explained Pointwise

**Contemporary Digitisation** has been revolutionising every aspect of Human lives. The realm of **contemporary Indian folk art** is also facing **increasing pressure** to adapt to modern technological advancements like **digitisation** and **virtual representation**. However, there is also a challenge to preserve the intrinsic essence of these traditions amidst evolving technological Changes.





Source- Yojana

### What is Folk Art? What is the importance of Folk art?

Folk art covers **all forms of visual art made** in the context of folk culture. These art forms are expressed through music, dance, and visual representations. They are deeply rooted in the cultural specifics of communities.

#### Importance of Folk Art

- a. Folk art serves as a **medium for preserving unique customs** and contributes to fostering of communal cohesion.
- b. Folk art serves as a **means for articulating collective consciousness** and their historical legacy.
- c. Folk art **facilitates sustainable community engagement**.

In the modern era, **folk art and music** are shifting to the digital realm for their presentation. This provides an opportunity for these folk art to preserve their cultural heritage, so that they can reach a broader audience, **particularly among younger generations**.

### What are the advantages of folk art presentation using modern techniques?

- 1. Transcending geographical and cultural boundaries-** Smart virtual technologies offer an opportunity for folk art forms to evolve and reach broader audiences through **digital dissemination** by transcending geographical and cultural boundaries.
- 2. Facilitate Cross-cultural influence-** Modern techniques like digitisation and virtual medium, facilitates **globalisation of Indian folk art**.



**3. Relevance of contemporary audiences-** Infusion of modern elements **revitalises these folk practices**, making them relevant to contemporary audiences.

**4. Enhances Community Engagement-** The use of modern techniques for folk art dissemination enhances community engagement as it connects different communities across the globe.

**5. Identity and change-** Digital dissemination of folk art forms, helps them in **adapting and flourishing** while retaining their intrinsic cultural significance.

#### **What are the challenges in disseminating folk art using modern techniques?**

**1. Threats of Mutation and Dilution-** Some experts have expressed apprehensive concerns regarding the potential dilution of the subtle, abstract, and intuitive elements inherent in traditional folk art forms.

**2. Failure to convey nuanced expressions-** There is growing concern among traditional masters about whether performance through virtual mediums can **adequately convey the nuanced expressions that are expected to be felt physically**.

**3. Algorithmic bias and mass standardisation-** There are dangers of algorithmic bias and mass standardisation for these unique art forms, which can **inadvertently erase the locality-specific nuances** of folk traditions.

**4. Risks of Homogenisation-** There are risks of homogenisation, commodification and reduction to superficial representations devoid of their original depth and meaning.

**5. Balance between innovation and preservation-** We must maintain the integrity of these folk elements by maintaining a delicate balance between innovation and preservation.

Read More- [Folk artists as record-keepers of the pandemic](#)

#### **What should be the way forward?**

**1. Collaboration between technologists and artists-** Collaborative efforts between modern technologists and artists, who have an in-depth understanding of tradition, can be endeavoured to ensure that **digital adaptations retain the genuineness and richness of their traditional counterparts**.

**2. Finding methodology to preserve authenticity-** A well-thought-out practical solution must be devised wherein these folk art forms, while retaining their intrinsic cultural significance, can adapt and flourish amidst the rapid pace of change.

**3. Sensitivity and respect for diversity-** It is essential to approach the digitisation of folk art with sensitivity and respect for its diversity and its connection to our rich heritage.

**4. Balance between innovation and preservation-** We must strike a well-thought-out balance between innovation and preservation, to ensure that folk art forms thrive in the digital age without sacrificing their essence.

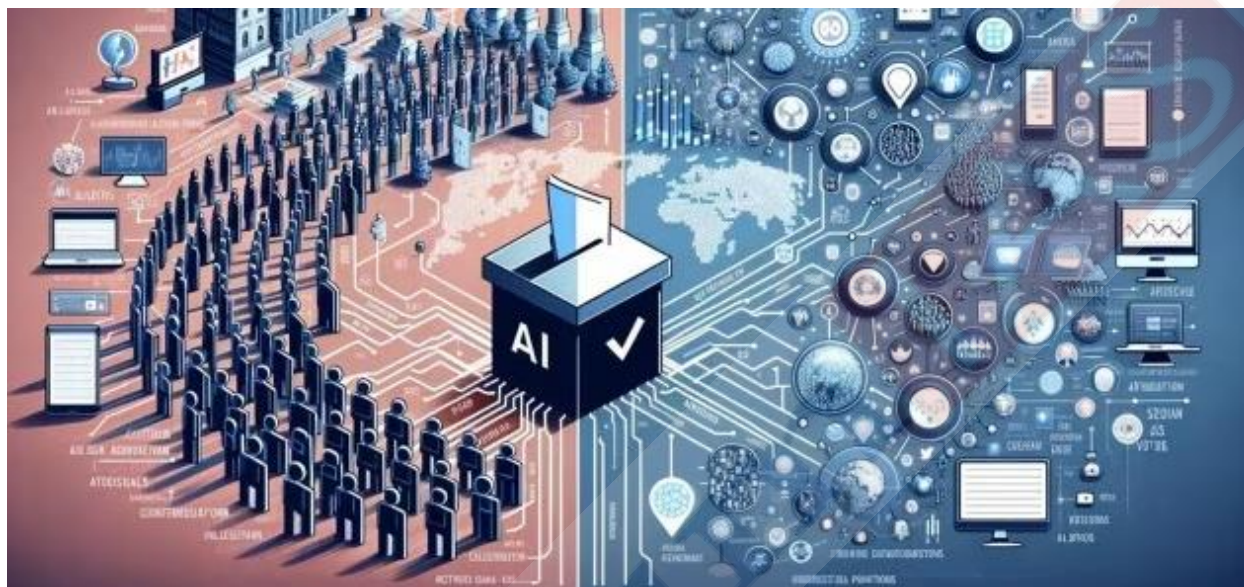
Read More- [Indian Art Ideas](#)

UPSC Syllabus- GS 1 – Indian art and culture (Contemporary times)



## Social and Political Impacts of AI- Explained Pointwise

Artificial intelligence (AI) is **transforming our world**, with **wide-ranging social and political impacts**. However, Its rapid **development and integration into social and political life** raises critical questions about privacy, employment, ethics and governance. As AI advances, understanding and managing its social and political impacts become increasingly important for a balanced and inclusive future.



Source- Indian Express

### What is artificial Intelligence?

**Artificial Intelligence-** Artificial intelligence is **intelligence demonstrated by machines**. AI is a **discipline** which **focuses on formulating theories** and **methodologies** for constructing machines that emulate human thought processes and behaviours.

Generative AI is a subset of Artificial intelligence which is being increasingly used with wide ranging social and political impacts.

**Generative AI-** Generative AI is a type of **artificial intelligence technology** that can produce various types of **content, including text, imagery and audio**. The term 'Generative' refers to the ability of the models to create new data based on certain input parameters. **For ex-** A generative model is used to generate facial images by providing a set of parameters such as the eyes, hair, or skin colour etc.

Read More- [Generative AI Explained Pointwise](#)

### What are the positive and negative political impacts of artificial Intelligence?

#### Positive impacts

**1. Innovative Policy Development-** AI is being increasingly used in innovative policy development. **For ex-** **AI-drafted bills in the US Congress** is an example of AI's use in legislative drafting.

**2. Enhanced Political Messaging-** AI is being used to **craft resonant political messages** through advanced analytics, which is revolutionizing campaign strategies.



**3. New Political Platforms-** AI is being used as a platform for political engagement and political ideological development. **For ex- Denmark's Synthetic Party using AI Chatbox** to shape its political ideology.

**4. Economic Contributions-** **AI-driven fundraising and business ventures** marks a significant shift in political finance dynamics.

**5. Campaign Strategies-** Generative AI is being used extensively in electoral campaigns, such as **live translation of election speeches into multiple languages**.

### Negative Impacts

**1. Promotion of 'Liar's Dividend' through Deepfakes-** Liar's Dividend refers to the situation when an undesirable truth is dismissed as deepfake or fake news. Political leaders have been weaponising deepfakes generated through AI, to replace an actual piece of media and truth. **For Ex- Donald Trump's deepfake videos blur the line between reality and fake**. People start dismissing reality as fake.

**2. Erosion of trust in democratic processes like elections-** Doctored content, most likely in the form of a realistic fake video, is presented as fact to alter public perception and create democratic deficit. **For Ex- Capitol Hill violence, 2021 was incited by using deep fake media**.

**3. Manipulation Risks-** There are concerns about AI swaying elections and public opinion through the **spread of false political narratives**.

**4. Ethical and Legal Challenges-** The acceptance of **AI-generated political contributions or parties** raises complex ethical and legal questions about AI's role in democratic processes.

### What are the positive and negative Social impacts of AI?

#### Positive Impacts

**1. Improving Healthcare System-** AI has the potential to revolutionize the healthcare sector by improving the accuracy of diagnosis. **For ex- Conversion of X-ray or any CT scan images to real images** can improve the accuracy of diagnosis.

**2. Boost to Agriculture-** AI **enables precision agriculture**, improving crop productivity by providing accurate agronomic and weather data. This is crucial for meeting the needs of a growing population.

**3. Creating empathy for people of War torn regions-** Projects like the **Deep empathy project of MIT and UNICEF** has been increasing empathy for victims of a disaster region by creating AI-images of war-torn regions like **Syria, Yemen**.

**4. Voice restoration-** The technology is being used to restore the voices of patients suffering from amyotrophic lateral sclerosis. **For ex- Launch of various 'Voice cloning initiatives'**.

**5. Use in the field of creative art and Entertainment-** The deepfake technology can be used to **improve the dubbing of foreign language, films and resurrect dead actors**. **For ex-** Samsung artificial intelligence lab in Moscow **bringing Monalisa** to life by using deep fake technology.

#### Negative Impacts

**1. Crime against women-** The deepfakes generated through AI are being used as a weapon to attack women dignity and chastity. According to AI company Deepttrace report, **over 90% of the deepfake videos are pornographic** in nature.



**2. Fuelling Radicalisation and violence-** The **non-state actors like ISIS and Al-Qaeda**, use fake videos to stir anti-state sentiments among people. **For Ex-** Fake videos showing armed forces committing 'crimes in conflict areas'.

**3. Threat of Job Losses-** There are fears of job losses due to the use of AI technology, which can prove to be more **cost-efficient and productive** to firms as compared to human capital. **For ex-** **Customer service jobs are under threat from the AI chatboxes** (Zomato's Zia).

**4. Data Privacy Concerns-** AI's **ability to analyze vast amounts of data** raises **significant concerns** over **data protection, cybersecurity, and privacy**.

**5. Environmental Concerns-** AI systems require a lot of computing power, which have grave implications for the environment. **For ex-** **According to analysts, training a transformer model just once with 213 million parameters can emit carbon emissions equivalent to 125 flights between New York and Beijing.**

### What is the status of regulation of AI in India and across the globe?

#### India

**a. Digital India Framework-** India is developing a comprehensive Digital India Framework that will include provisions for regulating AI. The framework aims to protect digital citizens and ensure the safe and trusted use of AI.

**b. National AI programme-** India has established a National AI Programme to promote the efficient and responsible use of AI.

**c. National Data Governance Framework Policy-** India has implemented a National Data Governance Framework Policy to govern the collection, storage, and usage of data, including data used in AI systems. This policy will help ensure the ethical and responsible handling of data in the AI ecosystem.

**d. Draft Digital India Act-** The Ministry of Information Technology and Electronics (MeitY) is working on framing the draft Digital India Act, which will replace the existing IT Act. The new act will have a specific chapter dedicated to emerging technologies, particularly AI, and how to regulate them to protect users from harm.

#### Rest of the World

**a. European Union-** The European Union is working on the draft Artificial Intelligence Act (AI Act) to regulate AI from the top down.

**b. United States-** The White House Office of Science and Technology Policy has published a non-binding Blueprint for the Development, Use, and Deployment of Automated Systems (Blueprint for an AI Bill of Rights), listing principles to minimize potential harm from AI.

**c. Japan-** Japan's approach to regulating AI is guided by the Society 5.0 project, aiming to address social problems with innovation.

**d. China-** China has established the "Next Generation Artificial Intelligence Development Plan" and published ethical guidelines for AI. It has also introduced specific laws related to AI applications, such as the management of algorithmic recommendations.

### What Should be the Way Forward?

**1. De-biasing while training the AI-** We must ensure fairness of the information which is being fed into the system, to **ensure that AI doesn't perpetuate or amplify social biases**, like **gender and racial biases**.



**2. Transparency of information-** Users should have transparent information about the **limitation and risks of AI**.

**3. Privacy protection-** The user data and confidentiality must be protected to ensure user privacy. **For ex-Strict implementation of data protection laws.**

**4. Ethical use of AI-** We must ensure that AI is used only for beneficial purposes. The push must be made towards **universal adoption of the Bletchley Declaration** by all the countries.

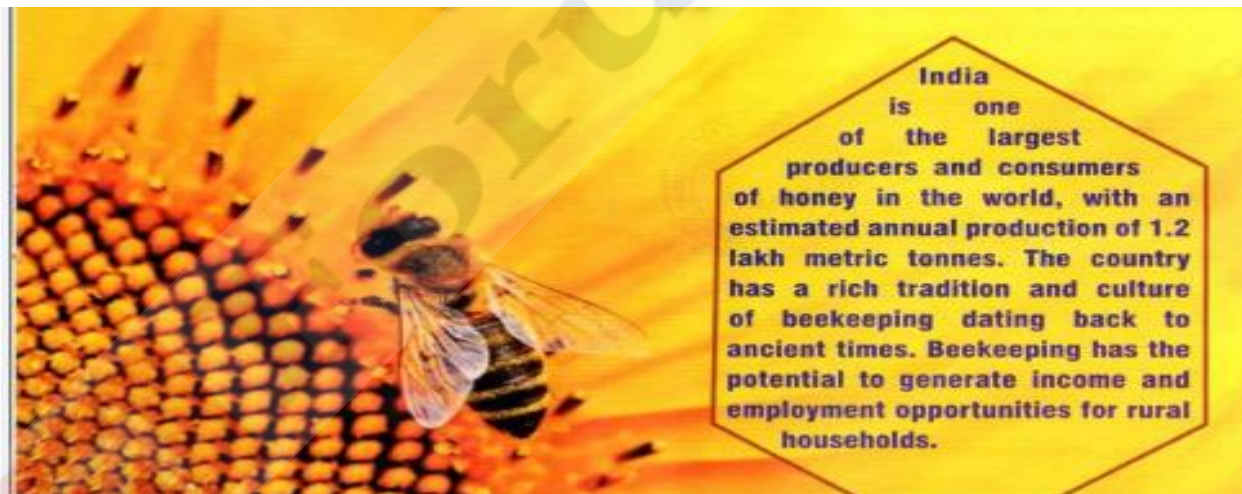
AI has the potential to give society intelligent guidance on how to approach some of the biggest problems, like climate change and pandemics. In the coming times, AI will contribute to longer, healthier, and more fulfilling lives worldwide if used responsibly.

**Read More-** [The Indian Express](#)

**UPSC Syllabus- GS 3-** Development in the field of IT

### **[Kurukshetra March 2024 Summary] Apiculture- Scope and Opportunities- Explained Pointwise**

Apiculture is a **widespread and global activity**, with millions of beekeepers **depending on bees for their livelihoods and well-being**. Together with wild pollinators, **bees play a major role in maintaining biodiversity**, ensuring the survival and reproduction of many plants, supporting forest promoting sustainability and adaptation to climate change, and improving the quantity and quality of agricultural productions.



Source-Kurukshetra

#### **What is apiculture?**

Apiculture is the **science and culture of honeybees and their management**. Beekeeping is the practice of intentional maintenance of honey bee colonies, commonly in hives, by humans.

**Apiary-** A beekeeper may keep bees in order to collect honey and beeswax, or for the purpose of pollinating crops, or to produce bees for sale to other beekeeper. A location where bees are kept is called an apiary.



**Beekeeping-** Beekeeping (or apiculture, from Latin: Apis 'bee') is the maintenance of honey bee colonies, commonly in hives, by humans. In India, beekeeping has been mainly forest-based. Several natural plant species provide nectar and pollen to honey bees.

### What is the history of beekeeping in India?

Globally, there are more than 20,000 species of wild bees, many of which are solitary or which rear their young in burrows and small colonies, like mason bees. In India, beekeeping is commercially done in Himachal Pradesh where locals collect honey on hills and in forests.

Beekeeping, or apiculture, is concerned with the practical management of the social species of honey bees which live in large colonies of up to 100,000 individuals.

### Different types of honey bee species in India

Sl. No.	Common name	Scientific name	Honey yield per year per hive (kg)
1	Indian bee	<i>Apis cerena</i>	8-10
2	European bee	<i>Apis mellifera</i>	25-30
3	Rock bee	<i>Apis dorsata</i>	30-35
4	Little bee	<i>Apis florea</i>	<1
5	Himalayan bee	<i>Apis laboriosa</i>	40-45

Source: AICRP on Honey Bee, 2018

Figure 2. Source- Kurukshetra

### What are the advantages of apiculture in India?

**1. Source of Important forest based Outputs-** Apiculture is important because it directly contributes to the outputs produced, such as **honey, beeswax, queen, and bee colonies**, and other products such as pollen, royal jelly, bee venom, and propolis in cosmetics and medicine.

**2. Maintenance of ecological sanctity-** Apiculture plays a role in providing **nutrition, economic, and ecological security**, as bees are valuable pollinators of both

agricultural crops and natural ecosystems.

**3. Less capital requirement-** Apiculture business is less capital intensive as it requires **less land and less initial capital**.

**4. Source of employment opportunities-** Apiculture is a **major source of employment opportunities for people of all age groups**.

### What are the challenges in the development of apiculture in India?

**1. Lack of Awareness and Training-** Many potential beekeepers lack adequate knowledge about **beekeeping practices**, including **hive management, disease prevention, and honey extraction techniques**.

**2. Limited Access to apiculture Resources-** Access to beekeeping equipment, such as **hives, protective gear, and bee colonies**, is limited in certain regions of India. This lack of resources hampers the expansion of beekeeping activities, particularly in rural areas.



**3. Climate Variability-** Erratic weather patterns, such as unseasonal rains or prolonged droughts, have been affecting the **honeybees foraging behavior**, **disrupting flowering patterns**, and ultimately impacting honey production.

**4. Pests and Diseases-** Bee colonies are susceptible to various pests and diseases, such as Varroa mites, nosema, and foulbrood.

**5. Chemical Use in Agriculture-** Pesticides and other agricultural chemicals pose a **threat to bee populations by contaminating their food sources** and weakening their immune systems.

**6. Market Challenges-** **Price fluctuations**, **competition from imported honey**, and **lack of market infrastructure** have been hindering the profitability of beekeeping ventures.

#### What are the Government Initiatives for Beekeeping Development in India?

<b>National Beekeeping and Honey Mission (NBHM)</b>	<b>Launched in 2017</b> under the National Horticulture Mission, NBHM <b>aims to promote scientific beekeeping practices, enhance honey production</b> , and improve the livelihoods of beekeepers.
<b>'Sweet Revolution' as part of Aatmanirbhar Bharat Abhiyaan</b>	NBHM aims for the overall promotion and development of scientific beekeeping in the country to achieve the goal of 'Sweet Revolution', which is being implemented through the National Bee Board (NBB).
<b>National Bee Board (NBB)</b>	The National Bee Board, <b>established in 2000 under the Ministry of Agriculture &amp; Farmers Welfare</b> , serves as the apex body for the promotion and development of beekeeping in India.
<b>Rashtriya Krishi Vikas Yojana (RKVY)</b>	RKVY supports various <b>agricultural and allied sector development activities</b> , including beekeeping.

#### What Should be the Way Forward?

**1. Proper Training-** Proper training and awareness programs are essential to equip beekeepers with the necessary skills.

**2. Adequate Pest Management-** Proper pest management and disease management must be readily available to all beekeepers.

**3. Sustainable farming practices-** Encouraging sustainable farming practices that minimize chemical use is essential for the health of bee colonies.

**4. Preservation of natural habitats-** Preserving natural habitats and promoting agroforestry practices can help mitigate the effects of land use change and provide additional forage for bee colonies.

Read More- [Indian Express](#)

UPSC Syllabus- GS 3- Agriculture and allied sectors



## [Yojana March 2024 Summary] From the 'Art with intelligence' TO 'Artificial intelligence'- Explained Pointwise

We have been **evolving** from **art with remarkable intelligence** to **artificial intelligence in the creation of new art forms**. Art and intelligence have always been bound to each other since ancient times. However, the rise of digital technology has given birth to new art forms, such as **digital painting, graphic design, animation, and interactive media**.



Source- Yojana

### What is the history of art with remarkable intelligence?

Early humans developed significant art with their intelligence. **For ex-** Art made of stone and ivory, pottery, metallurgy, textile manufacture, bead-making, wood-carving, cart-making, cave painting.

During the **first urbanisation in India**, which took place between **2600-1900 BCE**, Harappan civilisation emerged as a civilisation famous for its art with remarkable intelligence. **For ex-** **Invention of wheel, intercropping, lost wax technique, alloying technique to make figurines.**

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During the **second urbanisation in India**, which took place in the Ganga valley also displayed remarkable intelligence. **For ex- Delhi Iron Pillar**, which is 1500 years old, consists of six tonnes of wrought iron and uses phosphorous in the iron, is an excellent example of art with intelligence. **This iron pillar is famous for its rust-resistant properties.**

### How is Artificial intelligence being used to enhance Art features?

The combination of art and digital technology has led to the creation of a new, revitalised form of art known as '**digital art**'. The rise of digital technology has given birth to new art forms, such as **digital painting, graphic design, animation, and interactive media.**

Artists use digital tools like **tablets, software programs, and digital cameras** to create stunning visual artworks that were previously impossible to achieve with traditional methods.

### Use of Digital Technologies in the following art forms in Modern Times

<b>Visual Art</b>	There has been <b>new digital innovation in the field of Visual art</b> , especially in cinema. New technologies are being used to create a <b>visual imagination of our cultural places, cultural attire.</b>
<b>Painting</b>	Digitisation is being used to <b>create abstract painting</b>
<b>Sculpture</b>	<b>3D techniques</b> are being used to make digital sculptures using <b>laser technology</b> , and digital impression of sculpture using <b>projection technology.</b>
<b>Architecture</b>	<b>Remote sensing to Aerial exploration</b> is used to gather calculative data required to make an architecture.
<b>Dance</b>	<b>Laser lighting</b> is used to create a persona where a person is dancing, using laser lights.
<b>Music</b>	Instruments are now <b>being digitally</b> played to synchronise the voices of artists.
<b>Cinematography</b>	<b>VFX technology</b> and <b>Voice in cinema</b> is being used in cinematography.

### What are the advantages of use of artificial intelligence in art?

**1. Development of Digital space for art institutions-** The use of artificial intelligence has marked a significant turning point in the development of the digital space for art institutions like **virtual art museums, exhibitions, virtual conservatories, theatres.**

**2. Expanding audience Reach-** Websites, social media platforms, online galleries, and digital art marketplaces allow artists to reach a wider audience and **connect with fellow creators.**

**3. Increase in sales-** Digital technologies have led to increase in sales of digital artworks by helping them to **sell their artwork directly to collectors.**

**4. Digital preservation-** Digital preservation techniques, such as **digitisation, metadata management, and digital archiving** are essential for ensuring the long-term preservation and accessibility of digital artworks for future generation.

**5. Increasing accessibility-** Digital era has helped to create new art and cultural expression forms, making them accessible worldwide.

### What are the challenges in the digital era of art?

**1. Lack of training and resources-** Many artists lack training and resources in digital art creation, which requires **proficiency in digital tools and software.**



**2. Concerns about quality and authenticity of artworks-** The proliferation of digital art online makes it difficult to discern the quality and authenticity of artworks, **leading to trust and credibility issues**.

**3. Digital manipulation-** Digital technologies are used inappropriately, like **fake or defaced videos**. The distinction between original artworks and digital forgeries or replicas have become more challenging.

**4. Data Privacy concerns-** Collection and storage of personal information, conduction of financial transactions, and sharing creative content online carry **inherent data breach risks** that require robust cybersecurity measures and data protection protocols.

#### **What Should be the way Forward?**

**1. Copyright laws and Digital rights mechanisms-** Copyright laws and digital rights mechanisms must be streamlined to look out for the interests of artists and consumers.

**2. Digital technology-** We must restrict ourselves and create boundaries for how much we use digital technology.

**3. Measures against Digital manipulation-** Safe and responsible use of AI in accordance with **Bletchley Declaration** principles to guard against digital manipulation.

Read More- [Indian Express](#)

UPSC Syllabus- GS 1- Art and architecture in modern times

### **[Kurukshetra March 2024 Summary] Vertical Farming and Hydroponics- Explained Pointwise**

Adoption of Advanced farming methods like **Vertical Farming** and **Hydroponics** is necessary for **sustainable and efficient food production systems** to meet the demands of growing population. In India, hydroponics and vertical farming are gaining importance considering the increasing demand for leafy, green vegetables and fruits like strawberries and blueberries.





Fig. 1- Vertical farming technology at ICAR-IARI, New Delhi

Source- Kurukshetra

### What is Vertical Farming and Hydroponics?

**Vertical Farming-** It is an **indoor urban technique** involving large-scale food production within multi-storey buildings. It adopts a unique approach to **maximise space and efficiency** by **cultivating plants in vertically stacked layers** or **inclined surfaces**, often within controlled environments like greenhouses or warehouses. It frequently utilises **controlled-environment agriculture** (CEA) **techniques** to optimize factors such as light, temperature, humidity, and nutrients.

**Nutrient Providing Method-** Various shapes and sizes of vertical farms worldwide employ one of three nutrient-providing methods- Hydroponics, Aeroponics and Aquaponics.

<b>Hydroponics</b>	This prevalent technique involves <b>growing plants on soil-free substances continuously irrigated with nutrients</b> . Plant roots are submerged in a nutrient solution, and the system <b>uses 60-70% less water than traditional agriculture</b> , making it widely utilised in numerous vertical farms worldwide.
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<b>Aeroponics</b>	Aeroponics cultivates plants in a <b>soil-free mist environment with roots hanging down in a closed-air container</b> . This method <b>uses 90% less water than hydroponics</b> , making it a highly efficient system of food production. Plants grown aeroponically absorb more nutrients, resulting in healthier and more nutritious produce.
<b>Aquaponics</b>	Aquaponics <b>integrates fish production into plant cultivation</b> . The system <b>utilises fish-produced nutrient rich waste as a feed resource for plants</b> , and plants, in turn, purify and recycle wastewater for fish ponds.

### Crops suitability

<b>Leafy greens and vegetables</b>	Lettuce, spinach, kale (karam Saag), pak choi, arugula, coriander, chard, collard green tomatoes, pepper, broccoli, cucumber, beans
<b>Herbs</b>	Chives, basil, mint, oregano, fennel and parsley
<b>Fruits</b>	Strawberries, blueberries

Figure 3. Source- Kurukshetra

### What is the need for Vertical Farming and Hydroponics in India?

**1. Diminishing Farmlands and increasing urbanisation-** According to UN report, **53% of Indian Population is expected to live in cities by 2050**. Vertical and hydroponic farming, can ease pressure on agricultural lands for a healthier and more sustainable future.

**2. Potential for Economic Growth-** According to IMARC

Group's latest research report, the India vertical farming market is expected to demonstrate **a CAGR of 25.4% during the period 2023-2028**, which will propel economic growth.

**3. Address the diminishing production due to climate change-** It is a contemporary practice of cultivating crops in stacked layers within protected indoor environments, can help in addressing diminishing agricultural resources due to changing climate.

**4. Enhancing food production-** It has the potential to enhance food production, maintain quality and **contribute to sustainable urban farming**.

**Read More-** [Methods of Farming](#)

### What are the associated advantages?

**1. Less land requirement-** Hydroponics in conjunction with vertical farming **utilises 99% less land** compared to traditional farming due to the concentrated root system.

**2. Year-round cultivation of seasonal crops-** It enables the creation of a **controlled microclimate**, allowing year-round indoor cultivation of regional or seasonal crops.

**3. Reduced need of pesticides-** It **protects crops from soil-borne pests and diseases**, and adverse weather conditions, thereby reducing the need for pesticides and fertilisers.

**4. Flexibility of installation-** It is flexible to set up locations of vertical farming anywhere. Hence, it reduces transportation and warehouse costs, streamlining the supply chain.

### What are the associated Challenges?

**1. Shortage of Skilled labour Force-** There is **shortage of expert labour force** which can execute vertical farming, leading to elevated labour costs.

**2. Increased cost of production-** Vertical Farming is **highly energy-intensive having artificial lighting, temperature, and humidity requirements**, which increases the cost of production.



**3. Absence of natural pollinators-** There is **absence of natural pollinators in controlled conditions**. This can result in poor fruit sets and the production of small, misshapen fruits.

**4. Confined range of crop production-** The range of crops cultivated commercially is usually **confined to leafy vegetables and microgreens**.

**5. Regular maintenance requirement-** It requires continuous attention and care, with components like pumps and nutrient delivery systems needing regular maintenance.

#### **What should be the way Forward?**

**1. Increasing affordability-** Vertical farming's affordability can be enhanced by **utilising cheap and available shipping containers** and abandoned warehouses.

**2. Collaborative research-** Collaborative research must be **undertaken in the field of vertical farming** to enhance technological practices for increased sustainability.

**3. Supportive policies-** Supportive policies and incentives, like **grants and tax benefits**, can encourage investment and promote urban agriculture through agri-startups.

**Read More- [Indian Express](#)**

**UPSC Syllabus- GS 3- Modern agricultural techniques**