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7 PM COMPILATION

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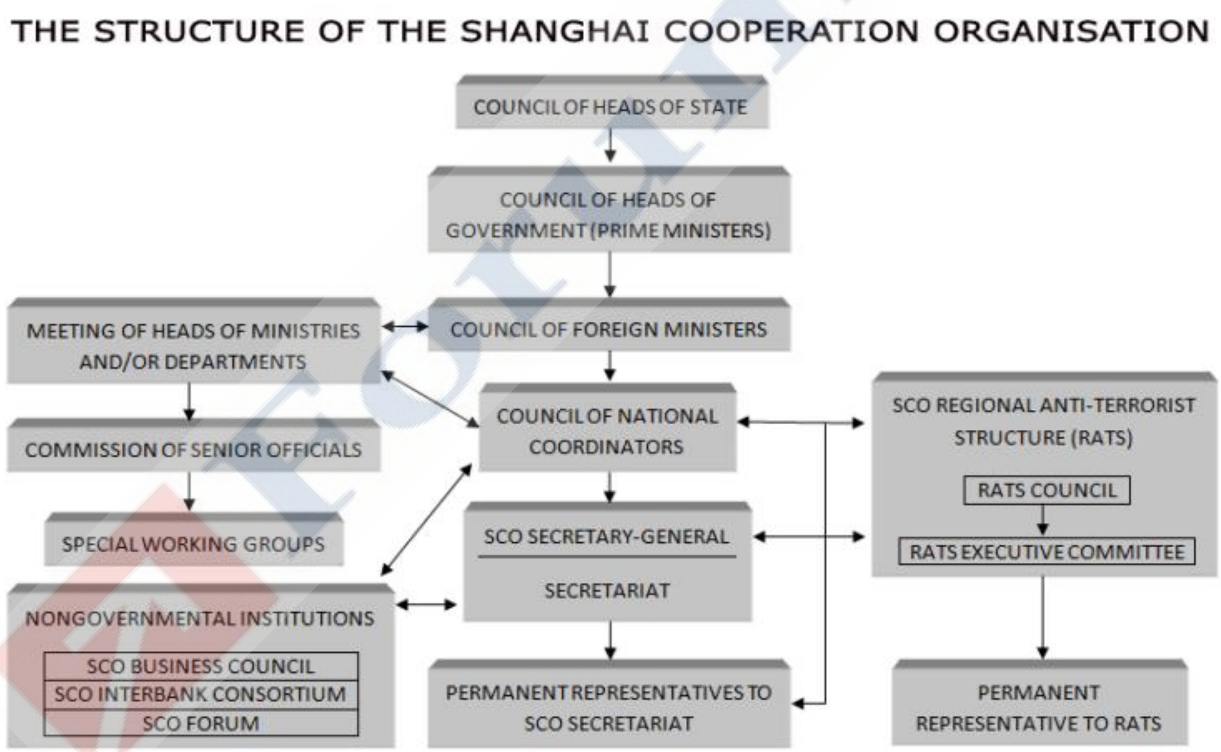
SCO (Shanghai Cooperation Organization) – Significance & Challenges – Explained Pointwise

The **25th SCO Summit** is being held from **August 31 to September 1, 2025**, in **Tianjin, China.** It marks the **fifth time China hosts the summit** and is expected to be the **largest gathering** in SCO history. Leaders from over **20 countries**, plus heads of about **10 international organizations**, will be present. PM Narendra Modi is also attending the summit – marks his first visit to China since 2019.
In this regard, let us understand the significance & challenges of the Shanghai Cooperation Organization (SCO).

What is SCO?

- **Shanghai Cooperation Organization (SCO)** is a Eurasian political, economic, international security, and defense organization. It was established on June 15, 2001, in Shanghai, China.
- SCO's roots lie in the **"Shanghai Five"** formed in 1996, consisting of **China, Russia, Kazakhstan, Kyrgyzstan, and Tajikistan.** This group was initially created to address security concerns and manage border issues after the dissolution of the Soviet Union. With the admission of **Uzbekistan** in 2001, the "Shanghai Five" was officially transformed into the SCO.
- At present, SCO comprise of 10 members: **People's Republic of China, Kazakhstan, Kyrgyzstan, Russia,** and **Tajikistan**, **Uzbekistan, India** and **Pakistan** (both joined in 2017), **Iran** (joined the in 2023), and **Belarus** (joined in 2024).



What is the SIGNIFICANCE of SCO?

1. Geopolitical and Strategic Influence:

- The SCO is the world's largest regional organization in terms of geographic scope and population. It covers approximately 80% of the Eurasian landmass and about 40% of the world's population.

- Its members range from nuclear powers (Russia, China, India, Pakistan, and now Iran) to resource-rich Central Asian states. This diversity of political systems, economies, and cultures makes it a unique platform for dialogue.

2. Economic and Connectivity Potential:

- SCO member states collectively account for about 30% of global GDP. The inclusion of major economies like India and resource-rich nations like Iran further enhances its economic weight.
- With the inclusion of Iran, the SCO members control a significant percentage of the world's oil (20%) and natural gas (44%) reserves. The **SCO Energy Club** promotes cooperation between major energy producers and consumers within the bloc.
- SCO emphasizes promoting connectivity and infrastructure development across Eurasia. It aligns significantly with China's Belt and Road Initiative (BRI) (though India has concerns about BRI), promoting projects that enhance trade networks and transportation routes, such as the Central Asia–China Gas Pipeline.

3. Counter-Terrorism and Security: A primary and highly successful initiative of the SCO is its focus on combating terrorism, separatism, and extremism. The **Regional Anti-Terrorist Structure (RATS)** based in Tashkent facilitates intelligence sharing and coordinated efforts against these threats, making it the primary security organization in Central Asia.

4. Regional Stability in Eurasia: The SCO plays a crucial role in maintaining peace, security, and stability across the vast Eurasian region, particularly in Central Asia, which is strategically vital. While not always directly intervening, the SCO provides a platform for its members to discuss and coordinate approaches to regional issues, including the instability in Afghanistan.

5. Platform for Dialogue: The SCO provides a crucial platform for high-level political and security dialogue among its diverse members, including those with bilateral tensions (e.g., India-China, India-Pakistan). This can help in de-escalating tensions and fostering understanding.

6. Consensus-Based Decision Making: While dominated by China and Russia, the SCO's consensus-based decision-making process means that all members (including India) have a voice, even if it sometimes leads to slower action.

7. Quad vs. SCO: India's membership in the Quadrilateral Security Dialogue (Quad) with the US, Japan, and Australia, which is often seen as a grouping to counter China's influence, creates a delicate balancing act. Thus, India maintains its strategic autonomy by being part of both "pro-Western" and "non-Western" blocs.

What are the LIMITATIONS/CHALLENGES of SCO?

1. Internal Conflicts and Bilateral Tensions:

- **India-China Border Disputes:** Ongoing border disputes and geopolitical tensions between India and China (e.g., the Ladakh standoff) frequently spill over into SCO discussions, making it difficult for the two major powers to fully cooperate on broader issues.
- **India-Pakistan Animosity:** The historical animosity and persistent issues between India and Pakistan create a challenging environment for consensus-building. India often expresses concerns about cross-border terrorism emanating from Pakistan, which Pakistan may try to deflect or downplay within the SCO forum.

- **Central Asian Border Disputes:** Conflicts and border disputes between Central Asian member states (e.g., Kyrgyzstan-Tajikistan) can also affect regional stability and divert the SCO's focus.
- **Lack of Conflict Resolution Mechanism:** The SCO lacks a formal and effective mechanism for resolving disputes between its member states, which means bilateral tensions often fester and can impede collective action.

2. Dominance of China and Russia: There is an inherent power imbalance within the organization, with China and Russia being the dominant players. This can lead to concerns among other members about disproportionate influence and decision-making, particularly from China due to its growing economic might e.g. The official languages of SCO are Russian & Chinese.

3. Lack of a Free Trade Area: Despite discussions, the SCO does not have a comprehensive free trade agreement among its members. This limits its potential for deep economic integration compared to other blocs like ASEAN or the EU.

4. "Anti-Western" Perception: Despite its claims of being an open and non-aligned organization, the SCO is often perceived by Western countries as a grouping aimed at challenging the US-led global order and a potential counter to NATO. This perception can limit its ability to engage with Western partners on global issues.

5. BRI Concerns: China's Belt and Road Initiative (BRI), particularly the China-Pakistan Economic Corridor (CPEC) which passes through Pakistan-Occupied Kashmir (PoK), remains a major sovereignty concern for India. While all other SCO members endorse BRI, India remains isolated in its opposition, which limits its participation in some economic connectivity initiatives within the SCO framework.

6. Limited Mandate: While expanding, the SCO's primary focus remains on security (the "three evils" of terrorism, separatism, extremism). This strong emphasis sometimes overshadows other crucial areas like economic and cultural cooperation, which could offer broader benefits.

What can be the WAY FORWARD?

1. Strengthening Trust and Dialogue: While the SCO is a multilateral forum, its most immediate utility for managing internal tensions often lies in providing opportunities for high-level bilateral meetings on its sidelines (e.g., India-China, India-Pakistan). These informal channels can be crucial for de-escalation and addressing specific grievances.

2. Unified Stance on Terrorism:

- **Zero Tolerance, No Double Standards:** The SCO must unequivocally condemn terrorism in all its forms and manifestations, without any justifications or differentiation between "good" and "bad" terrorists.
- **Actionable intelligence sharing:** SCO needs to actively utilize the **Regional Anti-Terrorist Structure (RATS)** for intelligence sharing, capacity building, and joint exercises & also push for RATS to be more effective and less susceptible to political maneuvering by individual members.

3. Deepening Economic and Connectivity Initiatives:

- Identify specific sectors for enhanced cooperation, such as energy (including renewables), agriculture (food security), pharmaceuticals, and digital technology, where members have complementary strengths.

- **Leverage Existing Corridors:** Fully utilize and expand existing and nascent corridors like INSTC, promoting their integration with regional transport networks.
- **Digital Connectivity:** Emphasize digital infrastructure development, cross-border e-commerce, and digital payment systems to foster seamless economic interaction e.g., sharing India's UPI success, digital public infrastructure models.

4. Non-Traditional Security Threats:

- **Counter-Narcotics:** Enhance cooperation through RATS to combat illicit drug trafficking, which often funds terrorism and organized crime in the region.
- **Cyber Security:** Push for joint initiatives and capacity building in cybersecurity, a growing threat to all member states.
- **Disaster Management:** Promote cooperation in disaster response and humanitarian assistance, drawing on India's expertise and resources.
- **Climate Change:** Advocate for greater cooperation on climate change mitigation and adaptation strategies, particularly given the shared environmental challenges like water scarcity and desertification in the region.

Conclusion:
For India, the SCO remains a platform of both opportunities and constraints. Thus, India needs to devise a strategy that is **assertive on core national interests (like terrorism and sovereignty), pragmatic in economic engagement, and diplomatically nimble in balancing competing geopolitical currents.**

Read more: The Indian Express, Wikipedia
UPSC GS Paper-2: International Relations

India-U.S. Relations – Significance & Challenges – Explained Pointwise

The India-U.S. relation is presently undergoing through a tough phase, especially after the US's decision to sharply raise the tariffs on Indian exports to 50% on a wide range of products – has caused deep concern & disappointment in India. However, India-US relationship is anchored in resilience, strategic convergence, and people-to-people ties. In this regard, let us broadly understand the importance, key areas of cooperation & challenges in India-U.S. relationship.

Source: ORF

What is the importance of India-US relations?

1. **Economic Importance:** The US is one of India's largest trading partners and investors, which supports economic growth, job creation, and technology transfer in India. The bilateral trade relationship offers opportunities for both nations to expand markets, collaborate in innovation sectors like technology, clean energy, and pharmaceuticals, and strengthen global supply chains.
2. **Strategic Importance:** India-US relations are crucial for regional stability and balance of power, especially in the Indo-Pacific, where both countries share concerns about China's growing influence and assertiveness. Their defense partnership strengthens India's military capabilities and enhances interoperability between the two armed forces, contributing to a free, open, and rules-based order in the region.
3. **Geopolitical Importance:** India and the US collaborate on global issues such as counter-terrorism, climate change, and non-proliferation, reflecting their shared democratic values and global interests. This partnership enhances their global influence and ability to address transnational challenges, making it a cornerstone for their respective foreign policy goals.
4. **Diaspora & Cultural Relations:** India has a 4.8mn strong diaspora in USA. The Indian diaspora in the US plays a significant role in strengthening bilateral ties through cultural exchange, education, and political influence, which deepens people-to-people connections and mutual understanding. Over 150 Indian origin CEOs now lead global corporations in the USA, Indian IT engineers drive Silicon Valley, while US entrepreneurs are investing in Bengaluru's startup ecosystem.

What are key areas of cooperation in India-US relations?

1. **Economic Cooperation:**

- **Trade and Investment:** U.S. is India's largest trading partner. American companies are major investors in India, particularly in technology, manufacturing, and services. At the same time, Indian companies have also significantly invested in the U.S.
- In 2024, India exported goods worth $87.3bn to the USA

2. **Defence & Security Cooperation:**
    - Both countries have deepened military-to-military cooperation with agreements like GSOMIA, LEMOA, COMCASA, and BECA facilitating intelligence sharing, logistics support, secure communications, and geospatial data exchange.
    - India is designated a **Major Defense Partner**, gaining access to advanced US defense technologies and streamlined defense trade.
    - Both countries have a shared vision for a free and open Indo-Pacific and regularly conduct joint military exercises, such as **Malabar** (a naval exercise that also includes Japan and Australia) and **Yudh Abhyas** (a joint military training exercise).
    - Initiatives like the **Defense Trade and Technology Initiative (DTTI)** promote co-development and production of defense technologies, including jet engines and drones, supporting India's "Make in India" goal.
3. **Science, Technology & Innovation Partnership:**
    - Collaborative projects in emerging and critical technologies such as artificial intelligence, quantum computing, cybersecurity, and semiconductors are prioritized.
    - Initiatives like **iCET (Initiative on Critical and Emerging Technologies)** create research and innovation bridges between the two countries.
    - **Space Exploration:** ISRO and NASA have a long history of collaboration, working together on missions and sharing expertise.
4. **Security & Counterterrorism Cooperation:** Shared efforts on counter-terrorism include intelligence sharing, capacity building, and coordinated diplomatic efforts to combat global terrorism threats. The partnership supports regional stability and global security frameworks.
5. **Climate Change & Clean Energy Cooperation:** Both countries collaborate on climate action, clean energy technology, and sustainability initiatives to meet global climate goals and energy transition challenges.

What are the challenges in India-US relations?

1. **Trade & Economic Challenges:**
    - **Tariff Disputes:** The U.S. has often raised concerns about India's high tariffs on certain goods, while India has its own apprehensions about U.S. visa policies, which can affect its IT professionals. Both countries have also had disagreements over intellectual property rights and market access, and these issues require continuous dialogue and negotiation to resolve. The US imposed sweeping tariffs on Indian exports, reaching up to 50% tariffs on many goods as of August 2025. These tariffs hurt India's export competitiveness, especially in key sectors like pharmaceuticals, textiles, gems, and electronics.
    - **Trade Imbalances:** Persistent trade imbalances and disputes over market access have led to retaliatory tariffs by India and restrictions by the US, straining economic ties.
    - **Investment Barriers:** India's foreign investment restrictions in certain sectors create tensions with the US, which advocates for more open markets.
2. **Defence & Geopolitical Differences:**
    - **Russia Relationship:** India's ties with Russia, including continued defense equipment purchases and energy imports, conflict with US sanctions and expectations. This divergence

challenges US-India strategic alignment, especially as the US sees India's multipolar diplomacy as a point of concern.
  - **Geopolitical Divergence:** Differences on regional and global issues, including India's neutral stance on the Russia-Ukraine conflict and its broader engagement with Iran and Russia, create friction in diplomatic alignment.
  - **Strategic Autonomy:** India's multipolar foreign policy approach, balancing relations with the West, China, and Russia, often contrasts with US hopes for closer alignment, creating strategic friction. India resists external pressure on its sovereign decisions, including on defense procurement and energy policy, which sometimes leads to disagreements.
3. **Immigration Issues:** Tightening US visa policies and caps on H-1B visas hit Indian IT professionals and tech companies relying on skilled worker migration, affecting economic opportunities and bilateral goodwill.
4. **Technology & Data Policy Issues:**
   - India's data localization and technology policies are seen by the US as barriers to American tech companies and digital trade, hampering cooperation in emerging technologies.
   - US limitations on advanced technologies like AI, drones, and missile components affect India's defense modernization and technological advancement.

What can be the way forward?

1. **Expanding Bilateral Trade & Investment:**
   - Pursue the "Mission 500" goal of doubling bilateral trade to $500 billion by 2030 through a multi-sector Bilateral Trade Agreement (BTA) that reduces tariffs and non-tariff barriers.
   - Strengthen supply chain integration, increase market access, and enhance trade in industrial and agricultural products.
   - Continue dialogue to resolve trade disputes and create a balanced and fair trade environment.
2. **Strengthening Security & Strategic Partnership:**
   - Build on the U.S.-India COMPACT initiative to catalyze military partnerships and expand defense industrial cooperation.
   - Accelerate negotiations on a Reciprocal Defense Procurement (RDP) agreement to facilitate defense trade and co-production.
   - Scale joint defense industry collaborations in autonomous systems and advanced technologies to enhance Indo-Pacific security.
   - Expand cooperation through forums like the Quad and India-Middle East-Europe Corridor to support economic connectivity and maintain a free, open Indo-Pacific.
3. **Advancing Technology & Innovation Collaboration:**
   - Launch new initiatives like **INDUS Innovation** for industry-academic partnerships in areas like space, energy, AI, and strategic minerals.
   - Develop a **U.S.-India Roadmap** on Accelerating AI Infrastructure and strengthen cooperation on critical and emerging technologies.
   - Enhance research collaborations through entities like the **U.S. National Science Foundation** and **Indian Anusandhan National Research Foundation**.
4. **Managing Differences through Dialogue:**
   - Address tariff issues and trade disputes constructively to restore trust and mutual benefit.
   - Encourage strategic communication to align geopolitical stances while respecting India's strategic autonomy.

Conclusion:
Though the tariffs may disrupt markets & unsettle industries, but they cannot limit the India-USA relationship which has endured Cold War suspicion, sanctions, and past trade disputes. India & USA should aim to build the mutual trust because trust defines partnerships, not tariffs, and trust – built by people & strengthened by strategy – ensures that even when trade faces turbulence, the relationship remains steady.

Read More: The Hindu
UPSC GS-2: International Relations

Regulatory Assets of DISCOMS – Explained Pointwise

The Supreme Court recently directed the State Electricity Regulatory Commissions (SERCs) and distribution companies (DISCOMs) to clear the existing regulatory assets within four years and liquidate any new assets within three years. The court also advised capping the regulatory asset at 3% of a DISCOM's Annual Revenue Requirement (ARR) and instructed regulators to set out transparent roadmaps for recovery, along with conducting intensive audits of DISCOMs that continue without recovering these assets. In this context, let us understand, what are regulatory assets, their impact & what can be done to recover them sustainably.

Source: IAS Express

What are Regulatory Assets?

- Regulatory assets constitute the unrecoverable revenue gap due to the difference between the **Average Cost of Supply (ACS)**, the expense incurred by a DISCOM to deliver a unit of electricity to consumers, and the **Annual Revenue Requirement (ARR),** which is the revenue collected by the DISCOM as consumer tariffs and subsidy payments from the government.
- If the ACS is greater than the ARR, the DISCOM effectively makes a loss on the sale of every unit of electricity. To avoid suddenly burdening consumers with an immediate tariff increase to recover the gap, SERCs allow the DISCOM to record the gap as a **Regulatory Asset.** This is essentially a deferred cost that the DISCOM is entitled to recover from consumers in the future, usually with interest.

What are the reasons behind ACS-ARR gap?

1. **Non-Cost Reflective Tariffs:** Tariffs charged to consumers often do not reflect the actual cost of power supply. Political considerations lead to setting retail tariffs lower than needed, especially for certain consumer categories like agriculture or low-income households.
2. **Delayed Subsidy Payments:** State governments promise to compensate DISCOMs for supplying electricity to subsidized sectors (e.g. agriculture), but the actual release of subsidies is often delayed. This causes a revenue shortfall that adds to the ACS-ARR gap.
3. **Power Purchase Cost Volatility:** Sudden increases in fuel costs (coal, gas) or reliance on expensive imported coal raise the cost of purchased power for DISCOMs, while tariffs are not adjusted swiftly enough to reflect these higher costs.
4. **Operational Inefficiencies:** High levels of Aggregate Technical & Commercial (AT&C) losses—including theft, technical losses in transmission/distribution, and poor billing efficiency—mean less revenue is realized compared to the cost incurred.
5. **Regulatory Lags & Deferred Tariff Adjustments:** Delays in tariff revisions and "true-up" processes (where actual costs are reconciled into tariffs after the fact) mean costs rise faster than regulated revenue. Revenue gaps are often deferred as "regulatory assets" instead of being recovered promptly.
6. **Mismatch in Tariff Structure:** Inadequate or distorted tariff structures (e.g., cross-subsidization without proper compensation) often prevent DISCOMs from recovering both fixed and variable costs of supply.

What are the impacts of ACS-ARR gap?

Impact on CONSUMERS:

1. **Steeper increase in Tariff:** To recover the gap, regulatory bodies eventually allow **tariff increases and surcharges**—sometimes suddenly rather than gradually, leading to "tariff shocks" for consumers. The deferred costs (recorded as regulatory assets) are eventually recovered from consumers, often with interest added.
2. **Decline in Service Quality:** With persistent losses, DISCOMs face **cash flow crises**, limiting their ability to invest in network maintenance, customer service, and grid modernization. Power outages, voltage fluctuations, and poor customer support often result for all consumers, especially in regions with large gaps.
3. **Financial Burden & Social Inequity:** If state governments fail to compensate DISCOMs through timely subsidies, the revenue gap is ultimately passed on to all users via higher bills. This can disproportionately impact vulnerable consumers if subsidy mechanisms are not well-targeted.

Impact on DISCOMs:

1. **Rising Losses and Debt:** Persistent ACS-ARR gaps mean that DISCOMs accumulate mounting losses and must borrow to cover ongoing expenses. Many are trapped in a **vicious debt cycle**: as of recent figures, total accumulated losses for public DISCOMs crossed ₹6.92 lakh crore with debt over ₹7.5 lakh crore.
2. **Underinvestment in Infrastructure:** Financial distress prevents DISCOMs from investing in modernizing grids and replacing aging, inefficient equipment—resulting in high technical losses and service unreliability.
3. **Loss of Financial Stability:** Inability to recover costs leads to **poor cash flows**, limiting the ability to pay for power purchases, maintenance, and modernization. Some states have had to take over DISCOM debts, straining state finances and breaching fiscal targets.

Other impacts:

1. **Fiscal Risk to States:** States stepping in to bail out DISCOMs risk breaching fiscal limits and diverting resources from other priorities.
2. **Difficulty Adopting Renewable Energy:** Financing transitions to green energy and open access becomes harder due to cash constraints. This hampers India's wider decarbonization goals and competitiveness.

How can ACS-ARR gap can be bridged?

1. **Tariff Rationalisation:** Periodic, transparent **tariff setting processes** aligned with real cost of supply, while using targeted subsidies to protect vulnerable consumers, are needed to avoid deferred regulatory assets and to ensure timely recovery of costs. This will ensure that the burden is shared transparently rather than hidden in deferred recoveries.
2. **DBT for subsidies:** Instead of indirect tariff reduction, **DBT for electricity subsidies** ensures targeted segments (rural/agriculture) receive direct payments, reducing scope for misallocation and making revenue more predictable for DISCOMs. Lessons from DBT of subsidies for LPG demonstrate efficiency gains and reduced fiscal leakage.
3. **Timely Payment by State Govts:** State governments are also needed to release the subsidies on time so that DISCOMs are not left carrying the financial gap on their books.
4. **Automatic Fuel Cost Adjustment Mechanism:** Automatic Fuel Cost Adjustment Mechanisms, such as the fuel & power power purchase cost adjustment mechanism, can help tariffs respond quickly to sudden changes in input costs.
5. **Annual True-up Exercise:** Regular annual true-up exercises, where projected & actual expenses are reconciled, can prevent the build-up of large backlogs.
6. **Regulatory Reforms:** Regulatory Commissions play a critical role in maintaining discipline. By enforcing limits, ensuring transparency in accounting, and setting clear timelines for recovery, they can ensure regulatory assets remain an exceptional tool rather than a recurring feature.
7. **Reducing AT&C Losses:**
    - **Deployment of smart and prepaid meters** helps boost billing efficiency, minimize theft, and accurately track consumption. RDSS (Revamped Distribution Sector Scheme) pushes for mass installation of smart meters to cut AT&C losses.
    - **Investment in grid modernization** and better network management reduces technical losses and improves overall reliability.

Conclusion:
The SC's intervention is therefore a call for coordinated action & greater financial discipline across the sector, so that electricity remains affordable for households & sustainable for utilities.

Read More: The Hindu
UPSC GS-3: Economics – Infrastructure (Electricity)

Ethanol Blending Programme (E20 Blending)- Significance and Challenges- Explained Pointwise

Recently, the government has decided to lift all the restrictions on ethanol production from sugarcane juice, sugar syrup, and molasses for the year 2025-26. The decision demonstrates the government's commitment to achieve the target of 20% ethanol blending in petrol by 2025, with potential expansion to 30% thereafter. However, there are certain challenges that have been cropped up especially like the complaints by the users regarding the reduction in the performance of their vehicle due to the usage of ethanol blended fuel. In this regarded let us examine the significance & challenges of the ethanol blending programme of the government.

Biofuels

- Biofuels are the fuel derived from the biomass of plants or animal wastes. It is commonly produced from corn, sugarcane and animal waste like cow dung.

Generation of biofuels

1st Generation Biofuel	Produced from edible items like sugar,corn,starch.	Higher carbon content and emit greenhouse gases.
2nd Generation biofuel	Produced from leftover food crops like rice husk, wood chips	Greenhouse content less than 1st generation biofuel
3rd Generation biofuel	Produced from microorganisms like algae.	Carbon Neutral (CO_2 emitted=CO_2 sequestered)
4th Generation biofuel	Produced from genetically engineered crops like GM crops	Carbon Negative

Common biofuels used

Bioethanol	Produced from corn and sugarcane using fermentation process. E10 is the most common blend in which 10 per cent composition is Ethanol
Biodiesel	Produced from vegetable oils like soybean oil or palm oil, vegetable waste oils and animal fats using transesterification process.
Biogas	Produced from organic matter like sewage from animals and humans by anaerobic decomposition.

Created- Forum IAS

What is the Ethanol Blending Programme? What is the Status of the targets?

Ethanol Blending Programme:

- The Ethanol Blended Petrol (EBP) program was launched in January 2003. The program seeks to achieve blending of Ethanol with petrol with a view to reduce pollution, conserve foreign exchange and increase value addition in the sugar industry enabling them to clear cane price arrears of farmers.

- As per the programme targets, India has to achieve 10% blending rate (E10) by 2021-22 and 20% blending rate (E20) by 2025-26.

Sources of Bio Ethanol Production in India:

Sugarcane	Sugarcane gives rise to three main related products, in the order of decreasing sugar content. a. Sugarcane juice and syrup b. B-heavy molasses c. C-heavy molasses (Sugarcane juice and syrup, and B-heavy molasses typically go into making sugar, as they have higher sugar content.) In a bid to up the ethanol production, the government had started permitting the diversion of Sugarcane juice and syrup, and B-heavy molasses. However, in December 2023, the government restricted the diversion of Sugarcane juice, syrup, and B-heavy molasses, over fears of falling sugar stocks.
Maize	The use of maize for ethanol blending has been increasing to produce more fuel ethanol to compensate for restrictions on using Sugarcane juice, syrup, and B-heavy molasses.
Surplus rice & damaged grains	Surplus rice and damaged grains have been permitted by the government for use as a feed in grain-based distilleries.

Ethanol for blending

With the government restricting the use of B-heavy molasses and sugarcane juice for ethanol production from December 2023, grain-based ethanol production has increased to maintain blending percentages

Ethanol supplied to oil marketing companies

Supply-year	C-heavy molasses	B-heavy molasses	Sugarcane juice	Surplus rice	Damaged grains	Maize	Total in litre crore; blending % in brackets
2019-20	74	68	15	0	16	0	173 (5.00)
2020-21	39	183	39	2	39	0	302 (8.10)
2021-22	11	265	85	49	24	0	434 (10.02)
2022-23	6	235	128	74	32	32	506 (12.06)
2023-24*	39	95	56	0	76	135	401 (13.00)

Supply years are December-November, December to October for 2022-23 and November to October for 2023-24 *Data available only for November-June

Source- The Hindu

What is the significance of Ethanol Blending Programme?

1. Bolsters India's Energy security: India has a high dependence on imported fuel to meet its energy needs. India has over 87% crude oil import dependence. Such high import dependence, makes India's energy security vulnerable to global events like the Russia-Ukraine war or oil-cut decisions of OPEC countries. Ethanol blending programme reduces India's dependence on imported oil, and in turn bolsters the energy security.

2. Import Substitution: Ethanol blending can help in strategically reducing the dependence on imported fossil fuels and conserve foreign exchange reserves. As blending levels rise, India conserves substantial foreign exchange—over ₹1.4 lakh crore saved in the last decade—and substantially lowers its annual import bill. For E20 (20% ethanol), the annual savings are projected at $4 billion, directly improving the current account balance.

3. Reduction of emissions: Ethanol-blended fuels significantly reduce CO_2 emissions, carbon monoxide, hydrocarbons, and particulate matter compared to pure petrol. As per NITI Aayog, petrol blended with 20% ethanol would reduce carbon monoxide emissions by 50% in two-wheelers and 30% in four-wheelers.

4. Bolstering Rural Economy and Farmer's Income: It bolsters the rural economy by promoting the cultivation of various crops (like maize, paddy) through an assured market. Under Ethanol Blending Program, Oil Marketing Companies (OMCs) have paid sugar mills nearly Rs 81,796 crore for ethanol supplies in the last seven years (till 2022), which has helped mills to clear farmers' dues.

5. Job Creation: As per the Asian Development Bank (ADB), the ethanol blending programme can help in generating about 18 million rural jobs in India.

Read More- Significance of Biofuels-Explained,Pointwise

What are the Challenges to Ethanol Blending Programme in India?

1. **Engine Compatibility:** While most new cars are E20 compliant, older vehicles may not be. Using higher blends of ethanol in incompatible engines can damage engine components and fuel systems, raising concerns for consumers.
2. **Lower Energy Density:** Ethanol has lower calorific value than petrol, resulting in decreased fuel mileage with higher blends.
3. **Dispensing Infrastructure:** Petrol stations need to be equipped with the necessary infrastructure to store and dispense ethanol-blended fuels. The capital investment required for this upgrade is a challenge for many station owners.
4. **Financial vulnerability of Sugar Mills:** The lack of financial stability of the sugar mills to invest in biofuel plants, and their heavy concentration in certain regions, poses a significant challenge to the Ethanol Blending Programme.
5. **Barriers to Inter-state movement of ethanol:** The central government amended the Industries Development and Regulations Act to ensure smooth implementation and transportation of Ethanol across the country. But only 14 states have implemented the amended provisions. As a result, states that produce ethanol more than the requirement for blending cannot transport the Ethanol to other states.
6. **Impact on India's Food security:** The diversion of food crops, such as rice for ethanol production, will hamper India's food and nutritional security ambitions. **For ex-** In 2022, close to 1 million metric tonnes of rice fit for human consumption from FCI's stocks was sold at subsidised prices to produce ethanol.

7. **Diversion of Agricultural Land:** Excessive blending target can lead to the conversion of agricultural land used for growing food crops, to cultivating biofuel feedstocks like sugarcane, corn, or oilseeds.
8. **Impact on Water Availability:** Incentives for higher ethanol blending might encourage increased sugarcane and rice cultivation, which are water-guzzling crops. According to TERI, 400 billion litres of water would be needed additionally, which can exacerbate concerns about agricultural sustainability.
9. **Impact on Soil Health:** The practices of monocropping for biofuel feedstock crops (such as rice, sugarcane) can deplete the nutrients in the soil and make it infertile.
10. **Rise in import of maize:** Government restricted the diversion of Sugarcane juice, syrup, and B-heavy molasses for ethanol production, over fears of falling sugar stocks. This reduction has increased the import of maize from $39 million in 2022-23 to $103 million in FY 2024. As per NITI Aayog's estimates, ~ 4.8 million hectares will have to be added to maize cultivation area to meet the 20% target. This additional area is almost half of the current maize cultivation area in India.
11. **Increase in Import of Agricultural Crops:** The use of crops like maize for ethanol blending increases the import bill and impacts related agricultural sectors such poultry sector and livestock feed.

What should be the Way Forward?

1. **Diversification to higher generation of biofuels:** The government should diversify and move to 2G and 3G biofuels, that are more benign in terms of impact on food security as they are produced from agricultural waste and non-food biomass, such as rice straw and cotton stalks. This approach addresses concerns about food security and provides an additional source of income for farmers by monetizing their agricultural waste.
2. **Upgrading Logistics and Storage:** The country's logistics network needs significant investment to handle the increased demand for ethanol. This includes building more dedicated storage facilities and improving transport infrastructure to efficiently move ethanol from production sites to blending units.
3. **Vehicle Compatibility:** Continued collaboration between the government, oil companies, and the automotive industry is crucial to ensure that vehicles are compatible with higher ethanol blends. Automakers need to accelerate the production of **E20 compliant vehicles**, while the government can offer incentives to encourage consumers to switch to these models.
4. **Increase in grain based distilleries:** According to the roadmap for achieving ethanol blending targets, prepared by the NITI Aayog, India must invest to increase the capacity of Grain-based distilleries from 258 to 740 crore litres.
5. **Interest Subvention Programmes:** Two interest subvention programmes should be provided for establishment of new distilleries and ramping up of ethanol generation capacity.
6. **Streamlining supply chain:** The Oil Marketing Companies (OMCs) should sign more long-term contracts with distilleries. The inter-state movement of ethanol should be facilitated to streamline supply-chain.
7. **Promotion of maize cultivation in rotation with sugarcane:** Maize is not water intensive. However, it degrades soil and cannot be the sole crop either. It should be cultivated in rotation with sugarcane to ensure that soil fertility is not degraded.
8. **Increase in fuel ethanol pricing:** Increased price support for fuel ethanol can decrease its diversion towards liquor use.

Conclusion:

Ethanol blending programme is a strategic initiative that has the potential to reduce the petroleum imports, enhance energy security & promote cleaner combustion. However, there are certain supply-side & demand-side issues which must be addressed promptly by diversifying the feedstocks, enhancing the infrastructure, introducing technological upgrades to help India in successfully completing its sustainable energy transition.

Read More- The Hindu Business Line
UPSC Syllabus- GS 3 Environment Conservation

GST 2.0 – Significance & Challenges – Explained Pointwise

Just a few weeks after PM Narendra Modi announced, in his independence day speech, spoke about ushering in of the next generation GST reforms, the GST council has move towards restructuring the indirect tax regime – touted as GST 2.0.
Combined with the new Income Tax Bill & the rejig of income-tax slabs in this year's Budget, these GST reforms will mark 2025 as a 'Watershed Year' for Tax Reforms – direct as well as indirect – in economic history of India.

What is GST?

- Goods and Services Tax (GST) is an indirect, destination-based tax levied on the supply of goods and services in India.
- It was implemented on July 1, 2017, and replaced a complex web of multiple central and state taxes, aiming to create a single, unified national market.
- GST works on the principle of **"value addition"**. It's a multi-stage tax collected at every step of the supply chain, from manufacturing to the final consumer. The key mechanism is the **Input Tax Credit (ITC).**
- GST has five main rate slabs: **0%, 5%, 12%, 18%, and 28%**.
- India follows a dual GST model:
    - **CGST** (Central GST) – for intra-state transactions
    - **SGST** (State GST) – for intra-state transactions
    - **IGST** (Integrated GST) – for inter-state or inter-country transactions

What are the challenges faced by GST regime in India?

1. **Multiple Tax Slabs:** Instead of a single, simple tax rate, India's GST has multiple slabs (0%, 5%, 12%, 18%, and 28%), along with special rates for certain goods. This complexity creates confusion and makes it difficult for businesses to correctly classify their products and services.
2. **Compliance Burden:** Extensive filing requirements (monthly, quarterly, annual returns), e-invoicing, and reconciliation of input tax credits (ITC) make GST compliance cumbersome. For small businesses with limited resources and expertise, this extensive documentation and online filing process is a significant financial and administrative burden – increasing their operational cost & need for professional help to file accurately.
3. **Exclusion of Key Sectors:** Petroleum, real estate, and alcohol are kept outside GST, resulting in a cascading effect and loss of potential efficiency.
4. **Centre v/s States:**
    - **Coordination between Centre & States:** Differences in priorities and political disagreements between the central and state governments delay decision-making and policy implementation.
    - **Revenue Concerns for States:** The GST system has limited the fiscal autonomy of states, as tax rates and policies are now decided by the GST Council. While the central government

provided compensation to states for revenue losses for the first five years, the end of this compensation has created tension and financial strain for some states.

5. **Tax Evasion:** Despite the digital framework, tax evasion and fraud, including the use of fake invoices and fraudulent e-way bills, continue to be a significant challenge, leading to substantial revenue losses for the government.
6. **Technological Hurdles:** The GST system is heavily reliant on a digital infrastructure (GSTN). Many small and rural businesses lack the necessary IT infrastructure, digital literacy, and access to affordable accounting software to comply with the online filing requirements.

What is the new GST Structure (GST 2.0)?

- **Two Main Slabs:**
  - **5% GST:** Applies to essential goods and services like packaged food, footwear, medicines, daily-use items, agriculture inputs, and small household goods. Also includes items like hair oil, toiletries, and stationery.
  - **18% GST:** Standard rate applied to most goods and services such as restaurant and telecom services, financial services, electronics (TVs, washing machines, laptops), motorcycles below 350cc, small cars below 1200cc, and industrial goods.
- **New 40% De-merit Rate:** Introduced for luxury and sin goods such as high-end cars, premium bikes, aerated beverages, tobacco products, and gambling services. This replaces the previous highest slab of 28% plus cess.
- **Exemptions:** Some items remain exempt (0%) such as fresh fruits, vegetables, milk, bread, along with new exemptions on personal health and life insurance, exercise books, and notebooks.

GST reform lightens load on common man

The GST Council on Wednesday approved a two-tier rate structure of 5 and 18 per cent, which will be implemented from September 22. The marathon 56th meeting of the GST Council lasted for 10.5 hours, in which the Centre and states thrashed out key tax proposals. Here are some of the key items for which GST rates were revised:

DAILY ESSENTIALS	FROM	TO
Hair Oil, Shampoo, Toothpaste, Toilet Soap Bar, Tooth Brushes, Shaving Cream	18%	5%
Butter, Ghee, Cheese & Dairy Spreads	12%	5%
Pre-packaged Namkeens, Bhujia & Mixtures	12%	5%
Utensils	12%	5%
Feeding Bottles, Napkins for Babies & Clinical Diapers	12%	5%
Sewing Machines & Parts	12%	5%

AUTOMOBILES	FROM	TO
Petrol & Petrol Hybrid, LPG, CNG Cars (not exceeding 1200 cc & 4000mm)	28%	18%
Diesel & Diesel Hybrid Cars (not exceeding 1500 cc & 4000mm)	28%	18%
3 Wheeled Vehicles	28%	18%
Motor Cycles (350 cc & below)	28%	18%
Motor Vehicles for transport of goods	28%	18%

HEALTHCARE SECTOR	FROM	TO
Individual Health & Life Insurance	18%	Nil
Thermometer	18%	5%
Medical Grade Oxygen	12%	5%
All Diagnostic Kits & Reagents	12%	5%
Glucometer & Test Strips	12%	5%
Corrective Spectacles	12%	5%

FARMERS & AGRICULTURE	FROM	TO
Tractor Tyres & Parts	18%	5%
Tractors	12%	5%
Specified Bio-Pesticides, Micro-Nutrients	12%	5%
Drip Irrigation System & Sprinklers	12%	5%
Agricultural, Horticultural or Forestry Machines for Soil Preparation, Cultivation, Harvesting & Threshing	12%	5%

EDUCATION	FROM	TO
Maps, Charts & Globes	12%	Nil
Pencils, Sharpeners, Crayons & Pastels	12%	Nil
Exercise Books & Notebooks	12%	Nil
Eraser	5%	Nil

ELECTRONIC APPLIANCES	FROM	TO
Air Conditioners	28%	18%
Television (above 32") (including LED & LCD TVs)	28%	18%
Monitors & Projectors	28%	18%
Dish Washing Machines	28%	18%

Source: CBIC

Source: The Hindu

What was the need to rationalize the GST tax slabs?

1. **Simplification & Ease of Compliance:** The multiple tax slabs in the current GST regime makes classification complex for businesses and administrators. It leads to constant legal disputes between taxpayers and tax authorities over which category a specific product or service falls into. For example, a food item might be taxed at 5% if it's "unbranded" but at 12% or 18% if it's "branded" or processed. Fewer slabs help minimize ambiguity in product/service classification, lowering risks of misinterpretation, non-compliance, and litigation.
2. **Enhanced Efficiency**: A simpler structure makes filing, invoicing, and input tax credit reconciliation easier for taxpayers, especially MSMEs. Fewer slabs improve system efficiency and reduce technical glitches.
3. **Reduction in Tax Burden:** A simpler, two-slab structure (e.g. a "standard" and a "merit" rate) would significantly reduce the compliance burden, save administrative costs, and make the tax system more transparent and business-friendly. For e.g. the proposed reform to shift 99% of the items in the 12% slab to 5% tax rate, and 90% of the items in the 28% slab to 18% will substantially reduce the tax burden on most consumers.
4. **Prevent Tax Evasion:** With a large number of items set to be taxed at just 5%, the incentives for input tax credit scams & tax evasion will also be substantially removed.
5. **International Practice:** Most successful GST systems worldwide have 1–3 rates, helping tax administrators track and audit transactions more efficiently.
6. **Boost to consumption & economic growth:** By reducing taxes on common goods, especially those currently in the 12% and 28% slabs, the government can make these items more affordable for the common person. This would increase disposable income and potentially stimulate consumption and demand, leading to higher economic activity.

What are the challenges to the rationalisation of tax slabs?

1. **Risk of Revenue Loss:** Any move to rationalize the slabs will inevitably result in some goods moving to a lower tax bracket. While this can boost consumption, it also risks a **short-term revenue loss** for the government, particularly for states (Two years ago, RBI had estimated that the avg GST rate was 11.6%, which is expected to fall substantially if 2 slab structure is adopted).
2. **Political Consensus:** Since the GST Council makes decisions by consensus, with states having a two-thirds voting share, it's difficult to get all states to agree to a plan that might negatively impact their fiscal health. The end of the GST compensation cess for states has made them even more cautious about any changes that could lead to revenue shortfalls.
3. **Classification & Fitment Issues:** Even with a reduced number of slabs, there will still be disputes over where a product or service should be placed. Tax authorities and businesses will have to decide whether to place a good in the "merit" (lower) or "standard" (higher) slab. This can lead to new legal battles and administrative complexities.
4. **Implementation & Technical Hurdles:** The entire GST network (GSTN) and the systems of millions of businesses are configured to the current tax structure. A major overhaul to the slab system would require a significant **technological and administrative exercise**. Businesses would need to update their accounting software and pricing, while the government would have to reconfigure the GSTN. This is a time-consuming and expensive process that could cause initial disruption and compliance challenges for many businesses, especially SMEs.
5. **Inclusion of Petroleum Products:** The tax cuts required for rationalisation of tax slabs will make it even more unlikely that petroleum products – a major source of States' revenues – will be included in the GST any time soon.

What can be the way forward with regards to rationalisation of tax slabs?

1. **Managing Revenue Loss:** To address states' concerns about a potential revenue shortfall, the government must ensure that any reduction in rates is offset by a **rise in consumption** and **improved tax compliance**. By making goods more affordable, especially those currently in the 12% and 28% slabs, demand is expected to increase, which could lead to higher overall tax collections in the long run.
2. **Correcting Inverted Duty Structure:** Rationalization offers a crucial opportunity to fix the inverted duty structure in many sectors where the tax on inputs is higher than on the final product. Aligning these rates will prevent the accumulation of **Input Tax Credit (ITC)** and improve the cash flow for businesses.
3. **Use of Technology:** Use technological improvements and compliance simplification to offset potential short-term revenue loss.
4. **Ensure Transparency & Clarity:** Provide long-term clarity on rates and policy direction to confidently support business planning and investment. Communicate changes transparently, including timelines and potential impacts on businesses and consumers.
5. **Monitor impact & Make data-driven adjustments:** Track demand, prices, compliance levels, and revenue after rationalisation. Make incremental or corrective changes if needed for growth and equity.

Conclusion:
Reforms to simplify the current GST regime must not only be limited to reducing the multiplicity of rates but should also be about making it easier & less-time consuming for tax payers to navigate the system, easing registration, simplifying returns & speeding-up refunds as well as addressing the issue of compliance & classification. Therefore, rationalizing the multiple tax slabs is definitely a welcome step, but GST requires more comprehensive reforms.

Read More: The Hindu
UPSC GS-3: Economy – Tax Revenue

National Infrastructure Pipeline – Significance & Challenges – Explained Pointwise

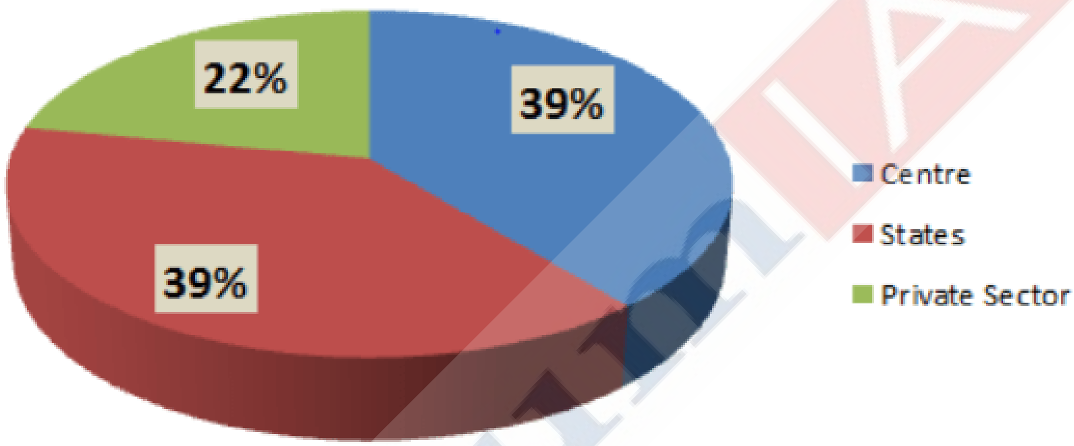
According to the Economic Survey 2024-25, India needs a continued step-up of infrastructure investment over the next two decades to sustain a high rate of growth. The Economic Survey states that building infrastructure – physical, digital and social – has been a central focus area for the Government in the last five years. This has had various dimensions – increase in public spending on infrastructure, creation of institutions to de-bottleneck approvals and execution and innovative modes of resource mobilization. It states that public capital alone cannot meet the demands of upgrading the country's infrastructure commensurate with the requirements of Viksit Bharat@2047.
To meet the need of infrastructure, the govt had launched National Infrastructure Pipeline (NIP). In this regard, let us understand the key features, significance & limitations of NIP.

What is the National Infrastructure Pipeline?

- The National Infrastructure Pipeline (NIP) is a flagship initiative by the Government of India aimed at providing a comprehensive roadmap for infrastructure development across the country over a period of five years (2020-2025).
- It was launched in 2019 with the aim to provide world-class infrastructure, improve ease of living, and make India a $5 trillion economy.

What are the key Features of NIP?

- **Massive Investment Outlay:** The NIP initially projected a total investment of **₹111 lakh crore** for infrastructure projects over a five-year period (2020-2025).
- **Comprehensive Scope:** The NIP covers a wide range of social and economic infrastructure projects. These include both **greenfield** (new projects) and **brownfield** (existing projects) and are spread across various sectors.
- **Multi-Stakeholder Funding:** The NIP is designed with a joint funding model to ensure financial viability. The capital expenditure is planned to be shared among the **Centre, States, and the private sector**. The original target for this split was roughly 39%, 39%, and 22% respectively, with a strong emphasis on attracting private investment.

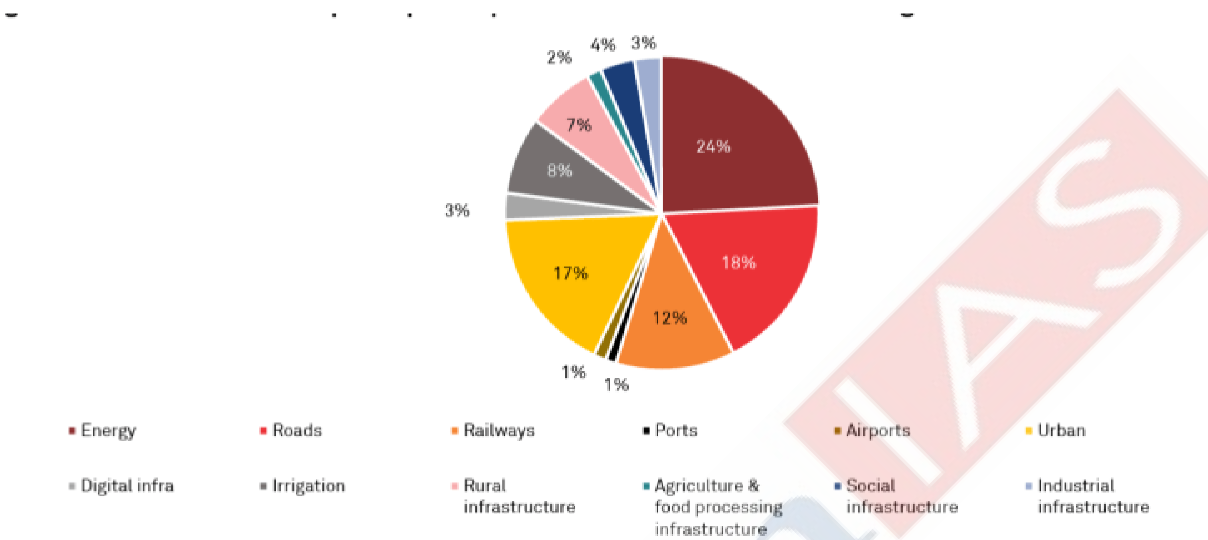


- **Project Monitoring:** To ensure timely completion and to avoid cost overruns, a task force was established to monitor the progress of the NIP. The India Investment Grid (IIG) was also launched to provide real-time updates on the implementation of these projects, enhancing transparency and attracting domestic and foreign investors.
- **Complementary Initiatives:** The NIP is closely linked with other government initiatives like the **National Monetization Pipeline (NMP)**, which aims to generate funds by monetizing existing public infrastructure assets, and the **PM Gati Shakti** program, which provides a digital platform for integrated and seamless planning and execution of projects.

What are the sectors covered under NIP?

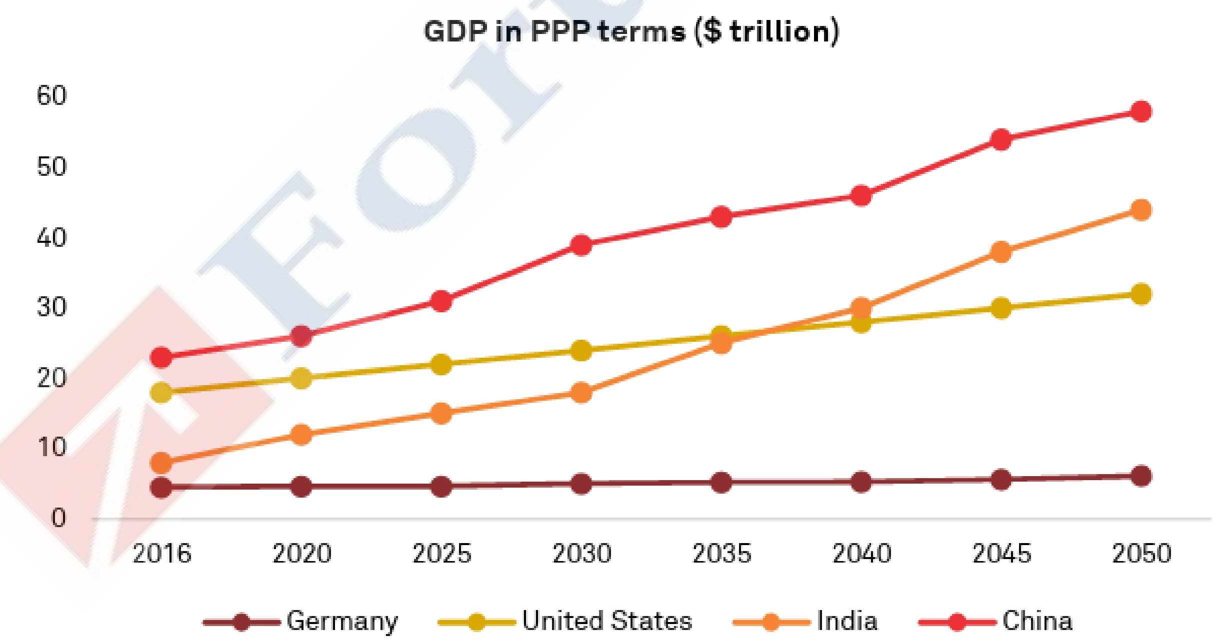
- Energy- 24%
- Roads- 19%
- Railways- 13%
- Ports- 1%
- Airports-1%
- Urban-16%
- Digital Communication- 3%
- Irrigation-8%
- Rural Infrastructure-8%

- Agriculture and Food Processing Infrastructure-1%
- Social Infrastructure-3%
- Industrial Infrastructure-3%



What are the benefits of NIP?

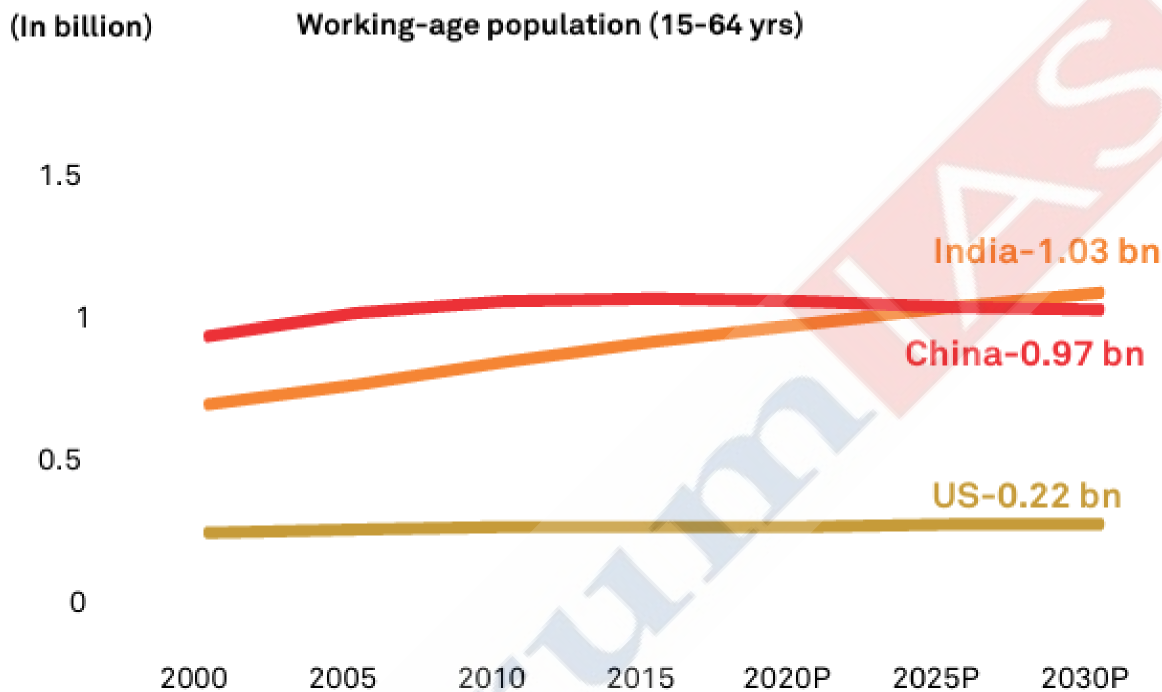
1. **Boost to Economic Growth:**
   - Infrastructure development under NIP is critical to achieving India's goal of becoming a $5 trillion economy by 2025 & 2nd largest economy in the world in PPP terms.



Source: The World in 2050, PwC

- Improves competitiveness by enhancing transportation, energy, and urban infrastructure, promoting industrial and commercial activities.
- Expected to increase GDP growth through better connectivity and efficient resource utilization.

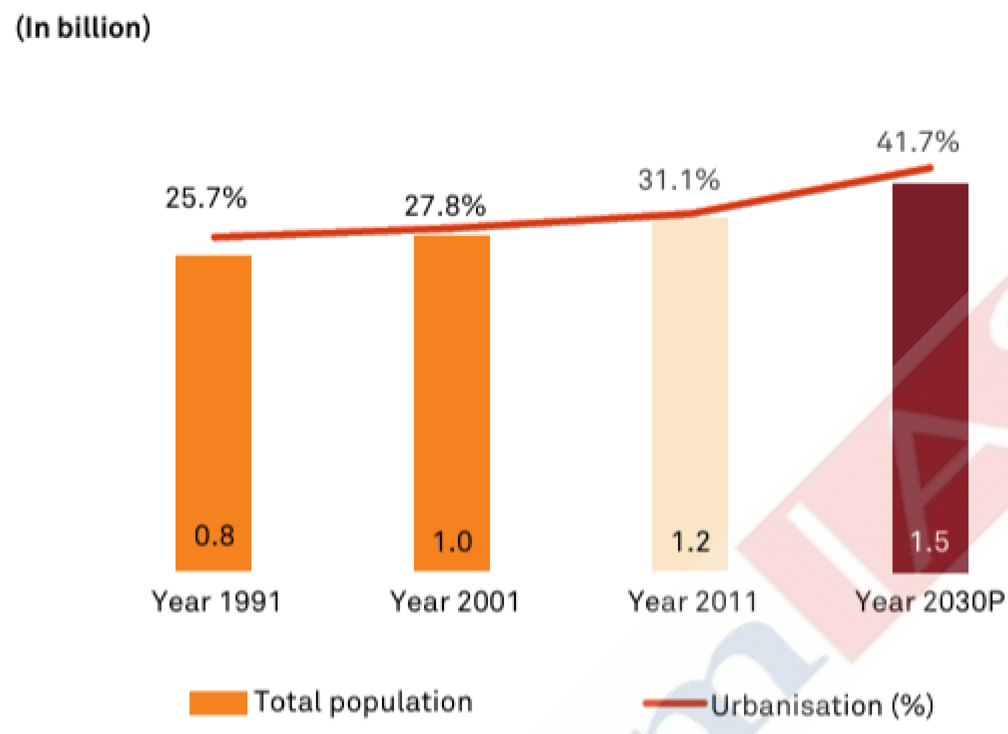
2. **Job Creation & Employment:**
   - The large-scale infrastructure projects generate millions of direct and indirect jobs across sectors such as construction, manufacturing, and services.



Note: P-Projected
Source: United Nations Population Division (UNDP)

- Employment growth supports increased income and domestic demand, further boosting economic expansion.

3. **Improved Quality of Life & Inclusive Growth:**
   - Enhances access to essential services including roads, energy, healthcare, education, and urban amenities.



Note: P-Projected
Source: CRIS estimates, McKinsey Global Institute

- Facilitates rural connectivity and infrastructure, promoting inclusive development across regions.

4. **Investor confidence & Project Efficiency:**
   - NIP's well-defined pipeline improves project preparation, timely execution, and monitoring, reducing risks and failures.
   - Attracts private sector and foreign investment by providing a transparent, accessible project database via platforms like the India Investment Grid (IIG).
5. **Fiscal Space & Revenue Enhancement:**
   - Better infrastructure improves economic activity, expanding the government's revenue base and enabling productive expenditure.
   - Asset monetization of completed projects under NIP creates additional fiscal resources.
6. **Agriculture & Rural Development:** Significant allocation to irrigation and rural infrastructure strengthens the agricultural sector and boosts rural livelihoods. It also enhances supply chains and market access for farmers.

What are the challenges/limitations of NIP?

a. **Funding & Financial Constraints:** The biggest challenge is securing the massive investment of **₹111 lakh crore**. While the plan relies on a multi-stakeholder funding model (Centre, states, and the private sector), there are significant hurdles:
   - **State Finances:** Many states have limited fiscal space and are already burdened with high debts, making it difficult for them to contribute their share of the funding.

- **Attracting Private Investment:** While the NIP aims to attract private capital, a number of factors could deter investors, including regulatory uncertainties, land acquisition issues, and long gestation periods for projects. The global economic slowdown could also make investors more cautious.
- **Inflation and Cost Overruns:** Large-scale infrastructure projects are highly vulnerable to inflation and cost overruns, which could push the final bill far beyond the initial estimates.

b. **Implementation & Bureaucratic Hurdles:**
- **Land Acquisition:** This is a persistent bottleneck for large-scale projects in India. Delays in acquiring land can stall projects, leading to significant cost overruns and public protests.
- **Lack of Timely Clearances:** Obtaining various clearances—environmental, forest, and local—is a time-consuming and complex process. Delays in these approvals can severely impact the project timeline.
- **Inadequate Project Management:** A lack of skilled project managers and poor coordination between different government agencies can lead to inefficiency and delays. While initiatives like **PM Gati Shakti** aim to address this, on-ground implementation remains a challenge.

c. **Political & Governance Issues:**
- **Centre-State Coordination:** The NIP's multi-stakeholder model requires seamless cooperation between the central government and state governments, regardless of political affiliation. Any political friction can lead to delays in approvals and funding.
- **Uneven Distribution:** There is a risk that the allocation of funds may be politically motivated, leading to a skewed distribution of projects across states, with some regions receiving a disproportionately high share of investment while others are neglected.
- **Regulatory Challenges:** A lack of consistent and transparent regulatory frameworks can make it difficult for investors to operate. Changes in policy, particularly regarding public-private partnerships, can create uncertainty and deter investment.

What can be the way forward?

1. **Enhance Financial Innovation:** India needs to move beyond traditional bank-based financing for infrastructure projects. The government should encourage the development of the corporate bond market and promote innovative financing instruments, such as infrastructure investment trusts (InvITs), which allow a wide range of investors to participate in infrastructure projects and provide stable long-term funding.
2. **Asset Monetization:** The **National Monetization Pipeline (NMP)** is a crucial part of the strategy. By monetizing existing public assets like roads, railways, and power transmission lines, the government can generate new funds that can be reinvested into greenfield and brownfield projects under the NIP.
3. **Use of PM Gati Shakti:** The **PM Gati Shakti** platform is the central tool for integrated infrastructure planning and execution. PM Gati Shakti should fully utilize its potential to ensure seamless coordination between different ministries and state governments. The platform provides a digital, data-driven approach to planning, which can help in reducing delays, preventing cost overruns, and ensuring that projects are executed on time.
4. **Dispute Resolution:** A fast and effective dispute resolution mechanism is vital for investor confidence. Establishing a dedicated **GST Appellate Tribunal** and other such specialized bodies can help in resolving contractual disputes efficiently, reducing the burden on courts.
5. **Focus on States:** Since states are expected to contribute a significant portion of the funding, the central government must work with them to improve their fiscal health and help them in the effective planning and execution of projects.

6. **Inclusive & Social Infrastructure:** Greater focus should be put on social infrastructure (health, education, water), rural connectivity, and climate-resilient projects to ensure equitable growth.

Read More:
UPSC GS-3: Economy (Infrastructure)

Inflation Management in India – Objectives & Challenges – Explained Pointwise

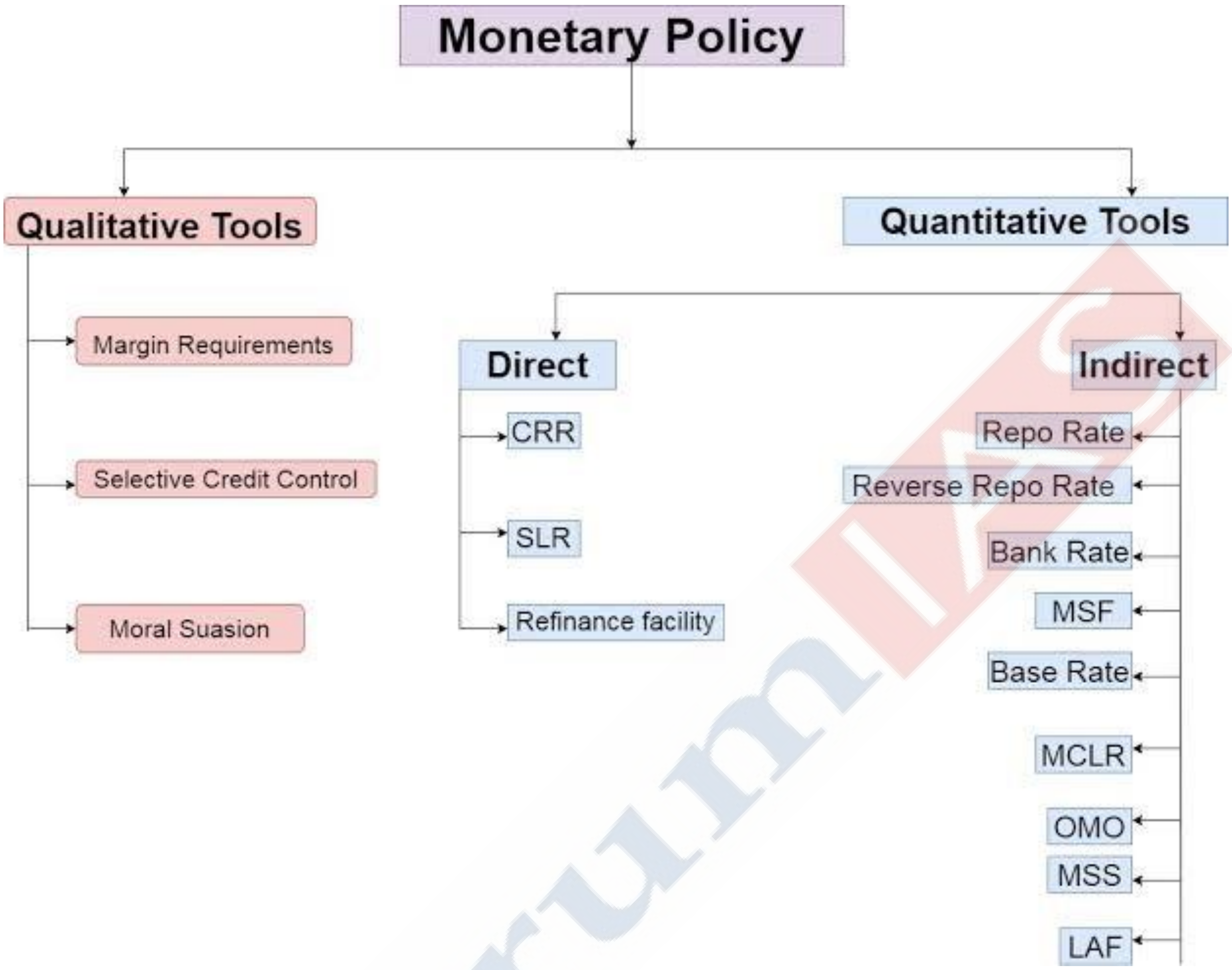
A new analysis by Climate Trends, a Delhi-based organisation, has connected the dots between climate change, crop losses and rising food prices. The study shows how extreme heatwaves and erratic rainfall have severely impacted TOP production over the past five years, pushing up prices of these staples and driving food inflation to alarming levels.
In this regard, let us understand the inflation management in India.

What is inflation management?

- Inflation management refers to how governments and central banks contain the rise in prices to maintain economic stability, protect purchasing power, and support sustainable growth.
- In India, inflation is mainly managed by the Reserve Bank of India (RBI) through monetary policy, supplemented by fiscal, administrative, and supply-side interventions.

Instruments of inflation management:

- **Monetary Policy (by RBI):**
  - **Repo Rate** ↑ (borrowing cost ↑) → reduces money supply → controls inflation.
  - **Repo Rate** ↓ (borrowing cost ↓) → increases money supply → boosts growth.
  - **CRR (Cash Reserve Ratio) & SLR (Statutory Liquidity Ratio):** Adjust liquidity with banks.
  - **Open Market Operations (OMO):** RBI buys/sells government securities to regulate money supply.
  - **Inflation Targeting:** India follows a **flexible inflation targeting regime** (4% ± 2%).



- **Fiscal Policy (by Government):**
    - **Reduce Fiscal Deficit:** Control excessive government spending.
    - **Rationalise Taxes:** Adjust GST/excise duties to regulate commodity prices (e.g., on fuel).
    - **Subsidies & Cash Transfers:** To protect the poor during inflation.
    - **Control Public Borrowing:** To avoid excess money circulation.
- **Supply Side Measures:**
    - **Boost agricultural output** (irrigation, storage, MSP reforms).
    - **Reduce supply bottlenecks** (transport, logistics, imports of essential goods).
    - **Strengthen supply chains** to control food inflation.
- **Administrative Measures:**
    - **Price controls & anti-hoarding laws** (check black marketing).
    - **Buffer stock management** by FCI for food grains.
    - **Regulating essential commodities** under Essential Commodities Act.

What are the objectives of inflation management?

1. **Price Stability:** Maintain a predictable and moderate rate of inflation to avoid excessive price fluctuations, which is crucial for household budgeting and business planning.

2. **Safeguarding Purchasing Power:** Prevent erosion of real income for salaried employees, pensioners, and low-income groups, as unchecked inflation disproportionately impacts the poor and vulnerable. Ensure essential goods, especially food and fuel, remain affordable, given their large share in Indian household expenditure.
3. **Supporting Sustainable Economic Growth:** Balance inflation control with the need for investment and job creation; extremely tight policies can stifle growth, while loose policies can trigger runaway inflation.
4. **Ensuring Financial Stability:** Stabilize domestic currency and control interest rates to limit risks such as asset bubbles and harmful volatility in financial markets.
5. **Policy Coordination:** Coordinate monetary, fiscal, and trade policies to address structural supply shocks and volatile commodity and food prices, which are frequently significant factors in India.

What are the challenges in inflation management?

1. **Neglect of economic reality-** In India, food accounts for nearly 50% of Indian household expenditure. It is crucial to most people's cost of living. Ignoring food prices in inflation targeting would lead to neglect of a major economic concern for a large portion of the population.
2. **Transitory Fluctuations of food prices is a misconception in India-** Contrary to claims that food price fluctuations are temporary, food inflation in India has been persistent for over a decade. This indicates a structural problem, and removal of food inflation from inflation targeting will not solve the problem.
3. **Interdependence of Food and Core Inflation-** Food prices influence wages, which in turn impact core inflation. Hence, it would be difficult to control core inflation independently of food prices.
4. **Misguided Policy-** Exclusion of food prices from the inflation target could leave India vulnerable to rising food costs. This would undermine the standard of living for a large segment of the population.
5. **Ineffectiveness of Interest Rate Adjustments-** Raising interest rates have not led to curbing of core inflation but has instead exacerbated it by increasing the costs for firms. This has led to higher prices of the products and higher inflation in the economy.
6. **Monetary Policy singular focus on demand side:** RBI's monetary policy targets only demand side constraints. It faces the problem of tackling supply shocks originating from food and oil.
7. **Flawed Model of Inflation targeting:** Monetary Policy model used for Inflation management in India is not statistically validated for Indian data. The current model of Inflation targeting is based on the assumption that inflation means overheating the economy- that is increased output greater than natural level output. However, In India it is impossible to observe the actual level of output in an economy. Hence, setting policy rates based on the assumption that the economy has overheated is unscientific.
8. **Failure in addressing supply shocks-** Adoption of a myopic vision in inflation management by focussing on export ban of agricultural products (like wheat, rice, onions), leads to increased inflation. Export bans induce fear and panic in the domestic market, leading to rise in stock holdings, which ultimately result in price rise.
9. **Exclusive Focus on Inflation slows down growth-** RBI's current mandate of inflation management is too singularly focused on controlling inflation. Inflation management has negatively impacted GDP growth. High policy rates (repo) maintained to control inflation affected the cost of domestic capital. It led to a decline in investment rate, thereby resulting in less GDP. For ex- Since 2016 (after inflation rate targeting was institutionalised), there has been a steady increase in repo rates, and a steady decline in GDP growth.

10. **Ignoring the Global Nature of inflation-** Inflation is global in nature, as the price level of a good is determined by millions of producers across the world. Hence, solely targeting inflation management is not good for the health of the economy, as certain prices of goods are beyond our control.

What should be the way forward?

1. **Increasing agricultural production-** We must focus on improving agricultural productivity and controlling food prices through supply-side measures to address inflation in India.
2. **Release Excess Buffer Stocks-** The government holds more than 40 million tonnes of rice, much above the buffer stock norms of 13.5 MT. This excess stock should be unloaded by the Food Corporation of India in the open market at reasonable prices. This will cool down food inflation.
3. **Enhancement of Processing Capacity:** About 10-15% of perishable items like tomatoes and onions should be processed. The availability of alternatives like tomato paste and onion powder will help to stabilize prices.
4. **Adjustment of Import Duties-** Import duties on items like wheat should be reduced, as cheaper imports can help control domestic prices.
5. **Updation of the CPI Basket Weights-** The weight of food and beverages in the CPI basket should be adjusted to reflect current realities as the weights are based on the 2011 consumption survey.
6. **Greater Tolerance of Higher levels of Inflation:** Since inflation is a global issue, there must be greater tolerance for higher levels of inflation either by adjusting the acceptable range of inflation upwards, or by extending the period over which the MPC has to meet its inflation target.

Conclusion:

Inflation management is a very important policy tool which should not only be limited to price control but shall be central to social well-being, macroeconomic stability, and achieving India's long-term development targets.

Read More: **The New Indian Express**
UPSC GS-2: Economics

Demographic Dividend & Employability Concerns in India – Explained Pointwise

India has become the most populous nation with ~1.44 billion population, which is slightly more than China. The exponentially increasing population levels in the 1970s, predicted a doom for India and the World. However, the Indian population growth story has belied the prediction of doom. With drop fertility rates (which is now below the replacement levels today), significant reductions in maternal and child mortality rates, India's demography has entered into a phase of 'demographic dividend'.

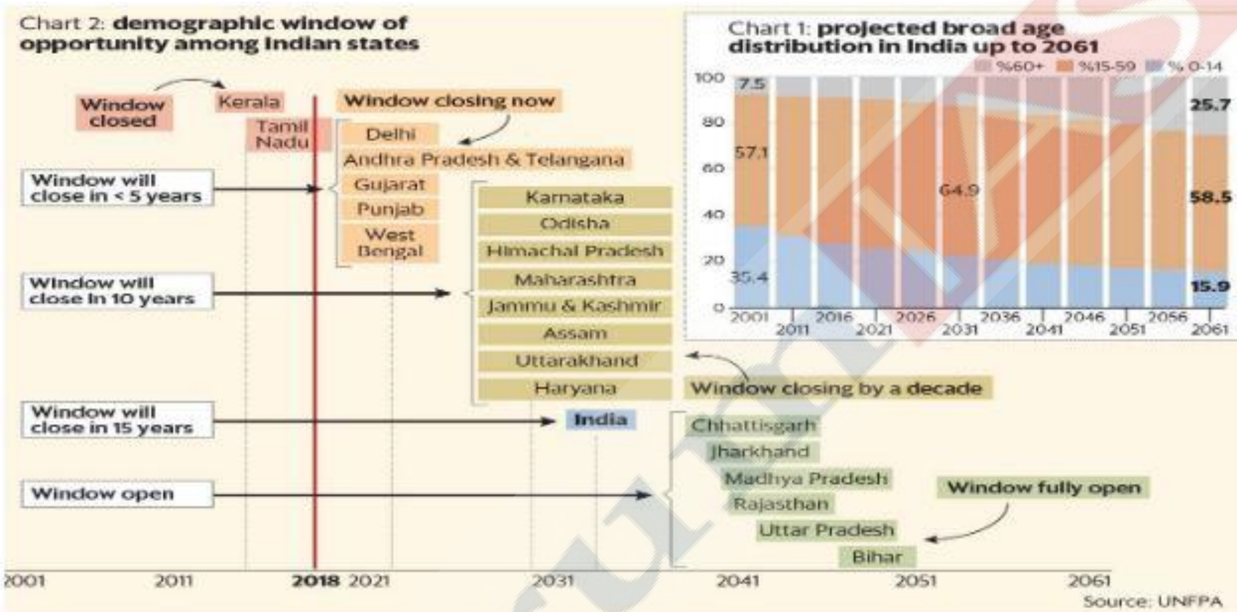
What is the demographic dividend?

According to the United Nations Population Fund (UNFPA), demographic dividend means the economic growth potential that can result from shifts in a population's age structure. The demographic dividend leads to an increased labour supply that increases the production of goods and boosts savings and investment. India has one of the youngest populations (62.5% of its population in the age group 15-59) in an aging world.

What is India's Demographic Status?

- According to the State of World Population Report 2023, published by the UNFPA, India has surpassed China as the most populous country, with a population of 142.86 crores compared to China's 142.57 crores.

- India's population growth has slowed down significantly in the past 10 years, with the total fertility rate (TFR) declining to 2 in 2020-2021 from about 3.4 in the early 1990s. A TFR of 2.1 is necessary for a country to attain population stability.
- India's population is forecast to grow to 1.67 billion in 2050 and peak at 1.7 billion in 2064 before settling at 1.53 billion in 2100.
- Two-thirds of India's total population are between the ages of 15 and 64. It presents a potential demographic dividend if education, skill development, and opportunities are provided, particularly for youth from disadvantaged sections and women.



Source: UNFPA

What is the significance of India's huge demographic dividend?

1. **Increased Supply of Labour:** The rapidly rising young population results in the increased labour supply, as more people reach working age.
2. **Economic growth:** Demographic Dividend results in better economic growth brought about by increased economic activities due to higher working age population and lower dependent population. Demographic dividend has historically contributed up to 15 % of the overall growth in advanced economies.
3. **Capital formation:** The propensity of saving increases with the decrease in the number of dependents. This increases national savings rates, increases the stock of capital in developing countries and provides an opportunity for enhanced capital formation through investment.
4. **Creation of Infrastructure:** Increased fiscal space created by the demographic dividend enables the government to divert resources from spending on children to investing in physical and human infrastructure.
5. **Increase in Female Human capital**: Decrease in fertility rates result in healthier women and fewer economic pressures at home. This provides an opportunity to engage more women in the workforce and enhance human capital.

6. **Innovation and entrepreneurship:** A young population can lead to increased innovation and entrepreneurship, with more startups and unicorns emerging in various sectors like healthcare, education, agriculture, and financial services.
7. **Climate action and sustainability:** A young and educated population can drive sustainable development by prioritizing climate action and adopting environmentally friendly practices.
8. **Increase in Global influence:** India's rising population, combined with its position as the world's largest democracy and a major economy, can help it become a global manufacturing hub, startup capital, and exporter of skilled manpower.

What are the challenges/limitations that can turn India's 'Demographic Dividend' into 'Demographic Disaster'?

1. **Lack of employability:** Poor human capital formation is reflected in low employability among India's graduates and postgraduates. According to ASSOCHAM, only 20-30 % of engineers find a job suited to their skills. Thus, a low human capital base and lack of skills is a big challenge.
2. **Low human development:** India ranks 134 out of 189 countries in UNDP's Human Development Index. The life expectancy at birth, and the mean years of schooling is much lower than other developing countries.
3. **Hunger and Malnutrition:** In the Global Hunger Index (2023), India was ranked at 111 out of 125 countries. The nutrition, stunting, wasting and underweight among children below five years and anemia among women pose serious challenges. According to India's epidemiological trajectory, India faces the double burden of communicable and non-communicable diseases (NCD).
4. **Informal economy:** Informal nature of economy in India is another challenge in reaping the benefits of demographic transition in India. The workers in the Informal economy are underpaid and devoid of social security benefits.
5. **Jobless growth:** As per the NSSO Periodic Labour Force Survey 2017-18, India's labour force participation rate for the age-group 15-59 years is around 53%. This means that around half of the working age population is jobless. There are future concerns of further jobless growth due to deindustrialization, de-globalization, the fourth industrial revolution and technological progress.
6. **Low Women workforce Participation rate:** According to the latest Periodic Labour Force Survey (2022-23) female LFPR is around 37.0%. This poses a serious challenge in effectively reaping the demographic dividend.

What are the reasons for low employability of India's workforce?

1. **Lack of employable skills**: One of the main reasons behind the high youth unemployment rate in India is that schools even today are training students from a young age in skills that have no use in the market in the future. The World Economic Forum Report also highlighted the need for skills of the future, especially those that involve technology, such as programming, data science, big data, machine learning, AI, web development, etc.
2. **Obsession with "honourable" jobs**: Indian society puts a high value on graduates and white-collar jobs and often ends up neglecting those with adequate vocational skills or those who have completed on-the-job training.
3. **Poor communication skill**: In today's era, good communication skill is necessary, as our economy is expanding to other countries also. Employers want to recruit people who possess good communication skills so he/she can deal with foreign clients also.
4. **Dynamic nature of job market**: The job market is changing faster, candidates who do not equip themselves with new technology or adapt themselves to changing nature of jobs find it challenging to get employment.

5. **Rising trend of voluntary unemployment:** While the lack of sufficient job creation could lead to resentment due to people's high aspirations, NITI Aayog member Bibek Debroy, flagged a dramatic rise in voluntary unemployment across the country, where people choose not to work below a certain income level after 'investing' in education.
6. **Low labour force participation of women**: After recording some improvement in recent years, India's notoriously low female labour force participation rate (LFPR) seems to have stagnated, data from the Periodic Labour Force Survey (PLFS July 2021-June 2022) shows. 29.4% of women (aged 15-59) were part of India's labour force in 2021-22, as compared to 29.8% in the preceding year. In contrast, men's LFPR improved from 80.1% in 2020-21 to 80.7% in 2021-22.
7. **Less growth of the employment-intensive industry**: Less growth of employment-intensive industries like manufacturing, textile etc are a major problem. The skill-intensive service industry is unable to absorb the workforce,as these jobs require high-level skills.

What are various initiatives to improve the employability of the workforce in India?

1. **Skill India Mission (SIM):** Provides skill, reskill, and upskill training to youth across all states through various schemes and partner institutes to prepare them for future jobs in diverse industries.
2. **National Policy for Skill Development and Entrepreneurship (2015):** Umbrella policy to unify skilling activities, promote common standards, and link efforts to demand centers.
3. **Pradhan Mantri Kaushal Vikas Yojana (PMKVY):** Flagship program that delivers free, industry-relevant short-term training, offers recognition of prior learning, and ensures placement assistance.
4. **National Apprenticeship Promotion Scheme (NAPS):** Incentivizes employers to engage apprentices, combining practical work experience with formal study to boost job preparedness.
5. **Startup India Scheme:** Fosters entrepreneurship through funding, mentoring, and tax benefits, encouraging youth to launch innovative ventures.
6. **Sector Skill Councils (SSCs):** Develop sector-specific standards and training, closely collaborating with industry to ensure skills match workforce demand.
7. **E-Shram Portal:** National database of informal workers to enable targeted skilling, employment benefits, and social security integration.

What should be the way forward to improve the employability of the workforce in India?

1. **Strengthen Industry-Academia Linkage:**
   - Align curricula of schools, universities, and training institutes with real-world industry needs, ensuring the imparting of job-relevant skills through partnerships, internships, and apprenticeships.
   - Embed soft skills, digital literacy, and adaptability within both technical and general education to boost workforce flexibility and professional conduct.
2. **Scale & Modernise Skill Development:**
   - Expand vocational training and apprenticeship opportunities, emphasizing emerging sectors such as AI, robotics, renewable energy, healthcare, and tourism.
   - Encourage modular skill courses, blended learning models, and experimentation with digital platforms to increase access, especially in rural and excluded communities.
3. **Promote Formalisation of Economy:** Formalize informal employment by leveraging digital platforms like e-Shram for benefits, skilling, health and retirement coverage, and dignified employment contracts.
4. **Foster Innovation, Startups & Entrepreneurship:** Streamline regulatory processes, offer startup incubation, and build access to credit to unleash self-employment and micro-enterprises, especially for youth and women.

5. **Public-Private Partnerships (PPPs):** The government can work with the private sector to fund and manage skill development initiatives on a large scale.

Conclusion:
"Solving the employability crisis is less about the skills that our youth need to build and more about the opportunities that need to be built to skill our youth,".

UPSC GS-3: Indian Economy
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Inclusive Growth-Explained Pointwise

What is Inclusive Growth?

- **As per OECD** (Organisation for Economic Cooperation and Development), **inclusive growth** is economic growth that is distributed fairly across society and creates opportunities for all.
- **UNDP** described it as "the process and the outcome where all groups of people have participated in growth and have benefited equitably from it".
- Put simply, it refers to economic development that benefits all segments of society, ensuring equitable opportunities and outcomes for individuals regardless of their socio-economic background or circumstances.

What are the Major Components of Inclusive Growth?

1) **Reduced Poverty-** Inclusive growth strives to reduce poverty by improving the poor's access to opportunities and resources.

2) **Women's Empowerment-** Since women are frequently left out of economic possibilities, inclusive growth aims to provide them more power through employment, education, and training.

3) **Good Governance-** Transparency, accountability, and efficient institutions that meet the demands of all citizens are essential for inclusive progress.

4) **Education & Skill Development-** Building skills is a crucial component of inclusive growth because it paves the way for people to engage fully in the economy.

5) **Equal Opportunity-** Inclusive growth works to level the playing field for everyone, regardless of socio-economic position, gender, race, or religion.

6) **Access to Basic Services-** Inclusive growth seeks to guarantee that all citizens have access to basic services including healthcare, education, and sanitation. This access should include not only the quantity, but also quality, of these basic services.

7) **Employment Creation-** To combat poverty and advance economic development, inclusive growth aims to increase employment, especially for disadvantaged and marginalised people.

8) **Addressing the Marginalised-** Ensuring participation from all sections of society in the social, economic and political sphere.

9) **Reduction in Income Disparities-** Among the following:

1. Sections of society (Religion, Caste, etc.)
2. Rural-Urban Areas
3. Genders

What is the situation of inclusive growth in India?

- India is now one of the fastest-growing economies globally. However, this growth has not resulted in a corresponding increase in its **Human Development Index (HDI)**. According to the Human Development Report of 2023-24, India ranks 134 out of 193 countries.
- In the **Inclusive Development Index (IDI)**, 2018 compiled by the World Economic Forum (WEF), India ranked 62nd out of 74 emerging countries and was among the least inclusive countries in G20 countries.
- The **"Public good or Private Wealth?" Report 2019**, published by OxFam showed that India's top 10% holds 77.4% of the total national wealth, while the top 1% holds 51.53% of the wealth. The bottom 60% of the population holds only 4.8% of the national wealth.

What are the reasons behind lack of Inclusive Growth in India?

1) **Historical reasons-** Discrimination against certain sections of the society since historic times has affected their access to opportunities and to education, employment and health. Affirmative policies have been restricted to a few beneficiaries.

2) **Gender Inequality-** Females are treated as subordinate to males. Girl education is considered a burden on the family and women have limited choices in employment.

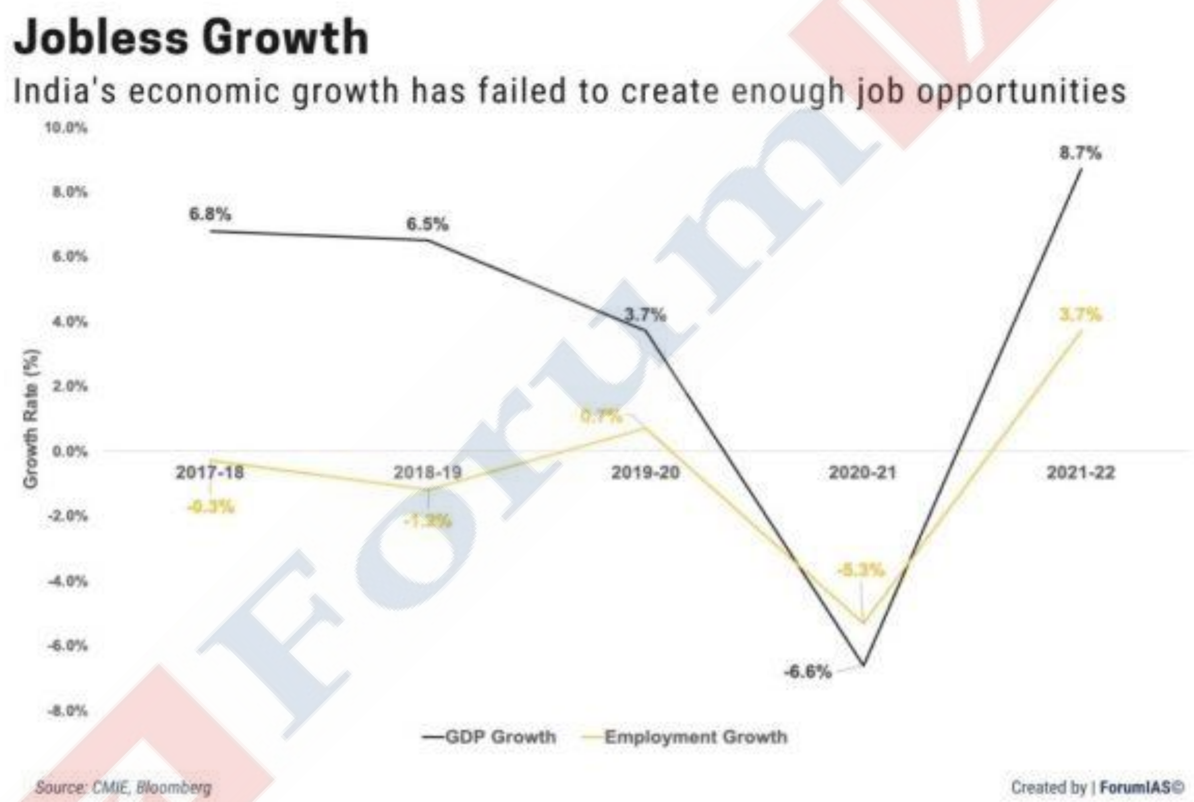
3) **Large-scale informal employment-** 80% of the Indian labour force is employed in the informal sector. Informal sector jobs are more insecure without regular pay and social security benefits. This increases the wage gap between formal and informal sectors.

4) **Overdependence on Agriculture-** A huge proportion of the population is still dependent on agriculture (~45% of the workforce) but the share of agriculture to the total GDP is falling.

5) **Regional Disparities in Growth-** Growth has been different across sectors and regions. For example, Green Revolution has disproportionately benefitted North-Western India when compared to Eastern India.

6) **Globalisation-** Studies show that globalization and opening up the economy has benefited the rich more than the poor, thus raising inequality.

7) **Jobless Growth-** India experienced job growth of 3% p.a in the 1970s at a time when the economy grew at 3-3.5% p.a but over the last 3 decades the economy grew at over 5-8% p.a but job growth has been close to 1% p.a.



Created by Forum IAS

8) **Government Inefficiencies-** This includes corruption, maladministration, red tapism etc. This prevents the optimum utilization of resources and creation of jobs.

Read More- Inclusive Growth

What are the challenges in ensuring inclusive growth?

1) **Poverty-** The Multidimensional Poverty Index 2024 places India first, with an estimated 23 crore people living in multidimensional poverty.

2) **Uneven Distribution of Resources-** Unfair resource allocation can thwart efforts to create inclusive growth. Examples of unfair resource distribution include wealth, land, and education.

3) **Social and cultural obstacles-** Marginalized groups may encounter social and cultural obstacles that restrict them from accessing opportunities and services, such as discrimination, exclusion, and gender inequity. For instance, Women often face barriers in accessing education, employment, and other opportunities.

4) **Weak institutional capacity-** Policies and programmes aimed at promoting equitable growth may be less effective if there is a lack of proper implementation, infrastructure, functionaries, etc.

5) **Rural-Urban Divide-** Disparities between urban and rural areas persist in terms of infrastructure, access to education, healthcare, and employment opportunities. This gap has still not been bridged.

6) **Unemployment and Underemployment-** Creating enough jobs for the growing workforce, especially in sectors that absorb a large number of people like agriculture and manufacturing, remains a challenge. Many are employed in the informal sector without job security or proper benefits.

7) **Education and Skills Gap-** Access to quality education and skill development is uneven across regions and socio-economic groups. This leads to a lack of skilled workers and limits opportunities for many individuals.

What are the advantages of inclusive growth?

Ensuring inclusive growth leads to many advantages that positively impact both society and the economy. Some key advantages include:

1) **Economic Stability and Sustainability-** Inclusive growth contributes to economic stability by creating a more balanced distribution of wealth. When more people have access to resources and opportunities, it can lead to a more sustainable economic development trajectory.

2) **Social Cohesion and Stability-** Addressing disparities fosters a more cohesive society. It reduces social tensions arising from inequality, which can lead to a more stable and harmonious community.

3) **Increased Human Capital Development-** When marginalized groups have access to education and skill development, it enhances the overall human capital of the nation. Educated and skilled individuals contribute more effectively to economic growth and innovation.

4) **Expanded Consumer Base-** Inclusive growth expands the consumer base by bringing more people into the formal economy. This leads to increased demand for goods and services, spurring economic growth.

5) **Enhanced Political Stability-** When people feel included in the economic and social fabric of society, it often translates to more stable political environments, reducing the risk of social unrest or conflicts.

6) **Greater Innovation and Creativity-** Inclusive growth brings together diverse perspectives, fostering innovation and creativity. A diverse workforce and society can generate new ideas and solutions to complex problems.

What are various government initiatives to ensure inclusive growth?

Financial Inclusion	• **Pradhan Mantri Jan Dhan Yojana (PMJDY):** Launched in 2014, this flagship scheme aims to provide universal access to banking services, including savings accounts, credit, insurance, and pensions, to every household. It has significantly expanded the formal banking network, especially in rural areas, and enabled Direct Benefit Transfers (DBT). • **Direct Benefit Transfer (DBT):** This initiative aims to transfer government subsidies and benefits directly to the bank accounts of beneficiaries, reducing leakages and corruption, and ensuring that funds reach the intended recipients. It covers a wide range of schemes, including food subsidies, pensions, and scholarships. For e.g. **PM KISAN** – 110mn farmers are now receiving direct income support. • **Pradhan Mantri MUDRA Yojana (PMMY):** Launched in 2015, MUDRA provides collateral-free loans up to ₹10 lakh to micro and small enterprises, particularly those run by women, SC/ST, and OBC entrepreneurs. This promotes self-employment and entrepreneurship among marginalized sections. • **Atal Pension Yojana (APY):** A government-backed pension scheme that provides a guaranteed pension to subscribers based on their contributions, primarily targeting workers in the unorganized sector to ensure social security in old age. • **Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) & Pradhan Mantri Suraksha Bima Yojana (PMSBY):** These are affordable life insurance and accident insurance schemes, respectively, designed to provide social security cover to the masses at very low premiums, making financial protection accessible to all. • **Kisan Credit Card (KCC):** Provides timely and adequate credit to farmers for their agricultural needs, preventing their reliance on informal money lenders.

Skill Development and Employment Generation	• **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA):** This landmark Act guarantees 100 days of wage employment in a financial year to adult members of any rural household willing to do unskilled manual work. It acts as a safety net, especially for the rural poor, and creates rural infrastructure. • **Make in India:** Launched in 2014, with the aim to transform the country into a global manufacturing and design hub as well as support an industrial growth that creates jobs. It led to the strengthening of MSMEs & encouraged Indian entrepreneurs & startups to innovate & establish new business – thus, transforming them from 'job seekers' to 'job creators'. • **Skill India Mission:** An umbrella initiative comprising several schemes aimed at skilling, re-skilling, and up-skilling the youth to enhance their employability. ◦ **Pradhan Mantri Kaushal Vikas Yojana (PMKVY):** Provides skill training to the youth, focusing on industry-relevant skills. ◦ **Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY):** Focuses on transforming rural poor youth into an economically independent and globally relevant workforce through skill training and placement. ◦ **Jan Shikshan Sansthans (JSS):** Provide vocational training to non-literates, neo-literates, and school dropouts, especially in rural areas. • **PM Vishwakarma Yojana:** Launched in 2023, this scheme provides support to traditional artisans and craftspeople (Vishwakarmas) through skill training, toolkits, marketing support, and collateral-free credit. • **Pradhan Mantri Employment Generation Programme (PMEGP):** Promotes self-employment through the establishment of micro-enterprises in the non-farm sector by providing financial assistance. • **PM SVANidhi Scheme:** Provides affordable working capital loans to street vendors to resume their livelihoods and promotes digital transactions. • **National Rural Livelihoods Mission (NRLM) / Deendayal Antyodaya Yojana – National Rural Livelihood Mission (DAY-NRLM):** Focuses on organizing rural poor households into Self Help Groups (SHGs) and federations, providing them access to financial services and sustainable livelihood opportunities.

Education and Human Development	• **National Education Policy (NEP) 2020:** Aims to provide universal access to quality education from pre-school to higher education, with a strong emphasis on holistic development, foundational literacy and numeracy, skill development, and inclusive learning environments. • **Samagra Shiksha Abhiyan:** An overarching program for the school education sector, extending from pre-school to senior secondary levels, aiming to ensure inclusive and equitable quality education. It specifically targets bridging gender and social category gaps. • **Mid-Day Meal Scheme (now PM POSHAN):** Provides hot cooked meals to schoolchildren, improving nutritional status, increasing enrollment and attendance, and reducing dropout rates, particularly among disadvantaged groups. • **Rashtriya Uchchatar Shiksha Abhiyan (RUSA):** Aims to improve access, equity, and quality in higher education by providing strategic funding to eligible state higher educational institutions. • **Pradhan Mantri Innovative Learning Program (DHRUV):** Identifies and nurtures talented children to help them achieve their full potential.
Health and Nutrition	• **Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PMJAY):** The world's largest health insurance scheme, providing a health cover of ₹5 lakh per family per year for secondary and tertiary care hospitalization to over 10 crore poor and vulnerable families. • **National Health Mission (NHM):** Seeks to improve the health outcomes of the population, particularly in rural areas, by strengthening public health infrastructure, promoting maternal and child health, and controlling communicable and non-communicable diseases. • **POSHAN Abhiyaan (National Nutrition Mission):** Aims to reduce malnutrition among children, adolescent girls, pregnant women, and lactating mothers through a multi-ministerial convergence approach and technology. • **Jan Aushadhi Kendras:** Provide quality generic medicines at affordable prices, making healthcare more accessible and affordable for all. • **Healthcare Infrastructure:** Number of medical colleges increased to 780 & AIIMS institution increased to 23.
Social Protection and Housing	• **Pradhan Mantri Awas Yojana (PMAY) – Urban and Rural:** Aims to provide "Housing for All" by 2022 (extended to 2024 for some components), by providing financial assistance for constructing or purchasing houses for eligible beneficiaries, especially those from economically weaker sections. • **National Social Assistance Programme (NSAP):** Provides social assistance benefits to the elderly, widows, and persons with disabilities in the form of pensions.

	Reservation Policies: Constitutional provisions and government policies for reservation of seats in education, employment, and legislative bodies for Scheduled Castes (SCs), Scheduled Tribes (STs), Other Backward Classes (OBCs), and Economically Weaker Sections (EWS) to promote affirmative action and social equity. **PM JANMAN (PM-Janjati Adivasi Nyaya Maha Abhiyan):** A targeted initiative for the comprehensive development of Particularly Vulnerable Tribal Groups (PVTGs), focusing on basic amenities, health, education, and livelihoods.
Infrastructure and Connectivity	**Jal Jeevan Mission (Har Ghar Jal):** Aims to provide safe and adequate drinking water through tap connections to all rural households by 2024, improving health and reducing the drudgery of water collection. **Pradhan Mantri Gram Sadak Yojana (PMGSY):** Connects unconnected habitations with all-weather roads, improving access to markets, schools, healthcare, and other services in rural areas. **BharatNet Project:** Focuses on providing broadband connectivity to all Gram Panchayats, aiming to bridge the digital divide and enable access to digital services in rural India. **Swachh Bharat Mission (SBM):** Focuses on improving sanitation and hygiene, particularly in rural areas, through the construction of toilets, which has significant health and dignity benefits for all, especially women. - Construction of key infrastructure projects connecting the remote areas for e.g. **Chenab & Anji bridges**. **Digital Connectivity:** **Digital India:** An umbrella program focused on transforming India into a digitally empowered society and knowledge economy, which underpins many inclusive growth initiatives by enabling digital delivery of services. - Introduction of **Digital Public Infrastructure** like Aadhar & UPI with over 141cr Aadhar registration & 60cr UPI transactions every day. **IndiaAI Mission**: Over 34,000 high-speed computer chips, called GPU, are now available at one-third of global cost.

What should be the Way Forward?

Achieving inclusive growth in India requires a comprehensive and multi-dimensional approach. Here are the steps that can be taken to ensure inclusive growth:

1) **Education and Skill Development-** Improving access to quality education for all, especially in rural and marginalized areas, is crucial. Emphasizing skill development programs that align with market needs can enhance employability.

2) **Employment Generation-** Encouraging sectors that create more jobs, such as manufacturing, services, and entrepreneurship, can help reduce unemployment and underemployment.

3) **Social Protection Programs-** Strengthening and expanding social safety nets like the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), subsidized food programs, and healthcare initiatives can provide a safety net for vulnerable populations.

4) **Financial Inclusion-** Expanding access to banking and financial services, especially in rural areas, can empower individuals and small businesses. Initiatives like Jan Dhan Yojana and Microfinance Institutions can play a significant role here.

5) **Gender Equality-** Promoting gender equality through policies that support education, employment, and entrepreneurship for women can unlock significant economic potential.

6) **Rural Development-** Focusing on agriculture by modernizing techniques, providing better access to markets, and improving infrastructure can spur growth in rural areas.

7) **Policy Reforms-** Implementing policies that promote inclusive growth, such as progressive taxation, land reforms, labour reforms, and policies targeting marginalized communities, can play a pivotal role.

Conclusion:
A holistic approach that addresses these multiple dimensions while considering regional disparities and the diverse needs of the population will be key in moving India toward a path of inclusive growth. Collaboration between government, private sector, civil society, and international organisations is crucial in executing these strategies effectively.

Read More- The Hindu
UPSC Syllabus- GS-3- Inclusive Growth

JAM Trinity – Significance & Challenges – Explained Pointwise

The JAM Trinity – Jan Dhan, Aadhaar, and Mobile – has marked a decade of driving India's digital push. Launched with the Pradhan Mantri Jan Dhan Yojana (PMJDY) in 2014, this framework has linked banking, identity, and connectivity to bring millions into the formal economy. Today, PMJDY boasts over 56 crore accounts, with deposits exceeding Rs 2.68 lakh crore. Aadhaar covers 141 crore people, while mobile subscriptions stand at 119 crore, with tele-density climbing to 86%. This setup has enabled Direct Benefit Transfers (DBT) of over Rs 43 lakh crore, saving Rs 3.48 lakh crore by cutting leakages. As India builds on this, JAM stands as a key tool for financial inclusion and transparent governance.

What is JAM?

- The JAM is the abbreviation form of **Jan Dhan Yojana , Aadhaar & Mobile number**.
- The JAM (short for Jan Dhan-Aadhaar-Mobile) trinity was first proposed in the Economic Survey 2014-15.
- The government has launched JAM to deliver direct benefits to India' poor.
- JAM brought together financial inclusion, biometric identification (Aadhaar) and mobile telecommunications.
- JAM was launched to foster financial inclusion, improve governance, and ensure efficient delivery of welfare benefits and public services.

What are the components of JAM trinity?

- **Jan Dhan (PMJDY):** Provides every citizen with access to a bank account, integrating those previously outside the formal financial system.
- **Aadhaar:** Offers unique biometric identification, allowing accurate targeting and authentication of beneficiaries under welfare schemes, eliminating fraud and duplication.
- **Mobile:** Ensures ubiquitous digital connectivity to access financial services, receive subsidy payments, and communicate with government programs.

What was the need of JAM?

1. **Addressing Leakages & Corruption:** Before JAM, government subsidies and welfare benefits suffered massive leakages due to middlemen, phantom beneficiaries, and inefficient delivery channels. Nearly half of subsidized goods and cash transfers did not reach the intended recipients, fueling corruption and losses to the public exchequer.
2. **Empowering the unbanked & marginalised:** A significant proportion of India's poor, rural, and marginalized populations lacked access to formal banking, making it impossible for them to receive direct cash benefits or participate in the economy securely.
3. **Poor targeting & Efficiency of Welfare Schemes:** Before JAM, welfare schemes were fragmented and slow, delaying payments and making it difficult for beneficiaries to track, access, or use government support effectively.

What are the objectives of JAM trinity?

1. **Direct Benefit Transfers (DBT):** Facilitate direct cash or subsidy transfers into beneficiaries' accounts, minimizing intermediaries and leakages.
2. **Financial Inclusion:** Empower marginalized communities by opening access to banking, credit, insurance, and pension schemes. JAM has strengthened financial inclusion as it has ensured that each eligible account holder under the Pradhan Mantri Jan Dhan Yojana is provided access to digital financial services in addition to the RuPay Card.
3. **Transparency and Accountability:** Biometric identification and digital transactions reduce corruption, increase administrative efficiency, and make welfare delivery more accountable.
4. **Cost Efficiency:** Reduces overheads by digitizing transactions and removing administrative bottlenecks.

What are the benefits of JAM?

For poor	• JAM has brought millions of previously unbanked citizens into the formal financial system and has played a key role in ending their social as well as economic exclusion. • The trinity has provided them with a secure place to save money and access credit. This has empowered a large segment of the population and contributed to their economic upliftment. • JAM-linked schemes (PM-KISAN, Ujjwala, MGNREGA) have provided timely support to farmers, women, and the poor—boosting food security and rural incomes, and lifting 25 crore Indians out of poverty in the last decade. • JAM trinity ensured that the poor now have access to financial services.

For government	● JAM Trinity has fundamentally transformed the way government subsidies and benefits are delivered. Traditionally, these benefits were disbursed through a cumbersome system involving middlemen, which often led to corruption and leakage. The JAM Trinity has created a more efficient and transparent system. ● By making the transfer of funds transparent and trackable, the JAM Trinity has improved the efficiency and accountability of the government. It has helped plug leakages in the public expenditure system and ensured that every rupee spent reaches the right person. ● The government has been able to identify various beneficiaries of various schemes and directly send them cash.
For Economy	● Over 55 crore Jan Dhan accounts have brought millions of Indians, including women and marginalized groups, into the formal banking system, spurring savings and access to institutional finance. This inclusivity has supported entrepreneurship and rural development, enabling marginalized communities to access credit and insurance. ● JAM has driven digital payments growth, with billions of UPI transactions monthly, and democratized access to e-commerce, online education, and telemedicine—even in rural areas. ● BharatNet and 5G roll-outs have accelerated digital infrastructure penetration, creating new business opportunities and boosting GDP growth.

What are the Challenges?

1. **Limited access to smartphones, internet, and digital literacy:** Large rural, tribal, and marginalized populations remain excluded or unable to fully benefit from JAM due to lack of connectivity and devices.
2. **Poor banking infrastructure:** Many remote areas have inadequate branch coverage, insufficient cash-out points, and a shortage of banking correspondents or agents to assist account holders.
3. **Dormant/Inactive Jan Dhan Accounts:** Millions of Jan Dhan accounts remain inactive or dormant due to limited financial awareness, lack of trust, and low-income activity. Behavioral change from financial participation takes time and targeted effort.
4. **Aadhaar-based authentication issues:** Biometric mismatches, technical failures, and data entry errors frequently lead to exclusion, denying benefits to genuine recipients.
5. **Data Privacy & Cybersecurity Risks:** Linking Aadhaar to bank and mobile accounts raises vulnerabilities. Weak data protection protocols have led to concerns over unauthorized access and misuse.

What should be the way forward?

1. **Enhance Digital & Financial Literacy:**
    - Launch large-scale digital literacy campaigns for rural, tribal, and marginalized populations to increase comfort with mobile, internet, and banking services.
    - Provide tailored financial education, helping beneficiaries understand banking, government schemes, and fraud prevention.

2. **Expand & Upgrade Infrastructure:**
    - Invest in high-speed internet connectivity and mobile networks across remote and rural areas, closing the digital divide.
    - Strengthen banking outreach by increasing the number of branches, ATMs, banking correspondents, and mobile banking vans.
    - Deploy robust, fail-safe transaction systems to minimize downtime or errors due to power/network disruptions.
3. **Strengthen Cybersecurity & Data Protection:**
    - Enforce stricter data privacy standards, implement advanced encryption, and regularly audit systems for vulnerabilities and breaches.
    - Update laws to protect users from cyber fraud and financial exploitation, guided by the Digital Personal Data Protection Act and international best practices.
4. **Integrate Innovation & New Schemes:** Broaden JAM's coverage to new types of welfare transfers, micro-credit, insurance, and pension programs, adapting the ecosystem for evolving needs.

Conclusion:
JAM Trinity, thus, represents a powerful digital infrastructure & has been a cornerstone of India's digital and financial inclusion agenda, advancing efficiency, transparency, and equitable growth in public service delivery.

Read More: DD News
UPSC GS-3: Economics – Inclusive Growth

Financial Inclusion – Significance & Challenges – Explained Pointwise

What is financial inclusion?

- Financial inclusion is the delivery of financial services at affordable costs to all sections of society (including the disadvantaged and low-income segments).
- The term 'Financial' includes all types of financial services, including savings, payments and credit from all types of formal financial institutions.
- It strives to address and bring solutions to the constraints that exclude people from participating in the financial sector.

United Nations has defined Financial Inclusion as follows:

1. Access at a reasonable cost for all households to a full range of financial services, including savings or deposit services, payment and transfer services, credit and insurance.
2. Sound and safe institutions governed by clear regulation and industry performance standards.
3. Financial and institutional sustainability, to ensure continuity and certainty of investment
4. Competition to ensure choice and affordability for clients.

Need for Financial Inclusion in India:

1. **Banking for the unbanked:** Financial inclusion would ensure universal access to bank accounts, which are a gateway to all financial services.
2. **Poverty reduction & Social Equity:**

a) Extends essential financial tools (savings, loans, insurance) to the poor, helping them build assets, manage risk, and break the cycle of poverty.
b) Empowers migrants, farmers, daily wage workers, and self-employed individuals to participate meaningfully in the economy.
c) Directly supports women's empowerment and gender equality by enabling access to finance, fostering economic independence, and improving household welfare.

3. **Insurance and social security:** Financial inclusion would ensure universal coverage of insurance for life, accidents, etc., and of pensions and other retirement planning services.
4. **Asset diversification:** It would allow diversification of the asset portfolio of households through increased participation in capital markets.
5. **Access to credit:** India has considerable ground to cover in terms of credit access. As per a NITI Aayog report, the number of loan accounts per 1000 adults was 154 in India (in 2016). In comparison, the number of loan accounts per 1,000 adults was 88 in Bangladesh, 26 in Pakistan, 417 in South Africa, and 231 in Kenya. Thus, financial inclusion would ensure better access to credit at a reasonable cost for those presently excluded(such as small and marginal farmers).
6. **Economic Growth:** Brings more citizens into the banking net, increasing savings, investment, and productive economic activity, which fuels GDP growth.
7. **Formalisation of Economy:** Promotes the transition from informal to formal economy, increasing transparency, accountability, and tax compliance.
8. **Efficient Welfare Delivery (DBT, Insurance, Pensions):** Financial inclusion enables targeted Direct Benefit Transfers (DBT) and the JAM Trinity system, reducing leakages, improving efficiency, and ensuring benefits reach the intended recipients. It facilitates affordable insurance and pension schemes for vulnerable and informal sector workers.

Challenges to Financial Inclusion:

1. **Lack of financial literacy:** A large proportion of the population (such as: rural households, low income households and small informal businesses) depend on the informal sources of credit due to a lack of financial literacy among them.
2. **High cost of transaction:** Traditional banking models consisting of brick-and-mortar bank branches in remote areas add to the operational cost of the banks. This has acted as a disincentive for the banks to move to remote regions.
3. **Lack of credit information:** Lack of information to determine the credit-worthiness of low-income households and informal businesses with formal creditors acts as a constraint while lending. This results in a high cost of credit.
4. **Low and irregular income:** Income level is one of the prominent factors that hinder the underprivileged from availing services from banks. The majority of the people's income level in the rural area is low and irregular too. A major portion of people is in seasonal employment. Hence, income level decides people's savings and investment avenues.
5. **Regulatory Cholesterol:** At present, there are a number of authorities (RBI, SIDBI, NABARD etc.) that play a role in financial inclusion. This has led to multiplicity of regulations and coordination issues between them. Such a situation is also referred to as 'regulatory cholesterol'.
6. **Large amount of NPAs:** Weak balance sheets of banks and the rising NPAs have made the banks reluctant and cautious in lending to customers such as farmers, small businesses and thin file clients (Clients with zero or insignificant credit history).

7. **Technological Issues:** Frequent machine breakdowns, lack of internet connectivity and problems with hand-held devices have continued to deter the financial inclusion of unserved and under-served areas.
8. **High Cost:** Nowadays banks are operating for profit in a competitive environment. They levy charges for different transactions like minimum balance requirements, charges for usage of ATM services, processing fees etc.

Government Initiatives for Financial Inclusion:

1. **Pradhan Mantri Jan Dhan Yojana (PMJDY):**
    - Launched in 2014 as a National Mission for Financial Inclusion, PMJDY provides every citizen with a zero-balance bank account, affordable credit, insurance, remittance, and pension facilities.
    - Over 56 crore bank accounts have been opened, with a significant share for women and rural populations.
2. **Pradhan Mantri Mudra Yojana (PMMY):**
    - Enables collateral-free, easy-access microcredit for small and micro enterprises, helping boost entrepreneurship among non-corporate, rural, and informal sector workers.
    - Loans up to Rs 10 lakh under three categories (Shishu, Kishor, Tarun) have fostered job creation and small business growth.
3. **Stand Up India Scheme:** Facilitates bank loans between Rs 10 lakh and Rs 1 crore for SC/ST and women entrepreneurs to launch greenfield enterprises, ensuring inclusion in self-employment and business ownership.
4. **Atal Pension Yojana (APY):** Provides pension coverage for the unorganized sector, aiming for safe, inclusive retirement security (guaranteed monthly pension post age 60).
5. **Pradhan Mantri Suraksha Bima Yojana (PMSBY) & Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY):** Affordable insurance schemes delivering accident, disability, and life insurance to millions of low-income citizens for minimal annual premiums.
6. **Digital Payment:** Unified Payments Interface (UPI), Aadhaar-enabled payments, Bharat Interface for Money (BHIM), and the creation of Digital Banking Units have dramatically boosted digital transactions, mobile banking, and financial empowerment.
7. **Jan Dhan-Aadhar-Mobile (JAM) Trinity:** The combination of Aadhaar, PMJDY, and an increase in mobile communication has transformed how citizens access government services.
8. **Improving Financial Literacy:**
    - The Reserve Bank of India has launched a project called "**Project Financial Literacy.**" The project's goal is to disseminate information about the central bank and general banking concepts to a variety of target groups, including school and college children, women, the rural and urban poor, military personnel, and senior citizens.
    - '**Pocket Money**' is the flagship programme of the Securities and Exchange Board of India (SEBI) and the National Institute of Securities Markets (NISM) aimed at increasing financial literacy among school students. The goal is to teach students about the value of money and the importance of saving, investing, and financial planning.
9. **Financial Inclusion Index:** It is a **composite, annual measure** developed by RBI to objectively assess and monitor the **extent of financial inclusion** across India. It captures the **penetration and usage of financial services**—banking, investments, insurance, postal, and pension sectors—for **all individuals and households** in the country. The index comprises **three** broad parameters — **access, usage, and quality**, having weight **35%, 45% and 20%**, respectively. The index ranges from **0 (complete exclusion) to 100 (full inclusion).**

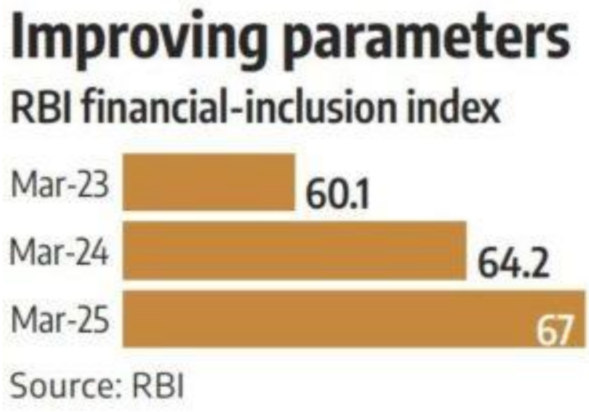


Figure 1.Source: RBI

Way Forward:

1. **Product:** Diversified products and services with adequate flexibility, and continuous availability may be developed to serve the rural masses. It would have the greatest impact on reducing poverty and empowering the rural masses.
2. **Processes**: Business processes need to be realigned to help banks reach the deprived and vulnerable population and provide them with hassle-free doorstep service.
3. **Partnership:** The bank-non-bank relationship [SHGs, MFIs etc] can be enhanced to ease the accessibility and availability of financial services.
4. **Protection:** Adequate safeguards are needed to be put in place to protect the receivers and providers of financial services.
5. **Profitability:** Proper delivery models are needed to ensure that the rural finance service providers function profitably on a sustained basis.
6. **Productivity:** The focus of the financial inclusion initiatives should be on maximizing productivity by adopting a **'CREDIT-PLUS APPROACH'**. [The Credit-plus approach integrates adequate and timely credit into larger developmental processes such as community organizing, leadership training, entrepreneurship etc.]
7. **People:** The rural branch staff should be adequately equipped to meet the needs of driving the process of financial inclusion in terms of knowledge, skills and attitude.

Conclusion:

Financial inclusion is critical for India's journey towards inclusive growth, digital empowerment, social justice, and long-term developmental resilience.

UPSC GS-3: Economics – Inclusive Growth

Monetary Policy – Significance & Challenges – Explained Pointwise

What is monetary policy?

- Monetary policy refers to the actions and strategies used by a central bank (RBI) to manage money supply, interest rates, and credit in the economy, ensuring price stability, supporting economic growth, and ensuring financial stability.
- **The Reserve Bank of India (RBI) is vested with the responsibility of conducting monetary policy**. This responsibility is explicitly mandated under the Reserve Bank of India Act, 1934.

Types of monetary policy:

There are two types of monetary policy:

1. **Contractionary/Dear money policy:** It seeks to reduce the money supply in the economy. Under this policy:
    - These rates are **increased**: CRR, SLR, Bank Rate, Repo Rate, Reverse Repo Rate, MSF.
    - Under OMO, RBI will sell g-secs.
2. **Expansionary/Cheap money policy:** It aims to increase the money supply in the economy. It is usually followed when RBI wants to push economic growth or counter recession. Under this policy:
    - These rates are **decreased**: CRR, SLR, Bank Rate, Repo Rate, Reverse Repo Rate, MSF.
    - Under OMO, RBI shall purchase G-secs.

Objectives of monetary policy:

1. **Price Stability:** Target headline inflation at 4% (±2%) to maintain stable prices for goods and services.
2. **Growth and Employment:** Support conditions for sustainable economic growth and job creation by adjusting interest rates, money supply, and credit flows.
3. **Financial Stability:** Prevent excessive volatility in financial markets and banking system. Manage liquidity, supervise banks, and avoid asset bubbles.

4. **Exchange Rate Stability:** Manage the external value of the rupee through intervention in the foreign exchange market, mitigating excessive volatility, and ensuring competitive export/import sectors.
5. **Interest Rate Stability:** Curb undue fluctuations in interest rates, ensuring certainty for businesses and consumers in planning investments and purchases.
6. **Support Priority Sector:** Ensure affordable credit to agriculture, small industries, housing, and other priority sectors to promote inclusive growth and poverty reduction.

Monetary Policy Tools:

Quantitative tools	1. **Reserve Ratio**:
	  1. Cash Reserve Ratio (CRR)
	  2. Statutory Liquidity Ratio (SLR)
	2. **Open Market Operation (OMO)**
	3. **Rates**:
	  1. **Bank rate**
	  2. **Liquidity Adjustment Facility (LAF)**
	    ○ Repo Rate
	    ○ Reverse Repo Rate
	  3. **Marginal Standing Facility (MSF)**
	4. **Market Stabilisation Scheme (MSS)**

Qualitative Tools	● Credit rationing
	● Margin requirements
	● Other measures
	  ○ Moralsuasion
	  ○ Direct Action

Monetary Policy Committee:

- The Monetary Policy Committee (MPC) is constituted by the Central Government under Section 45ZB of the RBI Act 1934.
- The Reserve Bank's Monetary Policy Department (MPD) assists the MPC in formulating the monetary policy.
- **Situation before MPC**: Before the constitution of the MPC, a **Technical Advisory Committee (TAC) on monetary policy** with experts from monetary economics, central banking, financial markets, and public finance, used to **advise** the Reserve Bank on monetary policy. With the formation of MPC, the TAC on Monetary Policy **ceased to exist.**
- **Structure of MPC**: 6 members
  - Governor (Chairperson of MPC)
  - Deputy Governor (in-charge of monetary policy)
  - One officer of the Reserve Bank of India to be nominated by the Central Board – Member, ex officio
  - 3 members to be nominated by the government (These members will hold office for a period of **four years or until further orders**, whichever is earlier).

- Each member of the MPC has **one vote**, and in the event of an equality of votes, the Governor has a second or **casting vote**.
- Under the flexible inflation targeting (FIT) framework, the "repo rate" is the policy rate. It is determined by the MPC based on the assessment of the macroeconomic condition and with the aim to keep CPI inflation near 4%+/-2%, as discussed above.
- Currently, MPC is only responsible for setting policy (repo) rate and performing the liquidity operations to operationalize the monetary policy lies with the RBI.

Significance of monetary policy:

1. **Price Stability & Inflation Control:** By targeting inflation and managing money supply through rates, the RBI preserves the purchasing power of citizens and prevents economic disruptions.
2. **Supports Sustainable Economic Growth:** The RBI ensures adequate credit availability for productive sectors, enabling investment, entrepreneurship, and employment generation, which drive India's development.
3. **Financial System Stability:** Monetary policy helps prevent financial crises, liquidity shortages, and systemic risks by actively overseeing and regulating banks, NBFCs, and financial institutions.
4. **Exchange Rate Stability:** The RBI manages the value of the rupee to avoid wild fluctuations, supporting international trade, controlling import/export costs, and maintaining investor confidence.
5. **Interest Rate & Credit Flow Management:** By influencing lending rates and credit conditions, the RBI supports business planning, housing markets, consumption, and investment.

Challenges or limitations of monetary policy:

1. **Monetary Policy Transmission:** Reductions or hikes in the RBI's policy rates (e.g., repo rate) do not always reflect quickly or fully in the lending rates offered by banks due to inflexible deposit costs, high small savings interest rates, and administered pricing.
2. **Inflation Targeting Constraints:** Monetary policy is effective mainly for demand-driven inflation, but much of India's inflation is supply-side (especially food and fuel), which the RBI cannot address directly.
3. **Incoherence between Fiscal & Monetary Policy:**
    - High fiscal deficit and government borrowing can crowd out private investment and reduce the effectiveness of monetary policy.
    - Price controls, subsidies, and MSP (Minimum Support Price) interventions can conflict with policy aims, limiting the RBI's independence and flexibility.
4. **Policy Rate Rigidity & Administered Rates:** Administered rates on small-savings greatly influence household deposit decisions, causing banks to hold their deposit and lending rates steady even when RBI signals rate changes.
5. **Structural Rigidities & Market Constraints:**
    - India's financial markets are still evolving. Limited integration, underdeveloped bond markets, and preference for cash transactions reduce the impact of policy tools.
    - The large informal sector, which operates outside formal banking, means monetary policy changes might not reach a significant portion of the economy.
6. **External Factors:** Factors such as capital flows, global recession, US monetary policy, and geopolitical risks can impact India's currency, capital markets, and inflation, often beyond RBI's control.

7. **Conflicting Objectives:** The need to simultaneously control inflation and promote growth can create trade-offs. Expansionary policies boost growth but risk inflation, while contractionary policies fight inflation but slow growth.

Way Forward:

1. **Strengthen Monetary Policy Transmission:**
   - Improve the transmission mechanism so changes in the RBI's policy rates reflect promptly and effectively into bank lending and deposit rates.
   - Encourage banking sector reforms to reduce NPAs, improve competition, and lower fixed costs so banks can adjust rates dynamically.
2. **Enhance Coordination between Fiscal & Monetary Policies:**
   - Improve synchronization between RBI and government budgetary policies to reduce fiscal dominance and its adverse effects on inflation and interest rates.
   - Rationalize subsidies and move towards better-targeted support to limit distortions in price signals.
3. **Target Broader Inflation Measure Responsibly:**
   - Balance headline and core inflation targeting, ensuring policymakers do not overlook essential goods impacting the poor.
   - Build public understanding and set expectations for acceptable inflation bands tailored to India's developmental context.
4. **Strengthen Regulatory Framework & Digital Infrastructure:**
   - Expand digital payments infrastructure to improve monetary policy transmission through formal financial channels.
   - Strengthen regulation and oversight of NBFCs and microfinance institutions to ensure credit flow and financial stability.
5. **Enhance Global Risk Management:** Develop frameworks to better manage capital flow volatility, exchange rate fluctuations, and external shocks through a mix of monetary, fiscal, and macroprudential tools.
6. **Foster Transparency & Communication:**
   - Improve RBI's communication strategies to build market confidence and effectively anchor inflation expectations.
   - Publish detailed monetary policy reports, market surveys, and data releases for greater accountability.

Conclusion:
Monetary policy in India thus aims to maintain stable price levels, promote growth, and support broad-based, inclusive financial sector development, ensuring that its benefits reach every section of society.

Read More: Financial Express
UPSC GS-3: Economics

Insolvency & Bankruptcy Code – Features, Achievements & Limitations – Explained Pointwise

Source: ET Government

Introduction:

- The Insolvency and Bankruptcy Code (IBC), enacted in 2016, is a landmark reform that consolidated and modernized India's insolvency framework.
- Its main aim is to provide a unified, time-bound process for resolving insolvency and bankruptcy of corporates, individuals, and partnership firms, thereby improving overall financial sector health and creditor confidence.
- Insolvency refers to a situation where individuals or companies cannot repay back their outstanding debt obligations.
- Bankruptcy refers to a legal status declared by a court of competent jurisdiction for a person or entity that is insolvent i.e. unable to pay off debts.

Key Features of IBC:

- IBC covers individuals, companies, LLPs, and partnership firms under a single, consolidated framework, merging multiple earlier laws.
- Strict timelines: Resolution must be completed in 180 days (extendable to 330 days in special cases, including litigation). Special provisions for small companies and startups (90 days + 45 days).
- Committee of Creditors (CoC): Takes charge of decision-making during insolvency; professional insolvency resolution professionals are appointed to manage proceedings.
- Insolvency and Bankruptcy Board of India (IBBI): Regulates professionals and agencies, sets standards, and oversees proceedings.
- Adjudicating Authorities:

    - National Company Law Tribunal (NCLT) for companies/LLPs.
    - Debt Recovery Tribunal (DRT) for individuals/partnerships.
- Cross-border Insolvency Provisions: Includes enabling provisions for handling insolvency of multinational companies operating in India.

Objectives of IBC:

- **Consolidation & Amendment of Insolvency Laws:** Merge and streamline multiple, outdated insolvency and bankruptcy laws under a single, comprehensive code for individuals, companies, LLPs, and partnership firms.
- **Facilitate time-bound resolution:** Ensure fast and predictable outcomes for insolvency cases (180–330 days), minimizing value erosion and maximizing asset recovery for creditors.
- **Maximise Value of Assets:** Prevent value depletion for stressed companies or individuals by encouraging restructuring, sale, or liquidation in a manner that realizes maximum possible returns.
- **Promote Entrepreneurship:** By making exit easy and non-punitive, IBC encourages risk-taking, business innovation, and investment, fostering a dynamic entrepreneurial ecosystem.
- **Protect interests of Creditors & other Stakeholders:** Structure processes to balance the interests of financial creditors, operational creditors, employees, government dues, and other stakeholders fairly.
- **Improve Ease of Doing Business:** By offering clarity, predictability, and a speedy resolution process, IBC elevates India's reputation for contract enforcement and dispute management, making it more attractive for investment.
- **Reduce NPAs & Boost Credit Supply:** Provide an effective mechanism for addressing bad loans and stressed assets, strengthening the financial system and allowing for more responsible credit creation.
- **Establishment of Regulatory Mechanism:** Establish the Insolvency and Bankruptcy Board of India (IBBI) to regulate insolvency professionals and agencies, ensuring ethical, efficient, and accountable practice.

Why was IBC needed?

1. **Fragmented & Outdated Insolvency Laws:** Prior to IBC, insolvency and bankruptcy were governed by multiple, overlapping laws and forums, causing confusion, delays, and high costs for resolution. Lack of clarity led to conflicting legal interpretations and inefficiency in resolving business distress.
2. **Prolonged Resolution Time & Value Erosion:**
    - Average insolvency resolution in India took over 4 years, in contrast to 1–1.5 years in developed countries.
    - Long proceedings caused value erosion of assets and discouraged genuine business restructuring.
3. **Mounting NPAs & Stressed Assets:** Banks and financial institutions suffered from rising non-performing assets (NPAs) and mounting bad debts. Ineffective recovery mechanisms left creditors with little recourse and led to growing economic risks.
4. **Poor Ease of Doing Business:**
    - India's low ranking in the World Bank's Ease of Doing Business index was partly due to cumbersome exit processes for distressed firms.
    - Investors and entrepreneurs were deterred by unpredictable and costly insolvency procedures.
5. **Strengthening Credit Discipline & Market Confidence:** The absence of strong recovery laws allowed for poor credit discipline and willful defaulting, harming India's banking sector and overall business climate.
6. **Need for Modern, Unified, Creditor-friendly Framework:**
    - Global best practices demanded a unified, quick, and transparent framework that empowers creditors and ensures fair outcomes for all stakeholders.

- Encouraging entrepreneurship, risk-taking, and a robust financial market needed time-bound exits and non-punitive resolution processes.

Achievements of IBC:

1. **Improved Recovery Rates & Resolution Timelines:**
   a. Average recovery rate for creditors has increased to 32–45%, up from ~20% before IBC.
   b. Strict timelines (180–330 days) have accelerated stressed asset resolution and asset value preservation.
2. **Rescue & Settlement of Companies:**
   a. As of March 2025, IBC has helped rescue 1,194 companies through resolution plans and led to creditors recovering ₹3.89 lakh crore.
   b. Over 30,000 cases (worth ₹13.8 lakh crore) were settled before admission, showing IBC's deterrent effect against defaults.
3. **Dominant Recovery Channel:** IBC contributed 48% of all bank recoveries in FY 2023–24, outperforming SARFAESI (32%), DRTs (17%), and Lok Adalats (3%).
4. **Behavioral Change & Improved Credit Discipline:**
   a. The threat of losing control over businesses via IBC has prompted debtors to repay dues and improved overall credit discipline in the banking system.
   b. Pre-admission settlements indicate companies now act early to resolve distress.
5. **Strengthening Banking Sector & Asset Quality:** Significant contribution to reducing non-performing assets (NPAs): gross NPAs declined from 11.2% in March 2018 to 2.8% in March 2024. Banks have freed up locked capital for redeployment and healthier lending.
6. **More Robust Credit Market:** IBC has made the Indian market more attractive to investors, especially in distressed asset deals, creating greater transparency and predictability.

Challenges/Limitations of IBC:

1. **Case Backlog & Delays:**
   a. Despite strict timelines (180–330 days), real-world resolution frequently exceeds deadlines due to limited judicial capacity, procedural complexities, and multiple legal challenges.
   b. Limited benches at National Company Law Tribunal (NCLT) and appellate tribunals create bottlenecks.
2. **Low Recovery for Certain Assets:** Although average recovery improved, some sectors and cases deliver lower-than-expected recoveries, especially where asset quality is poor or liquidation proceeds are limited for e.g. Agricultural and service-based enterprises often face distinct liquidation challenges.
3. **Structural Issues in Credit Markets:**
   a. Banks exhibit risk aversion, preferring secured over unsecured lending, and delay initiating insolvency to maximize loan lifetimes, reducing early resolution incentives.
   b. Non-Banking Financial Companies (NBFCs) and informal creditors remain less integrated into the insolvency framework.
4. **Delay in Resolution Plan Approvals:** Resolution plans sometimes face resistance, litigation, or withdrawal, causing significant delays and uncertainty for creditors and employees.
5. **Impact on MSMEs & Startups:** The insolvency process can be costly and intimidating for small and medium enterprises and startups, which may opt for informal settlements or closure.
6. **Incomplete Creditor Participation:** Non-financial creditors often feel underrepresented or sidelined in decision-making by the Committee of Creditors (CoC), impacting consensus and fair resolutions.

Way Forward:

1. **Strengthen Judicial & Institutional Capacity:**
   a. Expand the number of dedicated NCLT benches and National Company Law Appellate Tribunal (NCLAT) members to reduce case backlog and expedite resolution.

   b. Enhance training for judges, insolvency professionals, and related authorities to handle complex insolvency cases efficiently.
2. **Simplify Legal & Procedural Framework:**
   a. Streamline multiple legal provisions and reduce overlaps with sector-specific laws to minimize litigation and conflicting appeals.
   b. Introduce fast-track insolvency resolution mechanisms for MSMEs and startups with simplified procedures.
3. **Improve Credit Participation & Transparency:**
   a. Ensure fair representation and participation of operational creditors and minority stakeholders in the Committee of Creditors (CoC).
   b. Promote transparency in resolution processes and encourage stakeholder consultations to build trust and consensus.
4. **Enhance Awareness & Capacity Building:**
   a. Launch nationwide awareness campaigns for debtors, creditors, and businesses about the benefits and processes of IBC.
   b. Increase the pool of qualified insolvency professionals and upgrade their skill sets through continuous professional development programs.
5. **Foster Early Insolvency Detection & Resolution:**
   a. Encourage early identification of financial distress through improved credit monitoring systems.
   b. Facilitate pre-insolvency frameworks and corporate debt restructuring schemes to prevent insolvency where possible.
6. **Leverage Technology for Efficiency:**
   a. Strengthen information utilities and digital platforms for collecting and authenticating financial data.
   b. Implement technology-enabled case management and monitoring systems to ensure transparency and real-time updates.

Conclusion:
IBC is a crucial piece of economic legislation that has modernized India's bankruptcy laws, providing a much-needed framework for resolving financial distress and promoting a more robust and transparent credit market.

UPSC GS-3: Economics
Read More: The Hindu

FRBM Act – Provisions, Significance & Challenges – Explained Pointwise

Source: Jagran Josh

Introduction:

- FRBM Act stands for **Fiscal Responsibility and Budget Management Act** enacted in 2003, aims to promote fiscal discipline, transparency, and accountability in the management of India's finances.
- The Fiscal Responsibility and Budget Management Act, 2003 is regulated by the Department of Economic Affairs, Ministry of Finance.
- Fiscal Responsibility and Budget Management Act, 2003 ensure inter-generational equity in fiscal management and long-term macro-economic stability by reducing fiscal deficit. It was enacted for effective conduct of monetary policy and prudential debt management consistent with fiscal sustainability.
- FRBM Act mandates the following statements to be laid before the Parliament along with the Budget:
    - Macro-economic Framework Statement.
    - Medium Term Fiscal Policy Statement.
    - Fiscal Policy Strategy Statement.
- The **Fiscal Responsibility and Budget Management Committee** was constituted under the chairmanship of N.K.Singh to review the government's fiscal performance and make recommendations to FRBM Act.

FRBM Act: Provisions:

The Central Government shall:

- Take appropriate measures to limit the fiscal deficit up to 3% of gross domestic product by the 31st March, 2021.
- **Endeavor** to ensure that:
    - The General Government (Centre + State) debt does not exceed 60%.
    - The Central Government debt does not exceed 40% of gross domestic product by the end of financial year 2024-2025.
- Not give additional guarantees with respect to any loan on security of the Consolidated Fund of India in excess of one-half per cent of gross domestic product, in any financial year.
- Endeavour to ensure that the fiscal targets specified in clauses (a) and (b) are not exceeded after stipulated target dates.

FRBM Act: Amendments:

Since the enactment of the FRBM act in 2003, it has been amended 4 times – 2004, 2012, 2015 & 2018. The FRBM Act and the Rules underwent more significant changes during the 4th Amendment, in 2018.

N.K. Singh Committee Recommendations:

1. **Debt to GDP ratio:** The Committee suggested using debt as the primary target for fiscal policy. A debt to GDP ratio of 60% should be targeted with a 40% limit for the centre and 20% limit for the states.
2. To achieve the targeted debt to GDP ratio, it proposed yearly targets to progressively reduce the fiscal and revenue deficits till 2023.
3. The Committee proposed to create an autonomous **Fiscal Council** with a Chairperson and two members appointed by the centre.
4. The Committee noted that under the FRBM Act, the government can deviate from the targets in case of a national calamity, national security or other exceptional circumstances notified by it.
5. **Escape Clause:** The government may be allowed to deviate from the specified targets upon the advice of the Fiscal Council in the following circumstances:
    a. Considerations of national security, war, national calamities and collapse of agriculture affecting output and incomes.
    b. Structural reforms in the economy resulting in fiscal implications.
    c. Decline in real output growth of at least 3% below the average of the previous four quarters. These deviations cannot be more than 0.5% of GDP in a year.
6. The Committee recommended that the 15th Finance Commission (which was also led by N.K.Singh) should be asked to recommend the debt trajectory for individual states.

Significance of FRBM Act:

1. **Fiscal discipline**: The FRBM Act promotes fiscal discipline by setting up the targets for reducing the fiscal deficit and by mandating the constitution of a Fiscal Responsibility and Budget Management Committee (FRBMC) to review the government's fiscal performance.
2. **Fiscal transparency**: The FRBM Act promotes transparency and accountability of public finances through publication of various reports, such as the annual budget, the medium-term fiscal policy statement, and the Fiscal Policy Strategy Statement.
3. **Macroeconomic stability**: The FRBM Act aims to maintain macroeconomic stability by ensuring that the government's fiscal policies are sustainable and do not lead to high levels of public debt.
4. **Investor confidence**: The FRBM Act helps to boost investor confidence in the Indian economy by transparency and compliance and demonstrating the government's commitment to fiscal discipline and macroeconomic stability.
5. **Long-term planning**: The FRBM Act requires the government to present a medium-term fiscal policy statement and an FPSS, which helps in long-term planning and ensures that the government's fiscal policies are aligned with its future economic goals.
6. **Inter-Generational Equity:** FRBM Act emphasizes the responsibility of the government to maintain fiscal prudence so that future generations are not burdened by excessive debt.

Issues with FRBM Act:

1. **Frequent Deviations and Use of Escape Clause:**
    a. The government often fails to meet deficit and debt targets, invoking broad escape clauses in times of economic stress, natural disasters, or revenue shortfalls, undermining the Act's credibility.
    b. During major events (e.g., pandemic, GST introduction), targets have been postponed and reset several times.
2. **Rigid Fiscal Targets v/s Growth Needs:** Fixed deficit targets (like 3% of GDP) can be too inflexible during downturns, limiting the government's ability to stimulate the economy with increased spending when needed.
3. **Weak Enforcement & Accountability:**

a. No strong penalties or incentives for non-compliance; governments face limited consequences for missing targets.
b. Parliamentary and independent oversight are not always rigorous, allowing deviations to go unchecked.

4. **Transparency & Classification Issues:**
   a. Governments sometimes manipulate fiscal data by shifting expenditures off-budget, creative accounting, or reducing spending on critical social services to achieve targets.
   b. Lack of clarity in what qualifies as "revenue expenditure" or "capital expenditure" can obscure true fiscal positions.
5. **Impact on States and Fiscal Federalism:**
   a. Centralized fiscal authority has led to tension with states, who argue that FRBM impinges on their fiscal autonomy and lacks sensitivity to their varying needs.
   b. States are pressured to adhere to union-dictated deficit targets, even when their economic situations differ.

Way Forward:

1. **Introduce a Credible Debt Anchor:** Shift focus from rigid fiscal deficit targets to a debt-to-GDP ratio anchor (such as the 60% general government debt recommended by the N.K. Singh Committee), aligning with best international practices and ensuring inter-generational equity.
2. **Strengthen Escape Clauses & Trigger Mechanisms:** Clearly define and limit the use of escape clauses only for major shocks (pandemics, disasters, financial crises), with transparent triggers and conditions to prevent frequent fiscal slippage or misuse.
3. **Revise Fiscal Deficit Target Periodically:**
   a. Make fiscal targets more flexible, revising them in response to macroeconomic changes, business cycles, and structural reforms while protecting spending on key priorities.
   b. Allow phased fiscal consolidation to minimize adverse effects on the social sector and capital investment.
4. **Improve Centre-State Coordination:** Evolve joint targets and monitoring frameworks for deficit and debt, tailored to state-specific needs, reducing centre-state tensions and fostering cooperative federalism.
5. **Enhance Transparency & Accountability:** Ensure full disclosure of off-budget borrowings, guarantees, and contingent liabilities to avoid creative accounting and hidden fiscal risks.
6. **Establish Fiscal Council:** Set up an independent Fiscal Council to assess compliance, review projections, and advise on fiscal policy, increasing credibility and transparency.
7. **Prioritise the Quality of Expenditure:** The FRBM Act has traditionally focused on controlling the quantity of government spending, but the quality of that spending is just as important. The Act should distinguish between **revenue expenditure** (like salaries and subsidies) and **capital expenditure** (like building roads, ports, and power plants).

Conclusion:
FRBM Act is central to India's fiscal discipline and macroeconomic stability. However, it should shift from a rigid rule-based system into a dynamic and credible tool that ensures both fiscal discipline and sustainable economic growth.

Read More: Economic Times
UPSC GS-3: Economics

Finance Commission – Functions, Achievements & Challenges – Explained Pointwise

Introduction:

- Finance Commission is a constitutional body established under Art 280 of the Indian constitution.

- It is a non-permanent body and is constituted by the President for a term of 5 years or earlier.
- Its function is to maintain fiscal federalism by recommending the distribution of tax revenues between the central and state governments.

Functions of the Finance Commission:

- **Tax Revenue Distribution:** Recommends the sharing of net tax proceeds between the Union and States, and among the States themselves (income tax, GST, etc.):
    - **Vertical Devolution:** Recommending the percentage of central taxes and duties that should be shared with the states. This is the division of funds between the Union and the states.
    - **Horizontal Devolution:** Laying down the principles for the distribution of the shared funds among the individual states. The commission uses a formula based on various criteria, such as population, area, forest and ecology, and tax effort, to ensure a fair allocation.
- **Grants-in-Aid:** Suggests principles for grants-in-aid to support states that may not generate adequate revenue, ensuring essential services like health and education and promoting social welfare.
- **Strengthening Local Governance:** Advises measures to augment the Consolidated Fund of States to support Panchayats and Municipalities, strengthening local self-government.
- **Fiscal Discipline & Stability:** Reviews and recommends policies for fiscal consolidation, expenditure efficiency, and sustainable debt management at both Union and State levels.
- **Contemporary Fiscal Challenges:** Addresses emerging issues such as disaster management financing, impact of GST, and public sector reforms, as referred by the President.
- **Promotes Cooperative Federalism:** Encourages consultation and collaboration between Centre and States on financial matters for balanced development.

Composition of Finance Commission:

- It consists of 1 chairman and 4 members.
- Qualification of the members of the commission is decided by the Parliament.
- The chairman must have had experience in public affairs.
- Other 4 members:
    - Should be qualified to be a judge of a High Court.
    - Have special knowledge of finance and government accounts.
    - Have wide experience in financial matters and in administration.
    - Have special knowledge of economics.

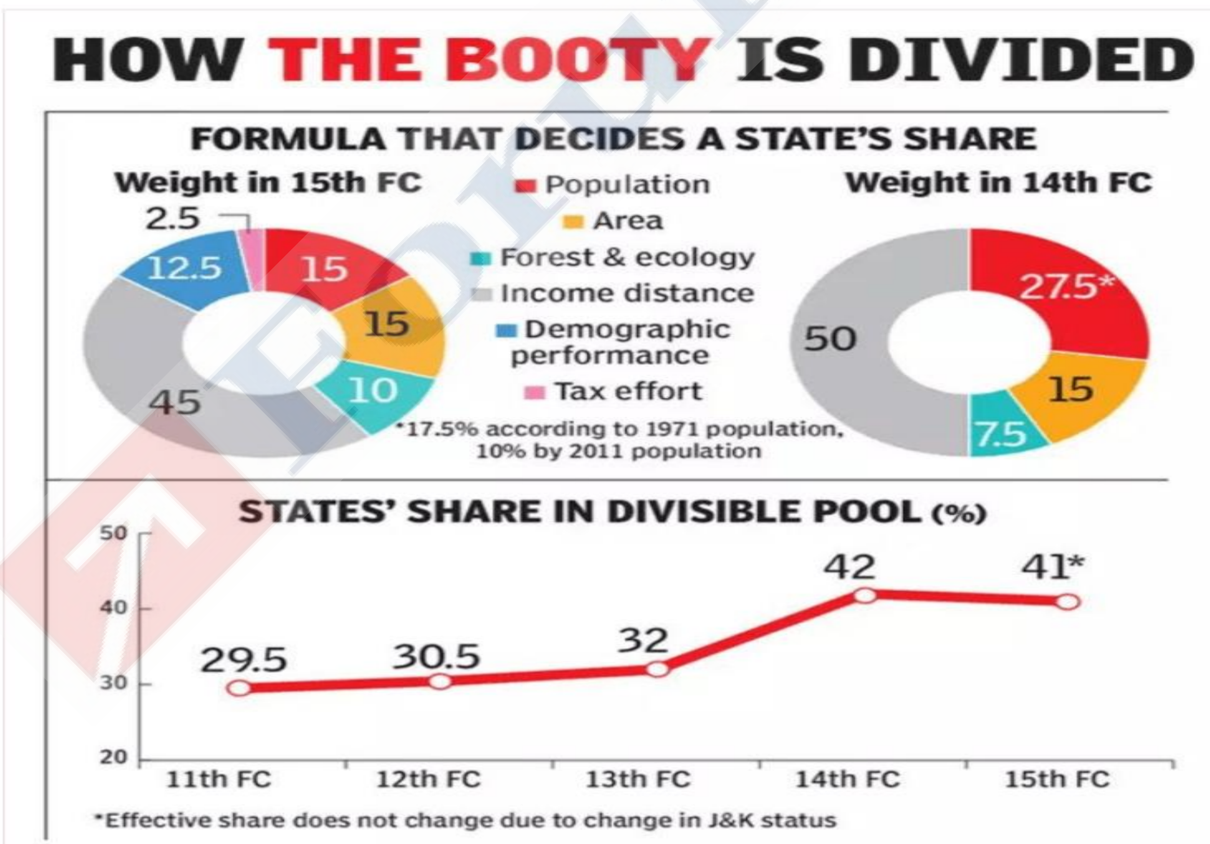
Implementation & monitoring of finance commission's recommendations:

- The recommendations of FCs are **advisory in nature and not binding** on the Union government. However, they are **usually accepted with minor modifications** or deviations.
- The Union government **notifies the acceptance** of the recommendations **through a Presidential Order,** which also specifies the period for which they are valid (usually five years).
- The Union government also **tables an explanatory memorandum in Parliament,** stating the action taken on the recommendations and the reasons for any deviation.
- The implementation and monitoring of the recommendations are **done by various ministries and departments** at the Union and state levels, **depending on the subject matter and the conditions** attached to the transfers.

Recommendations of 15th Finance Commission:

- 15th finance commission tenure is from 2020-26.

- The recommendations for FY 2020-21 & 2021-26 include vertical devolution of 41% to the states and 1% for the erstwhile state of J&K.
- The only change for 2020-21 and 2021-26 is: Income distance reference period for 2020-21 is 2015-2018 and for 2021-26 is 2016-19.
- Horizontal devolution is based on 6 indicators:
  1. 45% to income distance.
  2. 5% for demographic performance.
  3. 15% to population [2011 census]
  4. 10% to Area
  5. 10% to forest and ecology
  6. 5% to tax and fiscal efforts
- Principles for grant-in-aids/performance incentives to states are based on 4 areas:
  1. Social sector such as health, education
  2. Rural economy such as agriculture, roads
  3. Governance and administrative reforms
  4. Reforms in power sector
- Local body grants include total grants Rs 4.36 lakh crore with 2.4 lakh crore for rural and 1.2 lakh for urban.
- **Disaster Risk Management Corpus Fund** by Centre and the States in the ratio of 90:10 percent for NE and Himalayan states and 75:25 for other states.
- **Modernisation Fund for Defence and Internal Security (MFDIS)** with the total corpus of 2.4 lakh crore and 1.5 lakh crore from consolidated fund of India.



Achievements of the Finance Commission:

1. Introducing tax devolution as a major component of vertical transfers, **increasing the share of states from 10% to 42% over time.**
2. Introducing performance-based incentives for states to encourage **fiscal discipline, population control, forest conservation, power sector reforms, etc.**
3. **Introducing disaster relief funds for states and local bodies** for enhancing their preparedness and response capacity for natural calamities.
4. **Introducing grants for local bodies** strengthening their fiscal autonomy and accountability for delivering basic services.
5. Introducing **grants for specific sectors** such as health, education, justice delivery, statistical system, etc. addressing critical gaps and needs in these areas.

Challenges/Limitations of Finance Commission:

1. **Data Gaps and Quality Issues:** The finance commission relies on official data sources to assess the fiscal situation and performance of the Union and states, but these data are often incomplete, inconsistent or outdated.
2. **Centre v/s State:**
    a. The Commission must navigate conflicting interests between central and state governments, local bodies, civil society, etc.
    b. Rising centralization and demands for more state fiscal autonomy create tensions in resource sharing.
3. **Limited Implementation & Monitoring Power:**
    a. Finance Commission recommendations are advisory and not binding. Actual implementation depends on the Union and states, often leading to delays, non-compliance, or misuse of recommended grants.
    b. The Commission has no direct enforcement or oversight ability; accountability is limited.
4. **Resource v/s Responsibility imbalances:**
    a. Frequently faces situations where states have growing expenditure responsibilities but limited revenue mobilization capacity, making equitable sharing highly complex.
    b. Handling vertical and horizontal imbalances, especially with newer challenges like GST revenue sharing and compensation, adds complexity.
5. **Overlap with GST Council:** Intersecting jurisdictions with the GST Council, especially in tax pool size and distribution, pose coordination challenges for effective fiscal federalism.
6. **Limited Role in 3rd-tier Governments:** Recommendations regarding Panchayats and Municipalities are based only on State Finance Commission reports, restricting the Finance Commission's direct impact on grassroots fiscal empowerment.
7. **Changing Economic Contexts & Inequality:** Balancing regional disparities, post-pandemic fiscal health, disaster response, and new urban infrastructure demand requires dynamic and sometimes contentious negotiations.

Way Forward:

1. **Improve Data Quality:**
    a. Establish robust, comprehensive data-sharing mechanisms between the Centre, States, and local bodies for accurate, timely fiscal and economic data.
    b. Leverage technology and auditing to ensure transparency and reliability of data underpinning recommendations.
2. **Enhance Accountability & Compliance Mechanisms:**
    a. Introduce mechanisms to promote adherence to the Finance Commission's recommendations, such as monitoring frameworks, fiscal performance audits, and incentive-linked transfers.
    b. Strengthen Parliamentary oversight and involve independent fiscal institutions in evaluating compliance and impact.
3. **Strengthen Fiscal Federalism through Balanced Approach:**

   a. Balance revenue sharing and expenditure responsibilities transparently, considering states' fiscal capacity, needs, and development levels.
   b. Foster cooperative federalism by regularly consulting states and stakeholders to reconcile conflicts and expectations.
4. **Improve Coordination with GST Council & Local Bodies:**
   a. Develop integrated fiscal management frameworks involving the GST Council to harmonize revenue sharing and policy coherence.
   b. Increase the Finance Commission's role in empowering Panchayats and Urban Local Bodies through better mandates and funding models.
5. **Focus on Outcome-oriented & Developmental Measures:**
   a. Align transfers with performance and developmental outcomes to ensure effective use of resources.
   b. Encourage states to adopt long-term fiscal sustainability plans and reform agendas through incentivized grants.
6. **Institutional Strengthening:**
   a. Expand the Commission's secretariat capacity with fiscal, economic, and legal experts for deeper analysis.
   b. Engage academic and policy research institutions for evidence-based recommendations and impact assessments.

UPSC: GS-3: Economics

World Trade Organization – Relevance & Challenges – Explained Pointwise

One of the major global headwinds casting a shadow on the international trade is the 'reciprocal tariffs' which have been imposed by the US President Donald Trump to punish the countries, including some of the closest trading partners of America. These tariffs, also known as the 'Trump Tariffs', have been compared to the **Smoot-Hawley Tariffs** of 1930 – which is believed to had hastened the slide into the Great Depression. However, unlike the 1930s, the world today has an international organization, called WTO, regulating the international trade according to a rule-based order. However, many have also argued that the WTO has lost its relevance in the present period. Thus, in this article we will try to discuss the achievements of WTO, the challenges that it is currently facing & what could be the reforms that should be brought in it.

What is WTO?

The World Trade Organization (WTO) is the primary international organization governing the rules of trade between nations. It was established in 1995, replacing the **General Agreement on Tariffs and Trade (GATT)**, which had been in effect since 1948.

Principles: The WTO operates on several core principles such as:

- **Non-discrimination:**
  - **Most-Favoured-Nation (MFN):** Treating all trading partners equally.
  - **National Treatment:** Treating foreign products, services, and nationals no less favorably than domestic ones.
- **Reciprocity:** Countries should aim to lower trade barriers in exchange for similar concessions from other countries.
- **Trade Liberalization:** Gradual reduction of tariffs and quotas.
- **Binding Commitments:** Countries' commitments to open markets are binding and enforceable.
- **Transparency:** Member countries are required to publish their trade regulations. WTO collects and shares trade information among members.
- **Dispute Settlement:** Provides a legal and institutional framework for resolving trade conflicts

Umbrella	AGREEMENT ESTABLISHING WTO		
	Goods	Services	Intellectual property
Core principles	**GATT**	**GATS**	**TRIPS**
Additional information	Agreements and annexes for another goods	Services annexes	
Market access commitments	Commitments of member countries are scheduled	Commitments of member countries are scheduled (and MFN exemptions)	
Dispute settlement	**DISPUTE SETTLEMENT**		
Transparency	**TRADE POLICY REVIEWS**		

Source: WTO, 2021

Source: WTO

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. Forum for Negotiations: It serves as a platform for countries to negotiate new trade agreements and address trade-related issues, promoting ongoing trade liberalization.

3. 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.

4. Boost to national incomes- Accession to WTO has given a lasting boost to national income of several developing economies.

5. 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.

6. 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.

7. Dispute settlement: The Dispute Settlement Body (DSB) of WTO provides a rules-based system to resolve trade conflicts. It has handled over 600 disputes, many involving major powers like the US, EU, and China. It has helped in avoiding the trade wars and ensures compliance with international norms so far.

8. Support for Developing Nations: WTO has provided technical assistance, training, and special provisions to developing countries which has helped them in developing their capacities. It has allowed longer timeframes and flexibilities to them in implementing trade agreements. It has also launched the **Aid for Trade** initiative to help the least-developed countries (LDCs).

9. Trade Policy Review: The WTO reviews national trade policies to ensure transparency and compliance with WTO regulations, fostering greater openness in trade practices.

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

The WTO was expected to perform 3 functions – the negotiating function, the dispute settlement function, and the trade monitoring function. It has been struggling to perform any of them.

1. Stalemate in Trade Negotiations (Doha Round Failure): The Doha Development Round, launched in 2001, aimed to improve trade conditions for developing countries. It failed to reach consensus due to deep disagreements between:

- Developed nations (pushing for access to developing markets)
- Developing nations (seeking agricultural subsidies reform).

The failure reflects the WTO's inability to adapt to evolving global dynamics.

2. Bias Towards Developed Countries: WTO rules are often seen as favoring the economic interests of rich nations. Developed countries continue to provide massive agricultural subsidies (e.g., EU, US), while pressuring developing nations to open up markets. This has led to growing North-South tensions within the WTO framework.

3. Rising Protectionism and trade restrictions:

- MFN (Most Favoured Nation) principle is the bedrock of WTO & hence it was included as Article 1 in the Agreement. However, many countries (especially developed countries) are now stepping away from the MFN because according to them the trade liberalization has not happened as much as they were expecting, Moreover, they are finding it easier to negotiate on tariffs bilaterally by signing FTAs rather than at WTO.
- Trade restrictions by the developed and advanced economies has affected international trade (~$747 billion in global imports), and postponement of investment by businesses. WTO has not evolved into a forum to find a solution out of such kind of economic crisis.

4. Failure of dispute resolution mechanism (DSM)- 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, paralyzing the WTO as a judge and enforcer of global trade rules. ***For ex-*** *US has been blocking appointments to the Appellate Body since 2019.*

5. 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 mis-utilised the concessions of developing countries, as developing countries are defined based on 'self-declaration'.

6. 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.

7. Lack of consensus- WTO works on the principle of consensus-based decision making which often leads to deadlock & inaction. Moreover, there is lack of consensus on WTO reforms. For e.g. on one hand, the countries of Global South demand rationalization of fisheries subsidies, handholding of their public stockholding 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. Due to slow bureaucratic process of WTO, it takes years to complete the negotiations & bring reforms, making the WTO too slow to respond to modern trade issues like: E-commerce, Digital services, Climate-related trade policies.

8. Lack of Support for Least Developed Countries (LDCs): Despite promises, LDCs struggle to access global markets due to: Complex rules, High compliance costs & Limited representation in negotiations. WTO has not fully delivered on its development agenda.

9. Lack of Transparency: WTO negotiations are often criticized for being opaque, with limited input from civil society and smaller countries. The process is seen as undemocratic, favoring the interests of richer members.

10. China-factor: WTO has been criticized to allow China to flood the global markets with its cheap exports, but simultaneously restricted access to its domestic markets. WTO rules were highly inadequate to anticipate that how one country can produce more than 50% of steel & would flood the market & able to distort the trade – without violating the WTO rules, but clearly undermining the integrity of multilateral trading system.

11. India-specific challenges:

- WTO required the participating members to reduce their domestic subsidies on agriculture sector. However, agriculture is a politically sensitive issue for any government in India. Moreover, for country like India, which relies on domestic production, to limit its subsidies to just 10% will limit its developmental needs & raise food security concerns.
- India's large-scale public stockholding programs for food security have been contentious at the WTO, as other members argue these programs distort global trade. The "Peace Clause" offers temporary protection, but a permanent solution remains elusive, leaving India's food security policies vulnerable to challenge.
- India has opposed recent plurilateral initiatives (agreements among subsets of WTO members) on issues such as investment facilitation, arguing there is no mandate for such negotiations. This stance has isolated India and is seen as obstructing the WTO's ability to address emerging trade topics like digital trade, climate, and labor standards.
- India's competitive advantage in services (IT, finance, education) is often hampered by barriers in developed markets, including visa restrictions (e.g., H-1B visas in the US). Negotiations under the General Agreement on Trade in Services (GATS) have not yielded sufficient gains for India's service exporters.
- The WTO's TRIPS agreement poses challenges for India's generic pharmaceutical industry, which is vital for affordable medicines both domestically and globally. Stringent patent rules can restrict India's ability to produce generics, impacting public health.
- Developed countries frequently use non-tariff barriers, such as sanitary and phytosanitary (SPS) measures and technical barriers to trade (TBT), which Indian exporters find costly and difficult to comply with. These requirements often necessitate significant investment in infrastructure and standards compliance, putting Indian producers at a disadvantage.
- India often faces an asymmetry in negotiating power against developed countries, making it challenging to advance its interests effectively. To counter this, India builds coalitions with other developing countries, but this sometimes leads to a perception of obstructionism.

What are the suggested WTO reforms?

1. Dispute Settlement System Revival:

- **Restore Appellate Body Functionality:** Simplify procedures, reduce costs, and improve transparency. Clearer timelines, stricter compliance with rulings, and safeguards against overreach.
- **De-politicization of Appointment process-** The appointment process to dispute settlement body should be made independent of political control.
- **Interim Solutions:** Some members propose alternative dispute resolution mechanisms (e.g., mediation) while addressing Appellate Body paralysis.
- **Dispute settlement reform-** 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.

2. Special and Differential Treatment (SDT) Reform:

- **Objective Criteria:** Replace self-declared developing-country status with metrics like GDP per capita, trade share, and human development indicators.
- **Graduation Mechanism:** Phase out SDT benefits for advanced developing economies (e.g., G20 members) while retaining protections for LDCs

3. 30 for 30- India had earlier issued a comprehensive proposal called "30 For 30". It was 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.

4. 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.

5. 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.

6. 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.

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.

Conclusion:
However, despite these challenges, WTO remains essential, but without real reforms, its influence will continue to decline, and global trade may become more fragmented and unstable. WTO reform is not just about fixing broken systems—it's about revitalizing global trust in a fair and inclusive multilateral trading order.

Read More: The Hindu
UPSC Syllabus GS2: Important international institutions, agencies & fora.

India–Nepal Relations: Navigating the 2025 Political Crisis

India–Nepal relations, rooted in deep historical, cultural, and strategic ties, face a critical juncture following the violent Gen Z-led protests in Nepal. These protests toppled the elected government, dissolved Parliament, and installed former Chief Justice Sushila Karki as interim Prime Minister until the March 2026 elections. While India supported the constitutional order, the unrest raises concerns over stability in the shared border region.

What is the Background of the Nepal Crisis and Its Implications for India?

1. Trigger of Protests: In early September 2025, widespread Gen Z-led protests erupted in Nepal. The protests were against poor governance, entrenched corruption, and authoritarian measures by the CPN-UML-led government. One such measure was the banning of 23 social media websites, which was seen as an intolerance toward dissent.

2. Escalation and Violence: The protests turned violent. Seventy-four people were killed, and key institutions, including Parliament and the Supreme Court, were attacked. Buildings were burned, and vital documents destroyed, causing severe economic losses estimated at over NPR 10 billion.

3. Government Collapse: The crisis forced Prime Minister KP Sharma Oli to resign. This led to the unconstitutional dissolution of Parliament, violating Article 76 of Nepal's 2015 Constitution. Sushila Karki, a respected former Chief Justice, was appointed interim Prime Minister on September 12, 2025, with the backing of protest leaders.

4. Interim Setup: Karki became Nepal's first female Prime Minister. She pledged to address corruption and hold elections by March 5, 2026. The negotiations involved President Ram Chandra Paudel and Army Chief Ashok Raj Sigdel. Karki also appointed anti-corruption ministers, including Rameshwar Prasad Khanal (Finance) and Kulman Ghising (Energy).

5. Implications for India: As a key stakeholder, India monitored the unrest closely. Ambassador Naveen Srivastava attended Karki's swearing-in ceremony. The crisis carries risks of spillover effects, such as refugee influxes across the open border, and potential exploitation by anti-India elements, echoing the 2006 Madhesi movement.

What is the Importance of India–Nepal Relations?

1. Historical and Cultural Ties: India and Nepal share a deep-rooted civilisational bond through Hinduism and Buddhism, reflected in sacred sites like Pashupatinath Temple and Lumbini. The 1950 Treaty of Peace and Friendship institutionalised these ties. Over 8 million Nepalis live in India, and the presence of Gurkha regiments in the Indian Army reinforces enduring people-to-people and military links.

2. Strategic Significance: Sharing an open 1,770 km border, Nepal plays a critical role in India's Himalayan security architecture. As a buffer state between India and China, its geopolitical orientation directly affects India's regional stability. India's support during Nepal's 2006 transition to democracy further highlights its strategic involvement.

3. Economic Interdependence: India is Nepal's largest trading partner, accounting for over 60–65% of Nepal's trade (USD 8.5 billion in 2024). India provides petroleum, electricity, and essential commodities, while Nepal's vast hydropower potential offers clean energy opportunities for India. Remittances from 600,000 Nepali workers in India sustain Nepal's economy.

4. Developmental Partnership: India has provided more than USD 1.5 billion in aid since 2008, including post-2015 earthquake reconstruction, road and railway projects, and education and health infrastructure. These initiatives enhance mutual resilience and highlight India as Nepal's primary development partner.

5. Political and Governance Cooperation: Nepal's political stability is crucial for India's Neighborhood First Policy. Since the adoption of federalism in 2015, India's assistance in capacity building, governance reforms, and democratic consolidation has been vital for ensuring internal stability and inclusive development in Nepal.

6. Geopolitical Relevance: With China's growing influence through BRI projects like Pokhara Airport, India–Nepal relations serve as a counterbalance to external pressures in South Asia. Strengthening bilateral ties enables India to secure its northern frontier while ensuring Nepal's balanced and sovereign foreign policy choices.

What Are Key Areas of Cooperation in India–Nepal Relations?

1. Trade and Investment: Bilateral trade reached USD 8.5 billion in 2024, with India as Nepal's largest partner and top FDI source. Integrated Check Posts (Birgunj, Bhairahawa) and the Motihari–Amlekhgunj petroleum pipeline enhance efficiency, while machinery, petroleum, and hydropower dominate exchange.

2. Energy and Hydropower: India and Nepal aim to develop 10,000 MW of hydropower projects by 2030–35, including the 456 MW Arun-3 project (2024). The 400 kV Dhalkebar–Muzaffarpur line enables surplus electricity exports, positioning Nepal as a renewable energy hub for South Asia.

3. Connectivity and Infrastructure: India's USD 1.5 billion Line of Credit supports cross-border railways (Jayanagar–Kurtha, Jogbani–Biratnagar), highways (East–West Highway upgrades), and post-earthquake road reconstructions. Upcoming digital and air connectivity projects aim to further integrate the two economies and boost tourism.

4. Defence and Security: Under the 1950 Treaty of Peace and Friendship, over 30,000 Gurkhas serve in the Indian Army. Annual joint exercise 'Surya Kiran' and USD 50 million military aid strengthen border security, counter-insurgency operations, and intelligence-sharing against cross-border threats.

5. Development and Capacity Building: India supports more than 200 small development projects (USD 100 million) in health, education, and water. Over 1,500 scholarships are awarded annually, COVID-19 vaccine supplies (10 million doses), and projects like the Bir Hospital upgrade highlight India's role in human capital and healthcare.

6. Cultural and People-to-People Ties: An open border and rupee trade facility facilitate visa-free movement and economic exchanges. Cultural initiatives—Ramayana and Buddhist Circuits, yoga exchanges, and the India–Nepal Joint Commission—deepen civilisational bonds and strengthen trust.

What Are the Challenges in India–Nepal Relations?

1. Political Instability and Governance Deficits: Frequent government changes, including the 2025 crisis and Parliament dissolution, undermine policy continuity. Weak institutions, corruption, and democratic backsliding create uncertainty, slowing long-term bilateral projects and inviting external interference.

2. Rise of Nationalism and Anti-India Sentiments: Episodes like the 2020 map row over Kalapani–Lipulekh–Limpiyadhura and perceptions of the 2015 blockade fuel distrust. Gen Z protests and monarchist echoes amplify anti-India rhetoric, often mobilised by political elites and social media.

3. Expanding Chinese Footprint: Nepal's growing engagement with China's Belt and Road Initiative (BRI), including USD 3 billion in loans and projects like the Trans-Himalayan Railway, increases Beijing's influence. This challenges India's traditional primacy and heightens strategic competition in the Himalayas.

4. Economic Asymmetry and Trade Imbalances: India remains Nepal's largest trade partner, but the USD 6 billion trade deficit creates perceptions of exploitation. Delays in hydropower imports, tariff barriers, and over-reliance on remittances from India expose Nepal's economic vulnerabilities.

5. Water Resource and Environmental Disputes: River-sharing disagreements, like delays in the Mahakali Treaty, hinder irrigation and hydropower cooperation. Climate-driven floods in shared river basins threaten 15 million people, making water management a persistent friction point in bilateral ties.

6. Border Management and Security Concerns: The 1,770 km open border facilitates movement but also enables USD 1 billion worth of smuggling annually, human trafficking, and illegal migration. Unresolved disputes, such as Lipulekh–Kalapani, further strain border cooperation and mutual trust.

What Can Be the Way Forward?

1. Strengthening Democratic Institutions: India should support Nepal's constitutional order and federal experiment by providing technical assistance through the Election Commission of India. Promoting free and fair 2026 elections while engaging Gen Z leaders through youth exchanges will build resilience against instability.

2. Deepening Economic Engagement: Expanding investments in hydropower, agriculture, tourism, and IT can generate jobs and reduce migration pressures. A Bilateral Economic Partnership Agreement (BEPA) covering services, e-commerce, and trade diversification will address the USD 6 billion trade deficit sustainably.

3. Enhancing Connectivity and Infrastructure: Accelerating BBIN projects, cross-border railways (Jayanagar–Kurtha), and highways (Hulaki Highway extension) will boost regional integration. Linking Nepal to Act East supply chains ensures it benefits from India's growing connectivity with Southeast Asia.

4. Security and Border Management: Strengthening joint patrolling along the 1,770 km open border with drone surveillance, biometric tracking, and e-border posts can curb smuggling and trafficking. Expanding Gurkha recruitment, joint training, and intelligence-sharing will enhance defence cooperation.

5. Managing the China Factor: India should offer transparent grants-based financing for sustainable infrastructure as alternatives to BRI loans. Promoting India–Nepal–China trilateral dialogues and strengthening BIMSTEC connectivity platforms will prevent zero-sum rivalries and enhance regional balance.

6. Cultural and People-Centric Diplomacy: Expanding 2,000 annual scholarships, pilgrim circuits (Ramayana and Buddhist), and cultural festivals will strengthen soft power. Setting up skill-development centres in Nepal can address migration challenges while reinforcing India–Nepal civilisational bonds.

Conclusion

Nepal's 2025 political turmoil challenges India–Nepal ties rooted in shared history and geography. Despite instability and external pressures, mutual dependence offers opportunities for renewal. By bolstering democracy, deepening trade, and fostering dialogue, India can help steer Nepal toward stability. Their intertwined futures demand cooperation over interference, shaping "Naya Nepal" and a resilient partnership.

Read more- IE
UPSC Syllabus- GS 2- Indian and Its Neighborhood Relations

MSME – Significance & Challenges – Explained Pointwise

The Micro, Small, and Medium Enterprises (MSME) sector is a crucial pillar of the Indian economy, contributing significantly to industrial output, employment generation, and exports. In 2023-24, MSME-related products accounted for 45.73% of India's total exports. Often termed the backbone of the economy, MSMEs are instrumental in realizing the vision of Atmanirbhar Bharat (Self-Reliant India).

What are MSMEs?

- **MSMEs**: These are enterprises engaged in the production, processing, and preservation of goods and commodities. These businesses are classified based on their investment in plant and machinery (for manufacturing) or equipment (for service enterprises), along with their annual turnover.
- **MSME Regulation in India**: MSMEs are regulated under the Micro, Small & Medium Enterprises Development (MSMED) Act, 2006. In 2007, the Ministry of Small Scale Industries and the Ministry of Agro and Rural Industries were merged to form the Ministry of Micro, Small & Medium Enterprises.

What is the role of MSMEs in India's economic growth?

1. **Job Creation & Livelihood Opportunities:**
    - MSMEs are the largest source of non-agricultural employment in India, providing jobs primarily to semi-skilled and unskilled workers.
    - Government programs like PM Vishwakarma and Mudra Yojana have expanded self-employment prospects.
    - Currently, more than 1 crore registered MSMEs employ nearly 7.5 crore people across the country.
2. **Contribution to GDP & Industrial Development:**
    - MSMEs play a pivotal role in India's economic framework, accounting for around 30% of the GDP and 45% of the total manufacturing output.
    - They play a crucial role in industrial clusters by supplying raw materials and intermediates to large industries.
    - The Udyam portal has streamlined the formalization of MSMEs, promoting a more structured and organized industrial sector.
3. **Rural Development:** 51% of MSMEs are located in rural areas. In contrast to large corporations, MSMEs have aided in the industrialization of rural areas at a low capital cost. The sector has made significant contributions to rural socio-economic growth while also supplementing major industries.
4. **Enhancing Exports & Foreign Exchange Reserves:**
    - In 2023-24, MSMEs contributed 45.73% of India's total exports, reinforcing their vital role in international trade.
    - Schemes such as the Government e-Marketplace (GeM) and the Production-Linked Incentive (PLI) program have strengthened MSMEs' integration into global supply chains.
5. **Advancing Digital & Technological Innovations:**
    - Initiatives like the Open Network for Digital Commerce (ONDC) are fostering digital transformation within the MSME sector.
    - Currently, 72% of MSME transactions are conducted digitally, enhancing financial inclusion and operational efficiency.

6. **Social Inclusion:** According to the Annual Report of The Ministry of MSMEs (2021-22), the socially backward groups owned almost 66.27% of MSMEs. In rural areas, almost 73.67% of MSMEs were owned by socially backward groups.

Statement No. 2.4: Percentage Distribution of enterprises by social group of owner in rural and urban Areas.

Sector	SC	ST	OBC	Others	Not known	All
Rural	15.37	6.70	51.59	25.62	0.72	100.00
Urban	9.45	1.43	47.80	40.46	0.86	100.00
All	12.45	4.10	49.72	32.95	0.79	100.00

Source: Annual Report, Ministry of MSMEs (2021-22)

7. **Promoting Women & Social Entrepreneurship:**
   - Women-led MSMEs are contributing to gender equality and economic empowerment.
   - Under the Mudra Yojana, loans worth ₹32.36 lakh crore have been sanctioned, benefiting 51.41 crore entrepreneurs, with 68% of them being women.

What are various government initiatives for MSMEs?

1. **Revised Classification Criteria:** To help MSMEs scale operations and access better resources, the investment and turnover limits for classification have been increased by 2.5 times and 2 times, respectively.

Rs. in Crore	Investment		Turnover	
	Current	Revised	Current	Revised
Micro Enterprises	1	2.5	5	10
Small Enterprises	10	25	50	100
Medium Enterprises	50	125	250	500

Source: PIB

2. **Udyam Registration Portal:** Provides simplified, online registration giving MSMEs formal recognition, essential for availing benefits across schemes.
3. **Enhanced Credit Availability:**
   - **Mudra Loan Scheme:** It was launched in April, 2015 for providing loans up to INR 10 lakh to the non-corporate, non-farm small/micro enterprises. It encompasses 3 financing loans: *Tarun* (loans up to INR 10 Lakhs), *Kishore* (loan up to INR 5 Lakhs), *Shishu* (loan up to INR 50,000).
   - **Credit Guarantee:** The credit guarantee cover for micro and small enterprises has been increased from ₹5 crore to ₹10 crore, enabling an additional credit infusion of ₹1.5 lakh crore over five years.
   - **Credit Cards for Micro Enterprises:** A customized Credit Card scheme to provide ₹5 lakh in credit to micro enterprises registered on the Udyam portal.
   - **Credit Guarantee Trust Fund for Micro and Small Enterprises (CGTMSE)**: It provides collateral-free credit to the micro and small enterprise sector.
   - **Special Credit Linked Capital Subsidy Scheme (SCLCSS)**: This scheme was launched to help the enterprises in the services sector meet various technology requirements. It also has a

provision to grant 25% capital subsidy for procurement of plant & machinery and service equipment through institutional credit to MSMEs owned by SC/ST entrepreneurs without any sector specific restrictions on technology upgradation.

4. **Raising and Accelerating MSME Performance (RAMP)**: The scheme aims at strengthening institutions and governance at the Centre and State, improving Centre-State linkages and partnerships and improving access of MSMEs to market and credit, technology upgradation and addressing issues of delayed payments and greening of MSMEs.
5. **Skill Development:**
    - **A Scheme for Promotion of Innovation, Rural Industry & Entrepreneurship (ASPIRE)**: The objectives of this scheme are to create new jobs, promote entrepreneurship culture in the country, and promote innovation in the MSME sector.
    - **Entrepreneurship and Skill Development Programmes (ESDP)**: Under this, the Ministry of MSME has been organising several programmes focussing on the process of improving skills and knowledge of entrepreneurs, and enhancing the capacity to develop, manage and organise a business venture.
6. **Scheme of Fund for Regeneration of Traditional Industries (SFURTI)**: The objectives are to organise traditional industries and artisans into clusters to make them competitive and provide support for their long-term sustainability, enhance marketability of products of such clusters, build innovative products, improve technologies etc.
7. **Entrepreneurship & Inclusion:**
    - **Stand-Up India:** Loans of ₹10 lakh–1 crore to support women and SC/ST entrepreneurs in setting up new businesses.
    - **First-Time Entrepreneurs Scheme:** Loans up to ₹2 crore and capacity-building for disadvantaged groups.
    - **PM Vishwakarma:** Focuses on enabling traditional artisans and craftspeople through training and access to markets, with special financial support.
8. **Technology & Quality Upgradation:**
    - **MSME Sustainable (ZED) Certification Scheme:** Encourages sustainable and high-quality manufacturing with incentives for adopting energy efficiency and zero-defect practices.
    - **Credit Linked Capital Subsidy Scheme (CLCSS):** Supports technology upgradation for MSMEs to make them globally competitive.
9. **Public Procurement Policy for MSMEs:** Mandates 25% of government and PSU procurement from MSMEs, giving them market access.

Digital Initiatives in the MSME Sector

- **Udyog Aadhar Memorandum**: It is a 1-page **online registration system** for MSMEs based on **self-certification**.
- **MSME Databank**: It enables the Ministry of MSME to **streamline and monitor the schemes** and pass on the benefits directly to MSMEs. MSMEs can update their enterprise information as and when required.
- **MY MSME**: It is a web-based application module in the form of a mobile app to facilitate the MSMEs to enjoy benefits of various schemes.
- **MSME *Sampark***: It is a digital platform wherein jobseekers (students or trainees of MSME Technology Centres) and recruiters can register themselves for mutually beneficial interactions.
- **MSME *Sambandh***: For effective implementation of the Public Procurement Policy, Central Ministries and Public Sector Enterprises (CPSEs) must procure 25% annual procurement from MSEs. The Ministry of MSME has launched MSME Sambandh.
- **MSME *Samadhaan***: This portal gives information about pending payments with the Central Ministries, State Governments, with respect to micro and small enterprises (MSEs).
- **MSME *Sambhav***: It is a national-level awareness programme to push economic growth by promoting entrepreneurship and domestic manufacturing.
- **Grievance Monitoring**: The Ministry of MSME has started an **MSME internet grievance monitoring system** (e-Samadhan) to help track and monitor the grievances and suggestions.

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What are the challenges faced by the MSME Sector?

1. **Lack of Formalisation**: Almost 86% of the country's manufacturing MSMEs are unregistered. Only about 1.1 crore of the 6.3 crore MSMEs are registered with the Goods and Services Tax (GST) regime, and the number of income tax filers is even lower. As a result of limited availability and access to data, as well as legacy underwriting methods, the credit requirements of Indian MSMEs have largely gone unmet.
2. **Access to Technology**:
    - The majority of MSMEs use outdated technology that prevents them from keeping up with the modern world. Adoption of new technology and training employees is difficult and expensive, especially in manufacturing where both physical equipment and software are involved.
    - Lack of access to IT education contributes to the technological gap.
    - Another significant factor is a **lack of awareness**, which **reduces willingness to invest in advanced technology solutions**.
3. **Cumbersome Registration Process:** Lengthy registration procedures and inefficient single-window clearance systems create bureaucratic hurdles for MSMEs, delaying their formalization and operational setup.
4. **Lack of Awareness About Government Schemes:** Many MSMEs struggle to navigate the complex landscape of government schemes due to inadequate awareness and poor coordination between the Centre and States.
5. **Financial Constraints:** Limited access to institutional finance, stringent collateral requirements, and high interest rates make it difficult for MSMEs to secure the funds necessary for expansion and modernization.
6. **Export-Related Challenges:** Poor infrastructure, inadequate trade facilitation, and difficulty in meeting Environmental, Social, and Governance (ESG) standards restrict MSME participation in global markets.
7. **Labour Shortages and Skill Gaps:** A lack of skilled workers, wage disparities across regions, and inefficient training centers result in low productivity and reduced competitiveness for MSMEs.

What should be the way forward?

1. **Strengthening Credit Access & Financial Support:**
    - Expand collateral-free lending via fintech platforms and alternative credit assessment models.
    - Mandate strict payment timelines under the MSME Samadhan portal to ensure timely dues from large corporations and government agencies.
    - Enhance the role and reach of MUDRA and SIDBI to facilitate easier credit access.
    - Develop tailored fintech solutions and promote financial literacy programs for MSMEs.
2. **Reducing Compliance Burden & Regulatory Bottlenecks:**
    - Implement single-window clearance for faster approvals and streamlined processes.
    - Establish state-level MSME facilitation councils for quicker grievance redressal.
    - Simplify GST registration and reduce the frequency of regulatory amendments to ensure ease of doing business.
    - Set up a dedicated MSME Coordination Council to streamline policy implementation and address sector-specific challenges.
3. **Enhancing Digital & Technological Adoption:**
    - Facilitate adoption of AI, IoT, and automation through MSME technology hubs.
    - Launch Digital MSME 2.0 to improve cybersecurity, cloud computing access, and digital marketing capabilities.
    - Strengthen the Credit Linked Capital Subsidy Scheme (CLCSS) to support MSMEs investing in advanced technologies.
    - Promote MSME Innovation & Incubation Hubs in collaboration with academic and research institutions.
4. **Workforce Development & Skilling Initiatives:**
    - Ensure uniform labor wages and introduce affordable labor insurance schemes for MSME employees.

- Align skill training programs under Skill India, PMKVY, and NAPS to address MSME workforce needs.
- Promote women entrepreneurs through targeted vocational training and credit linkage schemes.

5. **Infrastructure Development & Cluster-Based Growth:**
    - Strengthen MSME clusters under the Micro & Small Enterprises – Cluster Development Programme (MSE-CDP).
    - Encourage Public-Private Partnerships (PPPs) to set up Common Facility Centers (CFCs) for shared resources.
    - Develop MSME Industrial Parks with subsidized utilities, logistics support, and better last-mile connectivity.

Conclusion:

MSMEs can play a vital role in growth of the economy as India enters the *Amrit Kaal* phase. They can help in inclusive and balanced development and make India a global manufacturing hub. The Government has been supporting the MSMEs through various initiatives, the need is to focus on the implementation and realizing the outcomes.

UPSC GS-3: Economics
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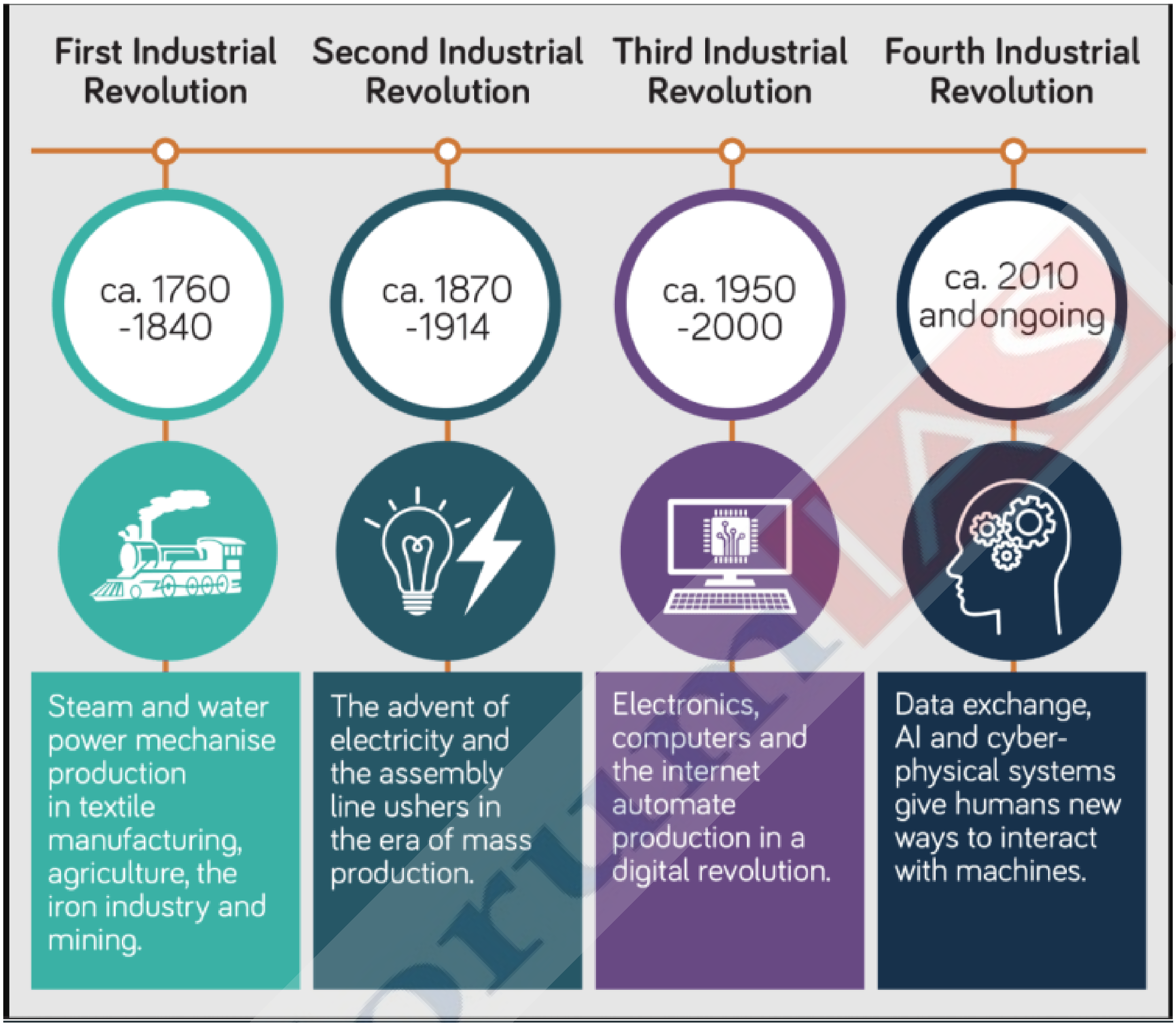
Industrial Revolution 4.0 – Significance & Challenges – Explained Pointwise

Industrial Revolution 4.0 refers to the fourth industrial revolution related to manufacturing and chain production. It is driven by breakthroughs in digital technologies, such as artificial intelligence, robotics, 3D printing, the IoT, Big Data etc. It's not just about a single technology, but the fusion of digital, physical, and biological worlds, blurring the lines between them.

Introduction:

- The term was coined by Klaus Schwab, founder of the World Economic Forum (WEF) in 2016.
- 4IR means the digital transformation of the manufacturing industry by new technologies such as artificial intelligence, additive manufacturing, augmented/virtual reality, and the Internet of Things (IoT).
- It is also used to refer to the concept of "smart factories"–which are fully connected cyber-physical systems that merge the physical and digital aspects.

Stages of Industrial Revolution:



Source: Neos Network

Technologies driving 4IR:

1. **AI & Machine Learning:** Artificial intelligence (AI) is a set of technologies that can reason and learn to solve problems or perform tasks that traditionally require human intelligence. It powers innovations like autonomous vehicles, advanced healthcare diagnostics and personalized customer experiences.
2. **Big Data & Analytics:** A significant underlying driver of the revolution, Big Data and analytics refers to collecting and analysing vast volumes of data to reveal trends and insights. Big Data is improving operational efficiencies and changing decision-making in business and wider society.
3. **IoT:** The Internet of Things (IoT) refers to the network of interconnected devices that exchange data over the internet. A key 4IR technology, IoT enables advances like industrial automation, smart homes and real-time health monitoring.
4. **Cloud Computing:** Cloud computing is the on-demand delivery of computing services like apps, storage and networking over the internet. Cloud services allow businesses to rapidly innovate and scale operations without investing in their infrastructure.
5. **Robotics & Automation:** Advanced robotics enables sophisticated robots, including humanoid assistants, to perform complex high-precision tasks independently with high precision. These robots

can play vital roles in manufacturing, healthcare and customer service, often enhancing productivity and safety.

6. **AR & VR:** Augmented reality (AR) overlays digital images on the world around you. In contrast, virtual reality (VR) creates an alternative, computer-generated environment that you interact with. These technologies are set to provide immersive experiences for education, remote collaboration and customer service.
7. **Biotech & Nanotech:** Biotechnology uses living organisms, or their derivatives, to develop products or technologies. Nanotechnology refers to manipulating materials at a molecular level, creating new materials for medicine and engineering.
8. **Quantum computing:** Using the principles of quantum mechanics, quantum computers can operate at exponentially faster speeds than traditional computers. This enables us to solve complex problems in fields like material science and cryptography.
9. **Blockchain:** Blockchain is a decentralised ledger technology that ensures transactions aren't tampered with. Underpinning cryptocurrencies like Bitcoin, blockchain is also used for digital ID verification, smart contracts and supply chain management.
10. **3D Printing:** 3D printing uses computer-aided design to create three-dimensional objects by layering materials like plastics, composites or biomaterials. Also known as additive manufacturing, 3D printing revolutionises production by enabling rapid prototyping and customised manufacturing, reducing waste and costs.

Impact of 4IR:

Economy	1. Integrating tech like AI, robotics and automation enables businesses to boost productivity and efficiency. This can lead to higher production, faster product innovation, enhanced customer service and reduced costs. 2. 4IR is set to drive innovation in products and services, transforming existing industries or creating new business models. Advanced manufacturing techniques will allow greater personalisation of products and services. 3. 4IR is set to displace some traditional manufacturing and routine white-collar jobs. However, they'll also create new jobs in high-tech industries, data analysis and cybersecurity.
Society	1. To meet the demands of this new economy, education will have to adapt. Schools and higher education must focus on STEM education and lifelong learning to enable individuals for future jobs. 2. Advances in healthcare, personalised medicine and smart infrastructure will likely improve older people's life expectancy and quality of life. 3. Proliferation of internet-connected mobile devices and the rise of IoT gives us unprecedented connectivity. This enables near real-time data exchange globally, fostering collaboration and competition. 4. However, access to advanced technologies varies across communities and countries. Owners and investors in new technologies are poised to gain significant wealth. As a result, the rapid pace of technological change could exacerbate existing wealth and digital divides.
Government	1. Governments will have new ways of interacting with citizens to address these challenges. For e.g. e-government services and smart cities are already used in the UK to enhance public services. 2. Emerging technologies can threaten fundamental freedoms. Across the globe, dictators find new ways to monitor and control their populations. And rapidly

	evolving technological innovation increases the risk of war and the means to wage it.
Environment	1. Renewable energy, smart manufacturing and new sustainable practices can mitigate environmental impacts. 2. Together with new technologies like carbon emissions management, they can help us tackle climate change. 3. Increase in energy consumption from AI and cloud computing, electronic waste and the depletion of resources could degrade the environment if not managed properly.

Various government initiatives taken by India to promote 4IR:

1. In 2020, the Union Ministry of Heavy Industries launched the Smart Advanced Manufacturing and Rapid Transformation Hub (SAMARTH) scheme, which brings together manufacturers, vendors, and customers to make them aware of 4IR technologies.
2. In the 2022 Budget Speech, Finance minister Nirmala Sitharaman announced new 4IR-driven projects, including Drone Shakti, to encourage start-ups that will facilitate the use of drone services.
3. In the field of education, the DESH Stack ecosystem which will use blockchain technology to make the process of skill acquisition transparent and efficient would be announced.
4. India even has a 4IR centre in Mumbai run by WEF, which is closely working with several state governments.
5. The Centre has recently come up with the Fourth Industrial Revolution for Sustainable Transformation (FIRST) Cancer Care model in which 4IR technologies would be used to provide better healthcare for cancer patients.
6. India is also exploring digital twin technology (Creating a complex virtual model that is the exact counterpart of a physical thing) for creating models.
7. The pan-India 3D maps programme was launched for 100 smart cities so that 4IR-based projects, such as driverless cars, will become easier to implement.

Challenges of 4IR:

1. **Job Displacement & Workforce Disruption:**
    - Automation and AI threaten to displace routine and manual jobs, creating employment shifts and skill mismatches.
    - The need for reskilling and upskilling is urgent but challenging to implement at scale globally
2. **Digital Divide & Inequality:**
    - Unequal access to technology and digital infrastructure risks exacerbating socio-economic and regional inequalities.
    - Vulnerable populations may be left behind due to lack of digital literacy and connectivity.
3. **Cybersecurity & Privacy Concern:**
    - Increased interconnectivity raises vulnerabilities to cyberattacks, data breaches, and misuse of personal data.
    - Balancing innovation with privacy rights and data protection regulations is a complex challenge.
4. **Ethical & Governance Issues:**
    - AI decision-making, surveillance technologies, and bioengineering raise profound ethical questions.
    - Existing legal and regulatory frameworks struggle to keep pace with technological advances, creating governance gaps.
5. **Environmental Impact:** Energy-intensive data centers, electronic waste, and demand for rare minerals raise sustainability issues.

Way Forward:

1. **Focus on Skill Development & Education:**
    - Launch large-scale reskilling and upskilling programs emphasizing digital literacy, AI, robotics, and emerging technologies for workers across all sectors.
    - Promote STEM education and lifelong learning to prepare future generations for the changing job market.
2. **Bridge the Digital Divide:**
    - Expand affordable broadband and digital infrastructure to underserved rural and marginalized communities.
    - Provide access to digital tools and training to ensure equitable participation in the digital economy.
3. **Develop robust cybersecurity frameworks:**
    - Strengthen national cybersecurity policies and capabilities to protect critical infrastructure and personal data.
    - Enforce data privacy laws aligned with global best practices while fostering innovation.
4. **Establish Ethical & Legal Frameworks:**
    - Create multi-stakeholder platforms to develop ethical codes of conduct for AI, biotechnology, and data use.
    - Update regulatory frameworks to keep pace with rapid technological advances and mitigate risks.
5. **Prioritise Environmental Sustainability:**
    - Integrate green technologies and circular economy principles in 4IR deployment.
    - Encourage energy-efficient data centers, sustainable sourcing of materials, and e-waste recycling.

Conclusion:
The 4IR is a complex and transformative period. It's a journey that will require adaptability and a focus on responsible innovation to ensure its benefits are shared widely.

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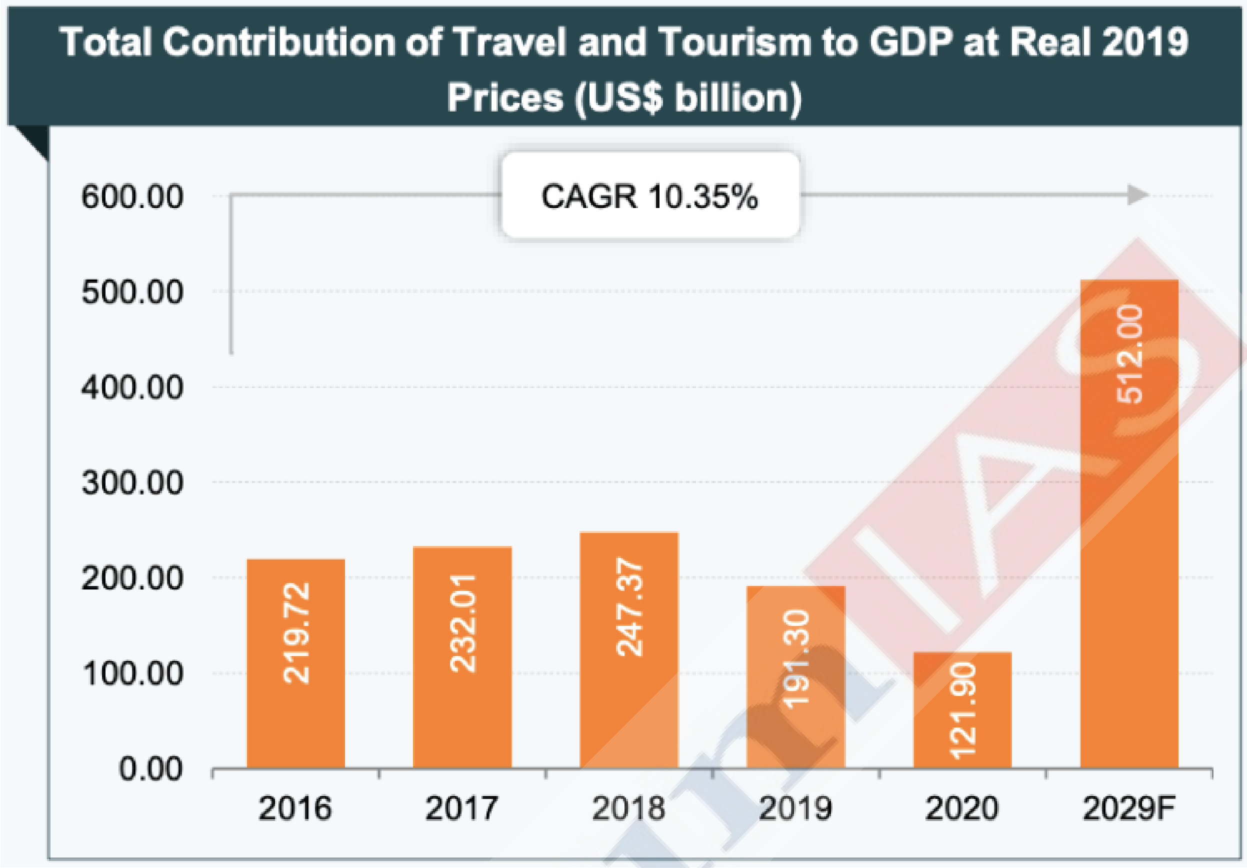
Tourism Sector – Significance & Challenges – Explained Pointwise

The tourism sector is a broad and dynamic industry encompassing all the businesses and services that facilitate travel, leisure, and recreation. It's one of the world's largest economic sectors, connecting people to new places, cultures, and experiences.

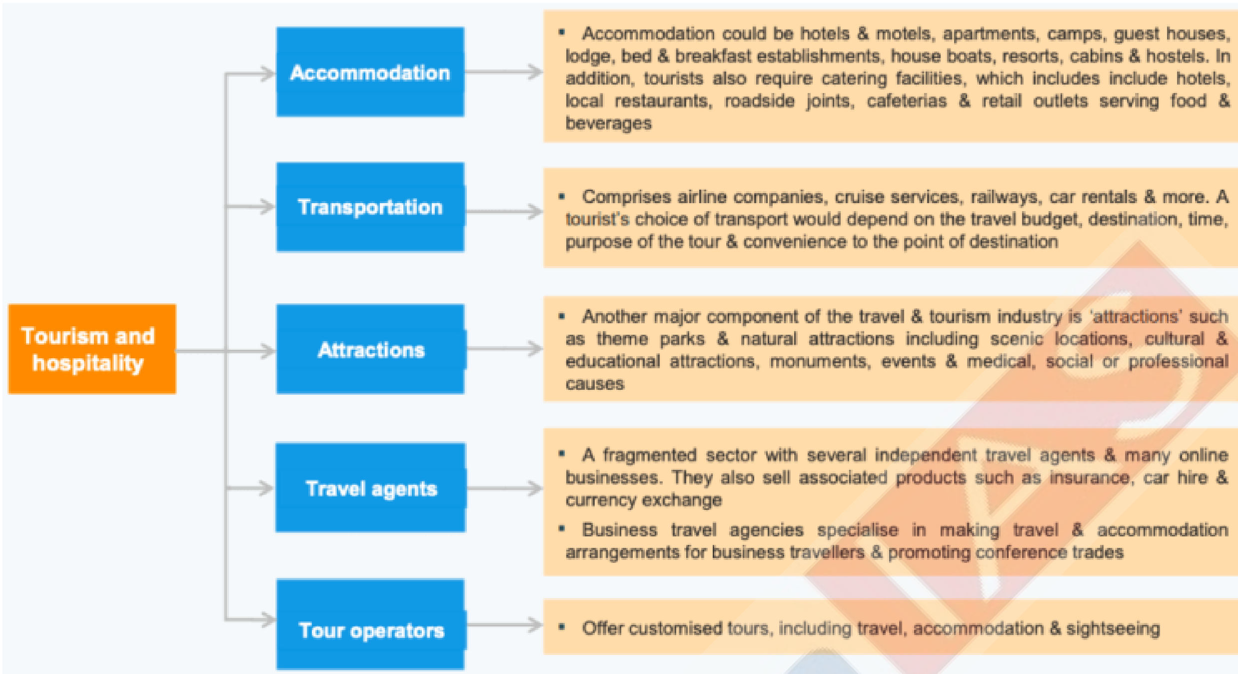
What is the current status of the Tourism Sector in India?

- Before the onset of the pandemic, the contribution of the tourism sector to India's GDP had reached ~US$ 250 billion in 2018. However, the contribution had fallen to US$ 122 billion in 2020 due to the pandemic. In 2025, tourism contributed about $231.6 billion to GDP (approx. 7%), making India the world's 8th largest tourism economy. The sector is projected to reach 4th position globally within the next decade.



Source: IBEF

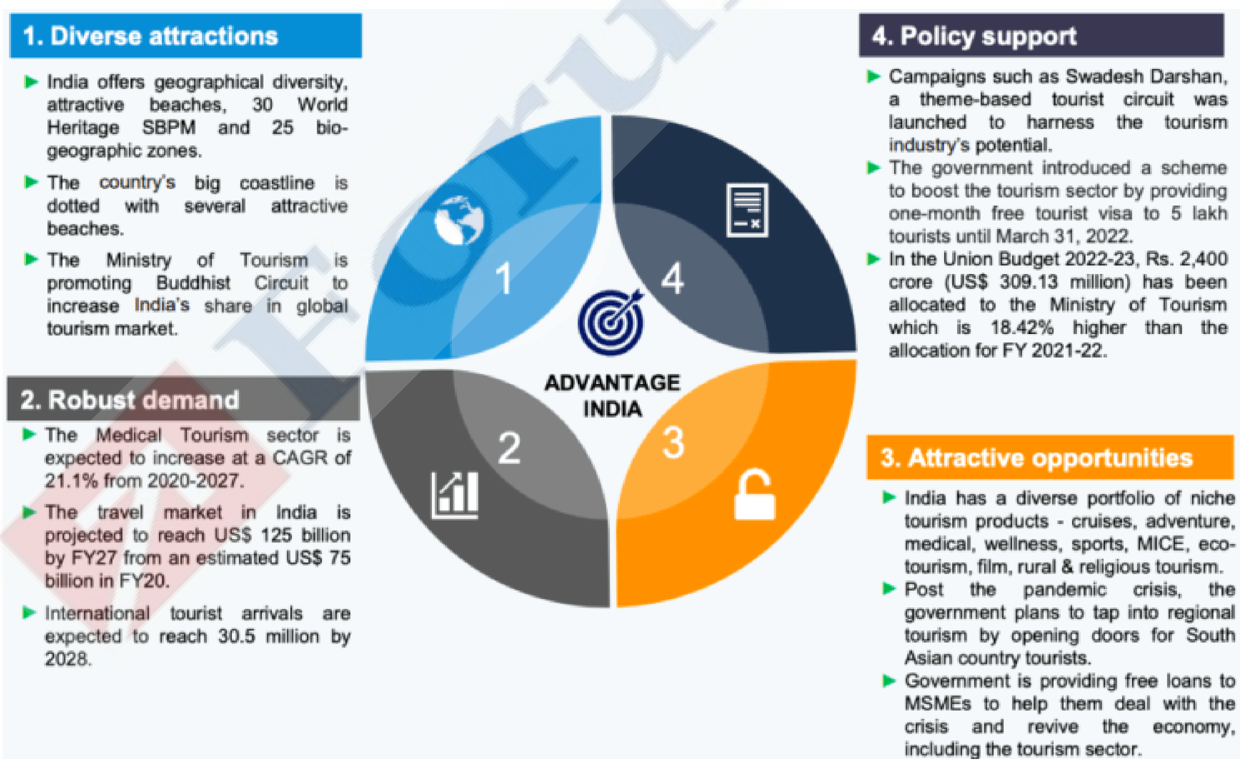
- The share of Tourism to GDP has hovered around ~5-6%.
- With post-pandemic recovery, the tourism industry is expected to reach US$ 512 billion by 2028.
- International tourist arrivals are expected to grow from 17.7 million (2024) to 19.2 million in 2025 (8.6% increase). Tourism revenue is forecasted to rise 9.5% to $43.7 billion.
- Tourism Sector is the third-largest foreign exchange earner for the country in 2019.
- By 2028, Indian tourism and hospitality is expected to earn US$ 50.9 billion.
- India was ranked 39th in the **Travel & Tourism Competitiveness Report 2024** published by the World Economic Forum.
- The Economic Impact 2019 Report published by the World Tourism and Travel Council (WTTC) has noted that between 2014-19, India witnessed the strongest growth in the number of jobs created (6.36 million), followed by China (5.47 million) and the Philippines (2.53 million).
- The Indian tourism sector accounts for 42 million jobs, which is 8% of the total employment in the country. By 2029, it is expected to account for about 53 million jobs. The tourism sector provides diverse opportunities for jobs like in hospitality/hotels/accommodation, transportation, tour guides, travel operations etc.



Source: IBEF

What are the driving factors of the Tourism Sector in India?

The Tourism Sector in India is driven by various factors like diverse attractions, robust demand (like for medical tourism) and attractive opportunities.



Source: IBEF

What is the significance of the Tourism Sector?

1. **Economic Contribution**:

- Tourism contributes approximately 7% to India's GDP, generating foreign exchange earnings of around $43.7 billion in 2025.
- It spurs growth in allied sectors such as hospitality, transport, handicrafts, and retail, amplifying economic impact.

2. **Employment Generation:**
   - The sector provides direct and indirect employment to about 42 million people, making it a vital source of livelihood, especially in rural and semi-urban areas.
   - It supports diverse skill levels—from unskilled workers to high-end professionals.
3. **Cultural & Heritage Preservation:**
   - Tourism incentivizes the conservation of India's rich cultural heritage, historic monuments, art forms, and traditional crafts by generating revenue and global interest.
   - Pilgrimage and heritage tourism help sustain religious traditions and local communities.
4. **Regional Development & Inclusive Growth:**
   - Tourism drives infrastructure development in tier-2 and tier-3 cities, promoting balanced regional growth.
   - Community-based and rural tourism empower local populations, improve quality of life, and reduce urban migration.
5. **Forex Earning:** Tourism is a significant source of foreign exchange, supporting India's balance of payments.

What are the challenges faced by the Tourism Sector in India?

1. **Awareness**:
   - Despite promotional campaigns by the Government, the awareness regarding India as a tourist destination remains low. Even among domestic tourists, the choice is limited to few popular destinations which remain overcrowded, while many other potential places receive low footfalls of tourists.
   - The information portals and centres are poorly managed. There is a lack of promotional campaigns in foreign countries. The absence of online branding campaigns fail to provide information to attract tourists.
2. **Infrastructure and Safety**:
   - Many popular destinations lack air connectivity, especially in the hilly regions.
   - There is a lack of proper hygienic facilities in many places. Lack of cleanliness is off-putting to many tourists.
   - There are safety concerns especially among foreign visitors because of few cases of harassment. Poor experience of some tourists leads to bad word-of-mouth information impacting perception of potential tourists.
3. **Communication**: Many tourists face communication problems while in India. This makes them dependent on tourist guides or travel operators to curate their travel in India.
4. **Lack of Skilled Manpower**: There is dearth of skilled manpower especially multi-lingual tour guides or hotel staff. The sector is dominated by small unorganized players who can't spend on skilling their employees or sensitising them to cultural values of the foreign tourists. This impacts tourist experience.
5. **Visa Process**: The Government started the e-visa process (online) which has led to an increase in foreign tourists. However, the visa-on-arrival facility is limited to very few countries, limiting foreign tourists.
6. **Currency Fluctuations**: Another issue is the fluctuations in the currency exchange rates. The inability to know the value of a currency means that long-range tourism prices are especially hard to predict and the fallout from this monetary instability is already impacting multiple tourism support systems.
7. **Environmental & Sustainability Concerns:** Over-tourism causes environmental degradation, pollution, resource depletion, and waste management challenges at popular sites.
8. **Seasonality of Tourism Demand:** Demand fluctuates seasonally, leading to underutilized infrastructure and unstable income for providers during off-peak periods.

What steps have been taken for the development of the Tourism Sector in India?

1. **Infrastructure**:
    - The Government has been increasing investments in strengthening the country's road and rail networks and promoting port development is a significant driver for the growth of the Tourism sector.
    - The **Adarsh Station Scheme** is helping modernize railway stations.
    - The Regional Connectivity Scheme – **UDAN** (*Ude Desh ka Aam Nagrik*), is helping make air travel more economical and widespread to hitherto unserved routes.
    - The ***Swadesh Darshan*** and **PRASHAD** schemes aim to stimulate growth in niche tourism segments such as religious, heritage, wellness, medical, adventure, MICE, wildlife etc. Under the Swadesh Darshan Scheme, the Government has launched several theme based circuits like Buddhist circuit which covers destinations associated with the life of Lord Buddha.
2. **Promotional Campaign**: Promotional activities such as the **Incredible India 2.0** campaign focuses on niche tourism products including yoga, wellness, luxury, cuisine wildlife among others. "**Find the Incredible You**" Campaign focuses on the promotion of niche tourism products of the Country on digital and social media.
3. **Information Helpline**:
    - The government has introduced the concept of **e-tourist and e-medical visas** which has helped increase inbound tourists to the country.
    - Additional initiatives such as ***Atithi Devo Bhava***, a 24×7 multi-lingual Tourist Helpline, among others have helped improve the **safety and security** of tourists.
    - On a pilot basis, an '**Incredible India Helpline**' has been set up to guide the tourists.
4. **Safety**: The Ministry of Tourism has adopted a code of conduct for safe tourism, which contains a set of guidelines to encourage tourism activities to be undertaken with respect to basic rights like dignity, and safety of both tourists and local residents, in particular women and children.
5. **Investment**: The government allows 100% Foreign Direct Investment in the Travel and Tourism sector through the automatic route to increase investments across the sector. More recently, the GST rate cut on hotel room tariffs across the board has been a positive move for the industry and is expected to boost the sector's competitiveness globally.
6. **Cleanliness and Hygiene**:
    - A major cleanliness campaign has been launched under the ***Swachh Bharat*** movement for **protecting and preserving the sanctity of monuments of national heritage**.
    - The Ministry of Tourism has also launched an awareness campaign to ensure cleanliness of surroundings and help create a ***Swachh Bharat, Swachh Smarak***.
7. **Assistance to States**: Financial assistance to states, including places of religious importance, for various tourism projects in consultation with them subject to availability of funds, inter-se priority, liquidation of pending utilisation certificates and adherence to the scheme guidelines.
8. **Digital Database**: In September 2021, the Government launched **NIDHI 2.0** (National Integrated Database of Hospitality Industry), a scheme which will maintain a **hospitality database** comprising accommodation units, travel agents, tour operators and others. NIDHI 2.0 will **facilitate digitalisation of the tourism sector** by encouraging hotels to register themselves on the platform.
9. **Skill Development**:
    - The Ministry of Tourism has introduced the **Incredible India Tourist Facilitator** (IITF) and **Incredible India Tourist Guide** (IITG) **Certification Programme** to create an online learning platform of well-trained tourist facilitators and guides across the country.
    - The Ministry of Tourism had launched an initiative called **SAATHI (System for Assessment, Awareness & Training for Hospitality Industry)** by partnering with the Quality Council of India (QCI) in October 2020. The initiative was focused on effective implementation of guidelines/SOPs issued with reference to COVID-19 for safe operations of hotels, restaurants, and other units.

What should be the way forward?

1. **Infrastructure Expansion & Modernisation:**

    - Accelerate development of transport connectivity (roads, railways, airports) to underserved and emerging tourist destinations.
    - Upgrade accommodation, sanitation, and visitor facilities, focusing on quality and accessibility.
2. **Promotional Campaigns:** The government should continue to promote India's diversity and rich heritage to re-establish its position as a tourist paradise. The promotional campaigns should target both domestic and foreign tourists. Similarly, the extent of theme-based tourist circuits can be expanded.
3. **Skill development & Capacity Building:**
    - The **skilling initiatives should be scaled-up**. The tourism sector has a potential to provide a lot of livelihood opportunities in smaller cities/towns (below tier-2 level). It can help address the issue of jobless growth.
    - Expand training programs for frontline workers, hospitality professionals, and local guides to uplift service standards.
4. **Sustainable Tourism:** There is a need to balance the promotion of tourism with safeguarding the physical, social, and cultural environment in the destination areas. The government should also **promote green and sustainable tourism** to tackle issues relating to water crisis, pollution, waste management, etc.
5. **Policy & Regulatory Reforms:** The Government should further reform the tourist visa norms and processes to facilitate tourism. The Government should also explore the possibility of expanding the visa-on-arrival facility.
6. **Emerging Segments of Tourism:** The focus should also be on supporting and promoting the emerging segments of tourism.

Source: IBEF. Emerging Segments of Tourism.

Conclusion:
The tourism sector is a powerful force for both economic development and cultural connection. It has huge untapped potential in India. The multiplier effect associated with the tourism sector can help raise the income levels and ensure inclusive growth. A burgeoning tourism industry can prove to be vital in ensuring India's transition to a high income economy.

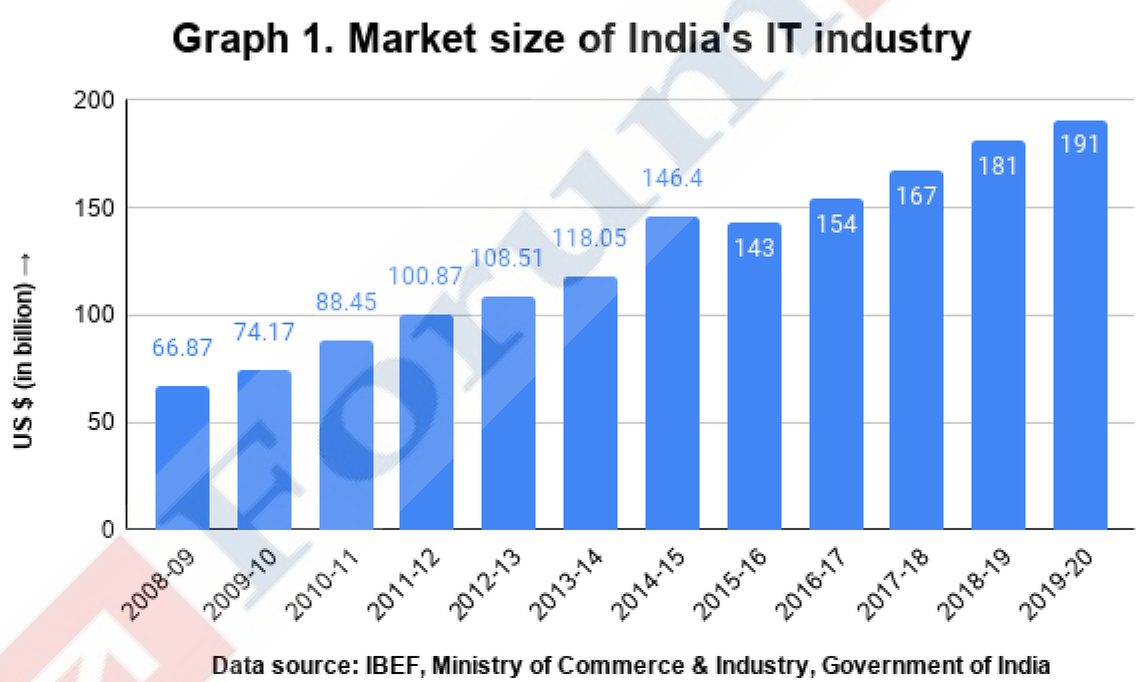
Syllabus: GS III, Indian Economy and issues related to growth.
Source: The Hindu, Hindustan Times, IBEF

IT Sector in India – Significance & Challenges – Explained Pointwise

The Indian Information Technology (IT) sector is a cornerstone of the country's economy, renowned for its strong export-oriented services and a rapidly evolving domestic market. The industry has shown remarkable resilience and adaptability, transitioning from a focus on traditional services to a hub for high-value, digital-first solutions.

Introduction:

- The IT industry mainly encompasses IT services, IT-enabled services (ITES), e-commerce (online business), Software and Hardware products. This industry is also instrumental in creating infrastructure to store, process and exchange information for important business operations and other organisations.
- **Industry Size:** Total IT spending in India is forecast to reach $160 billion in 2025, with major boosts in software, cloud, cybersecurity, and digital infrastructure.



Source: IBEF

Evolution of Indian IT Sector:

Early Foundations (1960s–1980s)	• **1960s–70s**: Computers introduced in government & research institutions (ECIL, TCS founded in 1968). • **1980s**: Entry of private players (Infosys 1981, Wipro 1980s pivot to IT). • Policies liberalized for computer imports and software development.

	• Focus was on **mainframes, hardware maintenance, and custom software**.
Export & Outsourcing Era (1990s)	• 1991 Economic Reforms → liberalization, deregulation, foreign investment. • Rise of software services exports to the US & Europe. • Y2K problem (1999–2000) boosted Indian IT firms (Infosys, Wipro, TCS, Satyam) as global clients outsourced fixes. • Creation of STPI (Software Technology Parks of India) for tax incentives and infrastructure. • IT exports became a major foreign exchange earner.
Global Delivery & BPO Boom (2000s)	• **IT-enabled services (ITES)** and **BPO/KPO** sectors grew (call centers, back-office, financial services). • India became known as the **"back office of the world."** • Emergence of **NASSCOM** as industry voice. • IT hubs like **Bangalore, Hyderabad, Pune, Gurgaon** expanded rapidly. • Multinationals (IBM, Accenture, Microsoft) set up Indian R&D centers.
Digital Transformation Era (2010s)	• Move from low-cost coding → end-to-end IT solutions, consulting, analytics, and R&D. • Growth in cloud computing, AI, machine learning, mobility, IoT, and cybersecurity. • Indian IT companies became global giants: TCS, Infosys, Wipro, HCL. • Startup ecosystem boom (Flipkart, Paytm, Ola, Zomato) strengthened IT innovation. • Government initiatives like Digital India (2015) pushed e-governance, fintech, and digital infrastructure.
New Age IT (2020s–Present)	• Focus shifted to **automation, AI, blockchain, 5G, quantum computing, green IT**. • COVID-19 pandemic accelerated **remote work, cloud adoption, and digital services demand**. • Indian IT firms now deliver **high-value consulting & product engineering**, not just outsourcing. • Expanding into **semiconductors, SaaS, and platform-based models**. • India has become the **world's largest sourcing destination**, with ~55% market share of global outsourcing.
Current Scenario	• IT & BPM sector = **~7.5% of India's GDP**. • IT services exports > **$190 billion** annually.

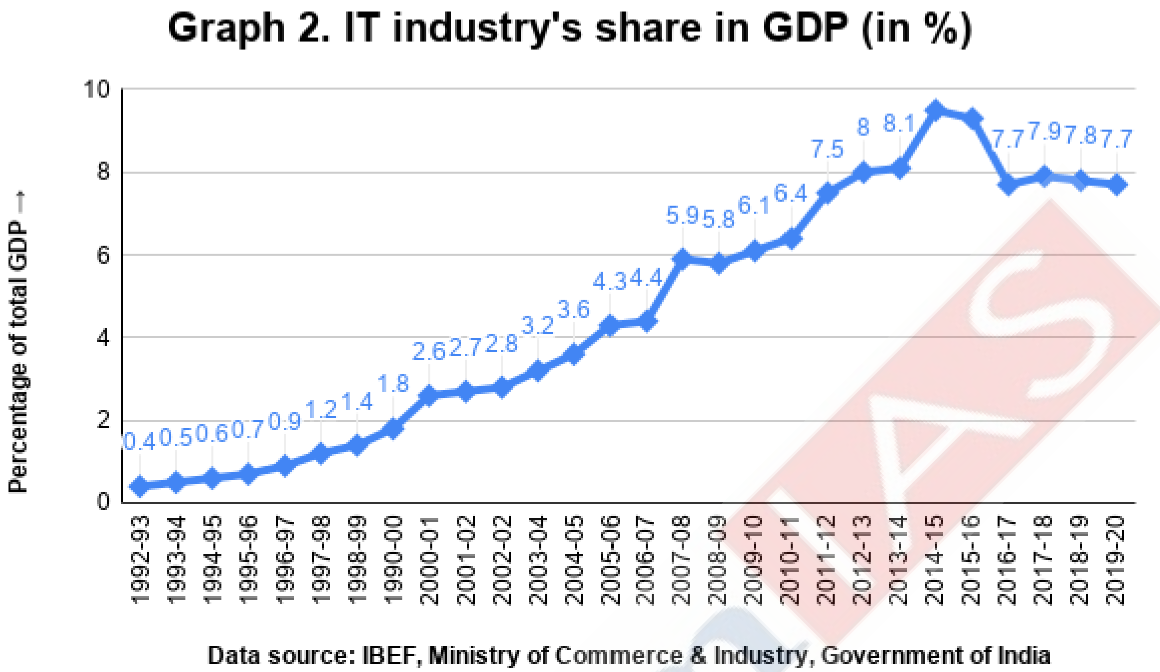
	• India is now moving from being a **service hub** → to a **global innovation and product development hub**.

Distribution of IT Industry:

Source:

Significance of IT Sector:

1. **GDP Contribution:** The IT sector contributed about 7.5% to India's GDP in FY23 and is projected to reach 10% by FY25.



Source: IBEF

2. **Economic Growth:** The IT-based services and products have become indispensable for flourishing any business enterprise and accomplishing success. This industry has a conspicuous impact in improving the productivity of almost every other sector of the economy, it also has huge potential for further accelerating the growth and economic development.
3. **Export Revenue:** IT and IT-enabled services (ITeS) exports are expected to reach $224 billion in FY25, and could surpass $300 billion in FY26.
4. **Employment Generation:** The sector supports over five million direct jobs and drives indirect employment through startups and digital platforms. IT hiring is expected to grow by 15–20%, with over 150,000 fresher hires in 2025.
5. **Global Leadership:** India remains the top offshoring destination worldwide. Over 67 Software Technology Parks of India (STPIs) and 100% FDI support foreign investment.
6. **Innovation & Start-up Ecosystem:**
    - The IT sector is at the core of India's start-up boom and innovation ecosystem, powering rapid advances in AI, fintech, healthtech, and other emerging fields.
    - India's robust Digital Public Infrastructure (DPI), including platforms like the Unified Payments Interface (UPI) and Aadhaar, is creating new opportunities. IT companies are leveraging this infrastructure to build scalable solutions for fintech, e-commerce, and other sectors within the country.

Government initiatives for IT Sector:

1. **Digital India Mission:** Launched in 2015, Digital India transforms governance and public services through digital infrastructure, e-governance, digital payments, and broadband for all.
2. **Production Linked Incentive (PLI) Scheme:** To reduce India's reliance on imports and boost domestic manufacturing, the **Production Linked Incentive (PLI) scheme** for IT hardware and electronics was introduced. The scheme provides financial incentives to companies based on their incremental sales from products manufactured in India.

3. **National Policy on Software Products:** Promotes domestic software product development, innovation, start-up growth, and export competitiveness.
4. **Startup India Initiative:** The **Startup India** initiative, while not exclusively for the IT sector, has provided a significant boost to technology startups. It offers various benefits, including tax exemptions, streamlined registration processes, and funding support.

Challenges faced by the IT Sector:

1. **Talent and Skills Gap:** There is a constant demand for skilled professionals, particularly in emerging technologies like AI, machine learning, and data science. Companies are actively focusing on upskilling their existing workforce and hiring for specialized roles to meet this demand.
2. **Low on Innovation:**
    - Predominant focus on outsourcing rather than creating intellectual property (IP).
    - Indian IT giants (TCS, Infosys, Wipro) prioritize human resource deployment over technological innovation.
    - Despite a 55% share in global outsourcing, India lacks global software products comparable to Google or OpenAI.
3. **Absence of long-term technology vision:**
    - Companies **prioritise dividends over investing** in long-term research and development (R&D).
    - **Risk aversion** leads to missed opportunities in **emerging fields like AI, blockchain, and automation.**
    - In contrast, countries like **China** invest heavily in cutting-edge technologies.
4. **AI blind spot:**
    - Limited investment in AI, with industry leaders underestimating the feasibility of building cost-effective Large Language Models (LLMs). **DeepSeek's** success proves AI models can be developed for under $7 million.
    - **Underrepresentation of Indian languages in AI datasets** (only 3% of global web data), hindering AI models from effectively serving Indian users.
5. **Overreliance on Global Capability Centres (GCCs):**
    - GCCs, despite hiring Indian engineers, **retain innovation and IP abroad.**
    - These centres **diminish revenues for Indian IT firms** and may **exploit tax loopholes** through transfer pricing.
6. **Dependence on American digital firms:**
    - India failed to develop **indigenous tech giants** despite having early industry leaders.
    - Unlike **China, which fostered domestic alternatives (Baidu, WeChat, Tencent),** India's market is dominated by foreign platforms.
    - **Weak policy support for homegrown companies** has exacerbated this reliance.
7. **Low Data centre capacity:**
    - India's data centre capacity stands at **1GW,** significantly lagging behind the **US's 20GW.**
    - Reliance on foreign data hosting **limits India's sovereignty over data-driven innovations.**
8. **Weak Start-up culture:**
    - Start-ups focus **mainly on services (e.g., Zomato, Swiggy)** rather than deep-tech solutions.
    - Investors prefer **low-risk ventures,** unlike in the US or China where venture capital supports high-risk, innovative technologies.

Way Forward:

1. **Accelerate Skill Development:**
    - Expand advanced training in AI, data science, cybersecurity, cloud, and other in-demand skills through industry-academia-government collaboration.
    - Promote continuous learning, reskilling, and upskilling to bridge the talent gap and reduce attrition.
2. **Fostering innovation and risk-taking:**

- Shift from a service-oriented model to **product-based innovation.**
- Encourage companies to **reinvest profits into R&D** rather than distributing them solely as dividends.

3. **Promoting indigenous AI and deep-tech development:**
    - Develop **AI models in Indian languages** to cater to local users.
    - Invest in **cost-effective solutions** like open-source models (e.g., DeepSeek).
4. **Building a robust Start-up ecosystem:**
    - Government to incentivise deep-tech start-ups through **funding and procurement policies.**
    - Support for venture capital investment in **high-risk, high-reward ventures.**
5. **Strengthening data sovereignty:**
    - Expand India's data centre capacity to reduce dependence on foreign infrastructure.
    - Implement policies to **retain data within national borders** for security and innovation benefits.
6. **Ease of Doing Business:**
    - Simplify regulations, incentivize R&D, streamline FDI policies, and reduce compliance burdens to attract investment and outcomes-based innovation.
    - Foster coordination between central and state governments for uniform digital policy implementation.

Conclusion:
True leadership in IT will only come when India embraces a **culture of innovation, risk-taking, and long-term vision**.

UPSC GS-3: Economics
Read More: Hindustan Times

Aviation Sector in India – Opportunities & Challenges – Explained Pointwise

Aviation Sector in India has experienced significant growth in recent years. India has become the third-largest domestic aviation market in the world. According to the International Air Transport Association (IATA), by the year 2030, India is expected to overtake China and the United States as the world's largest air passenger market. However, the aviation sector in India also faces numerous challenges, as highlighted by the recent insolvency of Go First Airlines and grounding of Spice jet aircrafts on account of safety concerns.

Created By Forum IAS

Status of Aviation Sector in India:

- India's aviation industry has experienced significant growth in the past 9 years.
- India is the third-largest domestic aviation market globally, with domestic air passenger traffic reaching 131.7 lakh in August 2025.
- Indian aviation also contributed 5% of the GDP, creating a total of 4 million jobs. In addition to it, there is a 72 billion dollars gross value-added contribution to GDP by this industry.

- The Indian aviation fleet consists of over 860 aircraft, accounting for around 2.4% of the global fleet, and total operational airports increased from 74 in 2014 to 162 in 2025.
- Passenger traffic from January to April 2025 showed significant growth (nearly 10% year-on-year), led by low-cost carriers (64.3% market share).

What is The Potential of Aviation Sector In India?

1. **Increased Market Size of Indian Aviation Sector-** According to IATA, India is expected to surpass the aviation sector of the United States and China by 2030. This will make India a lucrative market for airlines and related businesses.

2. **Promotes Balanced Economic Growth-** Passenger airlines and air cargo overcome geographic barriers by connecting remote areas which are alienated from the mainstream. For ex- Development of North-East due to enhanced airline connectivity.

3. **Growth of Tourism sector-** Aviation industry function as a growth pole by promoting spill-over & trickling-down of economic growth. For Ex- Aviation sector gives a boost to tourism sector which in turn drives the supporting infrastructure in a region, like roads, railways, hotels, markets. This helps in providing employment opportunities to the locals.

4. **Boost to manufacturing sector-** India's expanding aviation sector offers potential for the growth of maintenance, repair, and overhaul (MRO) facilities, as well as the development of a domestic aerospace manufacturing industry. For ex- Enhanced employment opportunities in aerospace engine maintenance.

5. **FDI in the Expansion of Infrastructure-** Booming aviation sector has attracted significant FDI to the tune of around ~3 bn dollars in the development of aerospace infrastructure like airports, arrow bridges, airstrips. For ex- Greenfield airport development like Navi Mumbai, Noida (Jewar) airport and expansion of Bengaluru airport.

6. **Increased Employment opportunities-** The growth of aviation sector in India has created a need for skilled professionals, including pilots, cabin crew, and maintenance staff. For ex- Indian scheduled operators are likely to require 10,900 additional pilots by FY30 (IATA projection).

What are The Challenges With India's Aviation Sector?

1. **Increase in number of Grounded Unsafe Aircrafts –** Airlines like Air India, Spice Jet, Go Air, and IndiGo face issues of poor financial performance due to grounded unsafe aircrafts. For ex– Over 160 aircraft are currently grounded which represents about a quarter of the total fleet size of Indian carriers.

2. **Supply Chain Disruptions-** Delays in aircraft deliveries and supply chain issues with original equipment manufacturers (OEMs) has hindered the industry's capacity to meet growing demand.

3. **Duopoly in Indian Aviation Market-** India's domestic aviation market is heading in the direction of a duopoly of market leader IndiGo (60% market size) and the Tata group airlines (20% market size).

4. **Heavy Financial Losses-** Indian airlines are projected to record a consolidated loss of $1.6 to 1.8 billion in FY24, due to heavy financial bleeding of Go first, Spice Jet and Jet Airways.

5. **Operational Disruptions due to crew shortage-** Lack of skilled pilots, maintenance engineers, and cabin crew members have led to operational disruptions like increase in turn-around time of airlines.

6. **Low per-capita penetration of domestic air travel-** India's per capita penetration of domestic air travel (0.13 seats deployed per capita) remains significantly lower than countries like China (0.49) and Brazil (0.57). This indicates the failure of aviation industry in India to tap the maximum potential of domestic air market.

7. **Inflated Projections-** Airlines in India often announce ambitious growth plans without adequately analysing their financial security, infrastructural and personnel requirements. For Ex- Failure of Kingfisher, Jet Airways and Go First on account of inflated projections.

8. **Regulations acting as barriers-** Tough entry barriers for new entrants, high fuel prices on account of high taxes on ATF (Air Turbine Fuel) and monopoly of inefficient public sector airports have all acted as barriers in the rapid growth of the airlines sector.

9. **Policy Lacunae-** The Aircraft Act, 1934 and Aircraft Rules, 1937 have not kept pace with modern technology in aerospace. This has led to increased costs of the industry's operation and ultimately affected passenger growth.

10. **Poor rural connectivity-** With mega airports controlling air and ground space, there has been challenge of enhancing the rural air connectivity. For ex- Less number of flights to tier 2 and tier 3 towns despite the UDAN scheme.

11. **Environmental Concerns-** The Indian aviation industry faces increasing pressure to reduce its carbon footprint and adopt sustainable practices (The Carbon Offsetting and Reduction Scheme for International Aviation or CORSIA). This has also posed a challenge for growth and expansion of the airline sector.

12. **Aviation Safety:** The recent crash of Air India Airline in Ahmedabad into a residential area that led to the killing of more than 240 people & is considered as one of the worst airline disasters.

Read More- CORSIA

What are The Government Initiatives For Aviation Sector In India?

National Civil Aviation Policy, 2016	This aims to improve the international footprint of India-based airline services. Airlines can commence international operations, provided they deploy 20 aircrafts or 20% of their total capacity (whichever is higher) for domestic operations.
UDAN Scheme	This aims to expand access to air travel for Tier 2 and Tier 3 cities and shift the traffic pattern away from Metro routes.
DigiYatra	Paperless, biometric-enabled air travel to enhance passenger convenience.
Open sky policy	Aims to liberalise the aviation sector in India by opening the airport sector to private participation. Currently, 6 PPP airports are being developed and 60% of airport traffic is handled under PPP.
Open Sky Air Service Agreement	Open Sky Air Service Agreement allows for airlines from the two countries to have an unlimited number of flights as well as seats to each other's jurisdictions. India has signed these agreements with multiple nations like the US, Greece, Jamaica, Japan, Finland, Sri Lanka.
FDI Policies, Tax and Duty cuts	100% FDI is being allowed under the automatic route for greenfield projects, whereas 74% FDI is allowed under automatic route for brownfield projects. 100% tax exemption has been provided for airport projects for a period of 10 years. Indian aircraft Manufacture, Repair and Overhaul (MRO) service

	providers have been completely exempted from customs and countervailing duties.
GAGAN (GPS-Aided Geo-Augmented Navigation)	Developed jointly by AAI and ISRO, GAGAN is India's own Satellite-Based Augmentation System (SBAS). Operational since 2015, it enhances the accuracy and integrity of GPS signals, improving navigation, especially for approach and landing, and enabling precision approaches at non-instrumented airports, thereby significantly enhancing safety, particularly in challenging terrains.
Bhartiya Vayuyan Adhiniyam, 2024	This is a landmark piece of legislation that came into effect on January 1, 2025, replacing the nearly century-old Aircraft Act of 1934. It modernizes India's aviation system, aligning it with contemporary needs and global standards (like the Chicago Convention and ICAO).

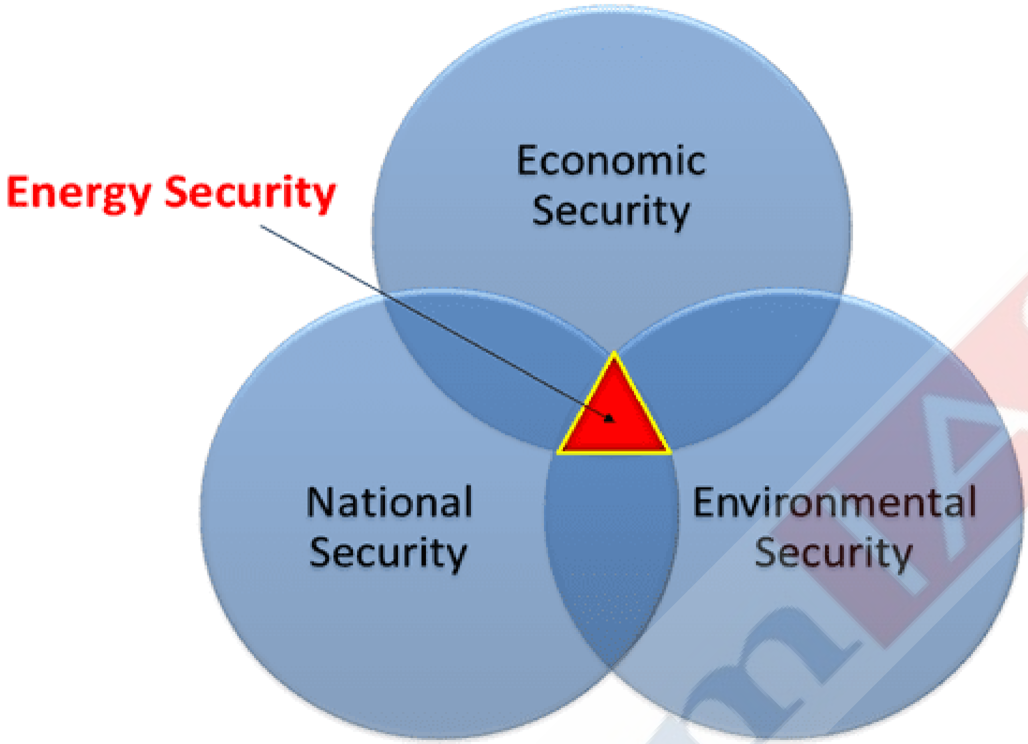
What Should be The Way Forward?

1. **Capacity Expansion:**
    - Continue development of new airports, modernization of existing ones, and upgrading air traffic management systems.
    - Strengthen regional connectivity under the UDAN scheme by incentivizing flights to underserved and remote areas.
2. **Boost Cargo & Logistics:** Develop dedicated air cargo hubs and multimodal logistics parks to support India's export-import trade.
3. **Initiate reforms in the Directorate General of Civil Aviation (DGCA)-** DGCA should be modernized, well-staffed and incentivised. DGCA should be headed by aviation professionals rather than bureaucrats.
4. **Promote 'Start-up India' initiative in the aviation sector-** Entrepreneurship must be promoted in the maintenance, repair, and overhaul (MRO) facilities of the aviation industry.
5. **Rationalisation of taxes-** Tax rationalisation must be initiated in aviation fuel taxes (State and Central, which in India are among the highest in the world), air cargo and airport operations.
6. **Safety Management Systems (SMS) Effectiveness:** Ensure that all aviation service providers (airlines, airports, MROs, ATC) have fully functional and effective SMS that are integrated into their daily operations and decision-making. Regulators should audit the effectiveness of these SMS, not just their presence.

Conclusion:
By addressing these challenges and implementing the suggested reforms, India can pave the way for a thriving aircraft leasing industry, making the country a global leasing hub and bolstering the aviation sector.

Read More- India Today
UPSC Syllabus- GS III, Infrastructure: Airports

Energy Security – Significance & Challenges – Explained Pointwise



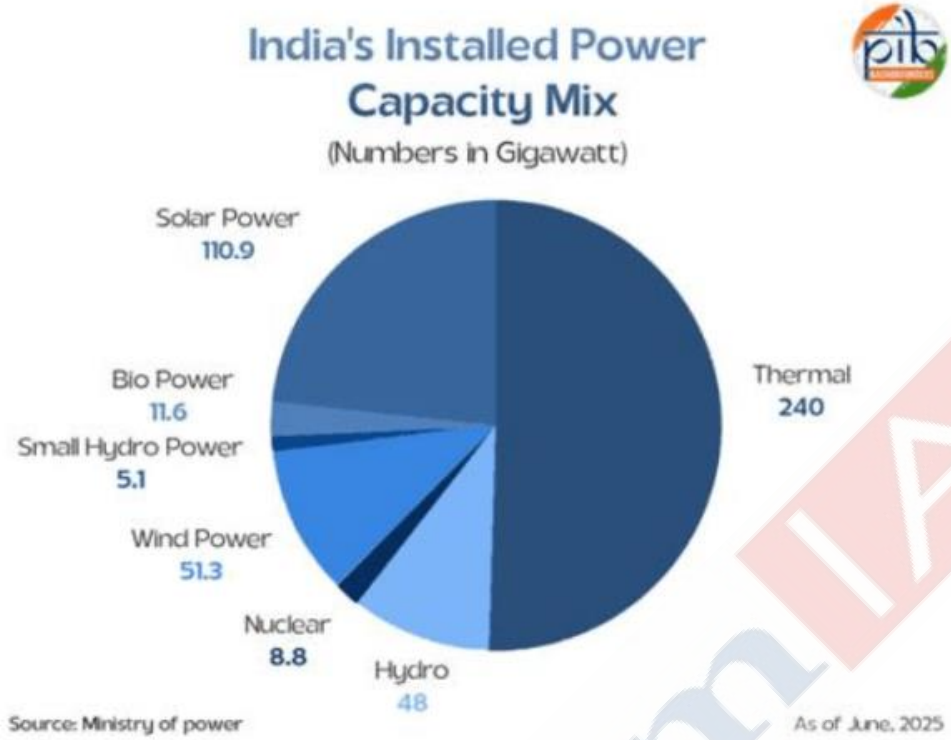
Source: Arava Institute

Introduction:

- Energy security refers to the uninterrupted availability of energy sources at an affordable price. It involves ensuring a reliable supply of energy to meet the growing demands of a nation, while managing risks such as geopolitical conflicts, supply chain disruptions, and environmental challenges.
- For India, energy security is crucial for sustaining economic growth, reducing dependency on imports, and achieving long-term sustainability.
- India currently relies heavily on fossil fuels, primarily coal, for its energy needs, which poses environmental challenges and increases dependence on imports. Renewable energy (RE), including solar, wind, and hydropower, accounts for 44% of the installed capacity but contributes only 23% to energy generation. Despite progress, the need for a diversified energy mix is critical to address rising demand and reduce carbon emissions.

Current status of India's Energy Sector:

- Total installed power capacity reached 476 GW by June 2025.
- Thermal power accounts for 50.52% of total installed capacity.
- Per capita electricity consumption increased to 1,395 kWh in 2023–24 from 957 kWh in 2013–14.
- India achieved 100% village electrification by April 2018.
- Non-fossil fuel sources contribute 49% of total capacity by June 2025.
- India ranks 4th globally in Renewable Energy Installed Capacity, 4th in Wind Power, and 3rd in Solar Power capacity.
- Solar capacity increased to 110.9 GW.
- Installed wind increased to 51.3 GW.
- Installed nuclear capacity grew to 8,780 MW, across 25 reactors.
- Hydro capacity increased to 48 GW.



Source: Ministry of Power

Significance of energy security:

1. **Economic Stability & Growth:**
   - Reliable and affordable access to energy fuels industrial production, transportation, agriculture, and services, supporting GDP growth and job creation.
   - Energy security shields the economy from global supply shocks, volatile prices, and supply disruptions, ensuring sustained development.
2. **National Security & Strategic Autonomy:**
   - Reduces vulnerability to geopolitical risks, embargoes, and external supply disruptions by diversifying energy sources and suppliers.
   - Maintaining strategic reserves (petroleum, gas, critical minerals) enhances resilience during international crises or conflicts.
3. **Technological Advancement & Competitiveness:**
   - Stable energy supply encourages investment in advanced manufacturing, digital infrastructure, and innovation in sectors like AI, data centers, and green tech.
   - Promotes Make in India initiatives and supports export competitiveness.
4. **Sustainable & Inclusive Development:**
   - Ensures universal access to clean and affordable energy, vital for alleviating poverty, improving healthcare, and providing education in rural and remote areas.
   - Drives energy transition towards renewables and cleaner fuels, supporting environmental sustainability and meeting climate commitments.
5. **Social Security & Quality of Life:** Universal, reliable access to electricity and clean cooking fuels enhances health, reduces indoor pollution, and improves standards of living, particularly for vulnerable populations.

Challenges to India's energy security:

1. **Import Dependency:** India imports over 85% of its crude oil and more than 50% of its natural gas, over 25% of the total import bill in FY24, puts pressure on rupee, inflates the trade deficit, and compromises macroeconomic stability.

2. **Strategic Imbalance:** India's reliance on Russia for 35%-40% of its crude imports, up from 2% before the Ukraine war, highlights the vulnerability of single-sourced reliance. Diversification, not substitution, defines true sovereignty.
3. **Global Market Volatility:** Geopolitical conflicts, such as the Russia-Ukraine war and the Gaza crisis, and international sanctions cause sharp fluctuations in global oil prices, impacting India's oil import bill, fiscal balance, and foreign exchange reserves.
4. **Financing Needs for Energy Transition:** According to the International Energy Agency (IEA), India requires $160 billion per year to meet its energy transition goals by 2070.
5. **Rising Energy Demand:** Driven by economic growth, population increase, urbanization, and industrialization, India's energy demand is projected to double by 2040; increase imports if domestic production cannot keep pace.
6. **Renewable Energy Intermittency:** Renewable energy sources, like solar and wind, pose challenges due to their inherent variability, uncertainty, and concentration, require continuous balance to maintain grid stability.
7. **Infrastructure Gaps:** Storage options for excess renewable capacity have not developed as quickly as renewable generation, leading to market stabilization issues.
8. **Inadequate Strategic Petroleum Reserves:** Limited buffer against supply disruptions, and their coastal concentration makes them susceptible to attacks and natural disasters.
9. **Access to Critical Inputs:** Securing critical minerals (e.g., lithium) is challenging due to their geographic concentration and long mining gestation periods.

India's Plan for Energy Security:

1. **Diversification of Energy Sources:** India aims to diversify its energy portfolio by increasing the share of renewables like solar, wind, and hydropower, along with exploring other alternatives such as nuclear energy, biomass, and waste-to-energy. The goal is to achieve 50% of installed energy capacity from renewables before 2030.
2. **Expansion of Nuclear Energy:** India is expanding its nuclear energy capacity as a clean and efficient alternative. With 25% of the world's thorium deposits, India is exploring thorium-based nuclear reactors and small modular reactor technology to enhance operational flexibility and safety.
3. **Boosting Hydropower and Cross-Border Energy Trade:** Hydropower remains a key part of India's energy strategy, with plans to expand cross-border energy cooperation with neighboring countries like Nepal and Bhutan. By importing hydropower, India seeks to enhance its energy mix and ensure stable supply, particularly during peak demand periods.
4. **Strengthening Transmission Networks:** India is focused on enhancing transmission networks to efficiently absorb and distribute increased renewable capacity. This includes expanding inter-state transmission lines and developing energy corridors to connect renewable-rich states with energy-deficient regions.
5. **Promoting Distributed Energy Generation:** India is investing in distributed energy solutions such as rooftop solar, biogas, and small-scale wind projects. These decentralized energy systems can reduce transmission losses, support rural electrification, and increase energy resilience.

Various Government Initiatives for ensuring Energy Security:

1. **Target of 500 GW non-fossil fuel capacity by 2030:** Includes solar, wind, hydro, and nuclear sources. As of 2025, installed non-fossil fuel capacity crossed 225 GW (solar 97.9 GW, wind 48.2 GW, hydro 46.9 GW, nuclear 8.2 GW). India ranks 4th globally in renewables.
2. **Solar Parks Scheme & PM-KUSUM:** Boosts grid-connected and decentralized solar power, with 50 solar parks sanctioned and solar pumps for farmers.
3. **National Green Hydrogen Mission:** Aims for 5 million tonnes annual production of green hydrogen by 2030, with incentives for electrolyser manufacturing and use in refineries, transport, and fertiliser.
4. **National Bioenergy Mission & SATAT Scheme:** Promotion of biogas, CBG, waste-to-energy plants to diversify energy sources and utilize agricultural waste.

5. **Strategic Petroleum Reserves (SPR):** India maintains reserves at Mangalore, Padur, and Vizag (5.33 million tonnes), with expansion plans at Bikaner, Mangalore (additional), Bina, Padur, and Chandikhol. These will buffer supply disruptions and build resilience. Private participation in SPR policy is encouraged.
6. **Nuclear Power Expansion:** Ambitious plan to increase nuclear capacity to 100 GW by 2047, operationalizing Bharat small modular reactors, and strengthening long-term baseload supply.

Way forward:

1. **Further Diversify the Energy Sources & Mix:**
   - India should reduce dependence on any single source or supplier by promoting alternative fuels and increasing sourcing from various global regions (e.g., Russia, Africa, U.S., Latin America).
   - India should continue to explore underutilized energy sources such as tidal, geothermal, and hydrogen fuel, which can provide sustainable alternatives. Expanding research and development in these areas can unlock new opportunities for energy security.
   - Secure the supply of critical minerals through international collaboration, long-term stockpiles, and financial strengthening of entities like KABIL.
2. **Invest in Energy Storage Solutions:** Improving energy storage technologies, like advanced batteries and pumped hydro storage, is crucial for balancing supply and demand, especially with the increasing share of renewables. Enhanced storage capacity can stabilize the grid and ensure a reliable power supply during fluctuations.
3. **Focus on Energy Efficiency and Conservation:** Adopting energy-efficient technologies and practices across industries, buildings, and transportation can significantly reduce energy demand. Policies promoting energy conservation, retrofitting, and smart grids can optimize energy use and lower dependency on imports.
4. **Strengthen International Energy Cooperation:** India should strengthen its partnerships with global energy leaders to secure access to advanced technologies, invest in joint ventures, and develop cross-border energy projects. Collaborating on research, sharing best practices, and participating in global energy markets can enhance India's energy resilience.
5. **Expand Infrastructure for Alternative Fuels:** To reduce reliance on conventional fuels, India should invest in infrastructure for alternative fuels like compressed natural gas (CNG), liquefied natural gas (LNG), and biofuels. This includes setting up fueling stations, pipelines, and processing facilities to support the adoption of cleaner alternatives.
6. **Expand Biofuels Potentials:** Ethanol blending program reduces crude imports and transfers over ₹92,000 crore to farmers, foreign exchange savings.
7. **Strengthen Nuclear energy Roadmap:** Revive thorium roadmap, secure uranium partnerships, and localize Small Modular Reactor (SMR) technologies. Nuclear power offers zero-carbon energy.
8. **Advance Utility Reforms:** Strengthen governance in distribution companies by empowering boards, enhancing financial independence, and listing state-owned utilities on stock exchanges to attract private investment.
9. **Strengthen Ecosystem:** Adopt a "whole-of-government" approach with enhanced inter-ministerial coordination and a high-level committee on resilient supply chains for energy transition.

Conclusion:

Energy security is vital for India's economic growth and environmental sustainability. By diversifying its energy mix, enhancing infrastructure, and exploring new technologies, India can build a resilient energy system that meets growing demand while reducing carbon emissions. Continued investment in renewables, nuclear energy, and cross-border cooperation will be key to securing a sustainable energy future.

UPSC GS-3: Energy
Read More: The Indian Express

High Value Crops – Significance & Challenges – Explained Pointwise

High value crops are mainly horticulture crops such as fruits, flowers, spices, vegetables & aromatic plants etc. The value of output and net returns of most of these horticulture crops is higher.

Source: Krishi Jagran

Key characteristics of of high value crops:

1. **High Market Price:** They command a premium price because of their quality, uniqueness, or limited supply.
2. **Intensive Management:** They typically require more labor, precise growing conditions, specialized skills, and controlled environments (like greenhouses or vertical farms).
3. **Perishability:** Many HVCs (like fresh herbs or berries) are highly perishable, necessitating quick, efficient logistics and access to a reliable market.
4. **Niche/Specialty Market:** They are often sold to specific markets, such as fine-dining restaurants, organic food stores, health/wellness industries, or directly to consumers.
5. **Profit per Area:** The financial return (profit) is high relative to the small amount of land or space they occupy.

Examples of High Value Crops:

Fruits	Pomegranate, dragon fruit, black rice, baby corn, mango, grapes, guava, oranges.
Vegetables	Tomatoes, onions, okra, capsicum, baby corn.
Flowers & Ornamentals	Marigold, rose, orchids

Spice & Condiments	Saffron, cardamom, turmeric, ginger, black pepper, chili.
Medicinal & Aromatic Plants	Ashwagandha, shatavari, mushrooms (esp. Ganoderma), ginseng
Oilseeds	Sunflower, groundnut (peanut), almond
Specialty or Export Crops	Cotton, organic herbs, exotic vegetables

Significance of high value crops:

1. **Doubling of Farmer Income:** High value crops (HVCs) yield much higher returns per acre than staple crops like rice or wheat, offering farmers opportunities for greater profitability and improved livelihoods. They are crucial for increasing smallholder incomes and supporting rural prosperity, which aligns with national goals of doubling farmer income.
2. **Agricultural diversification:** Shifting land from low-value staples to HVCs such as fruits, vegetables, spices, and flowers reduces risk, stabilizes farmer incomes, and helps balance food supply with demand. It also makes agriculture more resilient to market shocks and climatic variability.
3. **Employment generation:** HVC cultivation is labor-intensive and stimulates job creation in production, harvesting, processing, packaging, and marketing, particularly benefiting women and rural youth. The rise of agro-processing and supply chains for HVCs further adds off-farm employment opportunities.
4. **Export Potential:** Many Indian HVCs like spices, mangoes, pomegranates, and medicinal herbs have strong export markets, contributing significantly to the country's agri-exports and foreign exchange earnings. Enhanced value-addition and product quality increase competitiveness in global markets.
5. **Sustainable development:** HVCs can be grown in less arable or rainfed areas, thus supporting sustainable use of marginal lands and water resources. Many of them, especially perennial and medicinal plants, support better soil health, biodiversity, and climate resilience.

Challenges to high value crops:

1. **Market Access:** Poor access to organized markets and insufficient cold storage/logistics frequently lead to high post-harvest losses and distress sales.
2. **Price Fluctuations:** HVC producers often face volatile market prices due to seasonal gluts, weak supply chains, and inadequate market intelligence.
3. **High Input Cost:** HVC cultivation requires improved seeds, fertilizers, pest management, and irrigation, which can be costly and harder to access for smallholders.
4. **High Technological Requirements:** Limited knowledge of advanced agronomy, protected cultivation (greenhouses), and precision agriculture affects yields and quality.
5. **Risk & Vulnerability:** High value crops are often sensitive to weather fluctuations, pests, and diseases, and carry higher investment risks than staples. Crop insurance coverage is limited, leaving growers vulnerable to income losses during adverse years.
6. **Policy & Institutional Support:** Support for HVCs is generally less than for staple crops in terms of government subsidies, minimum support prices, and extension services.
7. **Export Barriers:** Meeting international quality and phytosanitary standards for export can be complex and costly. Farmers need better support for certification, grading, and value addition.
8. **Limited Access to Finance:** High upfront costs for planting materials, inputs, pack-houses, and processing units make access to timely credit and affordable loans essential, but such support remains patchy.

Government initiatives to promote the cultivation of high value crops:

1. **Mission for Integrated Development of Horticulture (MIDH):**
    - A centrally sponsored scheme supporting area expansion, improved varieties, subsidies for planting materials, creation of water resources, and promotion of protected cultivation (greenhouses, polyhouses).
    - Offers financial incentives for hybrid vegetables, off-season cultivation, perennial spices, cashew, cocoa, and Moringa with substantial per hectare subsidies.
2. **Operation Greens:**
    - Targets price stabilization, improved logistics, and post-harvest management for Tomato, Onion, and Potato (TOP) crops, later expanded to all fruits and vegetables.
    - Provides support for cold storage, value addition, transportation, and market linkages to protect growers from distress sales and reduce losses.
3. **Horticulture Cluster Development Programme:**
    - Focuses on geographic clusters for integrated, market-driven development of specific high value crops.
    - Strengthens exports, competitiveness, and productivity through infrastructure and technology support.
4. **National Horticulture Board:** Facilitates establishment of nurseries, pack houses, cold stores, and ripening chambers, and supports Bharat GAP certification for quality and export standards.
5. **Kisan Rail & Kisan Udaan:** Special trains and air cargo services to transport fruits, vegetables, and perishables rapidly to distant urban and export markets, with up to 50% transportation subsidy.
6. **Minimum Support Price (MSP) & Price Support Scheme:**
    - MSPs for pulses, oilseeds, nutri-cereals, and select commercial crops (including horticultural crops) set at least 1.5 times the average production cost to ensure remunerative returns.
    - Price Deficiency Payment Scheme (PDPS) and Market Intervention Scheme (MIS) support growers against price volatility for perishables and horticulture crops.

Way forward:

1. **Strengthen Market Linkages and Infrastructure:**
    - Expand direct farmer access to organized markets, contract farming, and online trading platforms such as e-NAM.
    - Scale up cold storage, pack-houses, and efficient logistics for fruits, vegetables, spices, and flowers to reduce post-harvest losses and improve bargaining power.
2. **Promote Technology Adoption & Extension Services:**
    - Increase outreach and training on advanced agronomic practices, precision farming, protected cultivation (polyhouses, greenhouses), and integrated pest management to improve productivity and quality.
    - Support Centres of Excellence and demonstration farms for capacity building and technology transfer.
3. **Expand Credit & Financial Support:**
    - Enhance timely access to affordable credit, subsidies, and crop insurance targeted for high value crop growers.
    - Encourage investment in processing, value addition, and packaging to generate higher returns and employment.
4. **Risk Management & Climate Resilience:**
    - Provide crop insurance coverage and disaster risk support specifically for horticultural and high value crops.
    - Promote climate-resilient varieties and water-efficient cultivation practices for smallholders and rainfed areas.
5. **Policy & Institutional Support:**
    - Streamline regulatory frameworks to support land aggregation, direct marketing, farmer producer organizations (FPOs), and export facilitation.

- Ensure robust extension services for high value crop promotion, grading, certification, and export market access.

6. **Focus on Quality Standards & Export Promotion:**
   - Strengthen support for quality certification, grading, and phytosanitary standards needed for domestic and international markets.
   - Invest in market intelligence and branding for Indian high value crops to boost competitiveness abroad.

UPSC GS-3: Agriculture
Read More: The Indian Express

Fertiliser Sector in India – Significance & Challenges – Explained Pointwise

Diammonium Phosphate (DAP) is a critical fertiliser containing Phosphorus which is required by the crops during early stages of root & shoot development. Farmers usually apply at the time of sowing, along with the seeds. China has been the top supplier of DAP to India, however, it has recently put restrictions on its exports, thus triggering a shortage of DAP in India.
Fertilizers are essential for India's agricultural productivity, helping to sustain high crop yields for a large and growing population. India is one of the world's largest producer, consumer & importer of fertilisers in the world. This article explores the role of the fertiliser sector, its associated challenges, and the policy reforms required to address these critical issues.

Source- PSU Watch

What is the SIGNIFICANCE of the fertilizer sector in India?

1. Ensure the availability of essential soil nutrients: The fertiliser sector has played a crucial role in sustaining India's agricultural output by ensuring the timely availability of essential nutrients such as nitrogen (N), phosphate (P), and potash (K) through both domestic production and imports. According to recent reports Indian soils suffer from acute deficiencies in essential nutrients which are listed below. These nutrient deficiencies severely affect soil fertility and crop yields:

Nitrogen Deficiency	Less than 5% of Indian soils have adequate nitrogen levels, essential for healthy plant growth.

Phosphate Deficiency	Only 40% of soils are sufficient in phosphate, an important nutrient for root development and flowering.
Potash Deficiency	32% of soils are deficient in potash, which is crucial for plant disease resistance and overall growth.
Organic Carbon Deficiency	Just 20% of soils have adequate organic carbon, which is necessary for improving soil structure and water retention.
Micronutrient Deficiencies	Soils in India also suffer from deficiencies of micronutrients such as Zinc, Iron, Sulphur, and Boron, which are critical for optimal plant growth.

2. Driving Agriculture Productivity:

- The fertilizer sector has been a key driver in India's Green Revolution and sustained agricultural growth, enabling higher cereal production to feed the growing population.
- Between 2020-21 and 2022-23, India exported 85 million tonnes of cereals and ensured food security for hundreds of millions during crises.

3. Economic Growth & Employment Generation:

- India is the second-largest consumer and third-largest producer of fertilizers globally, with domestic production steadily rising.
- The sector supports significant rural employment directly and indirectly in production, distribution, and retail networks.

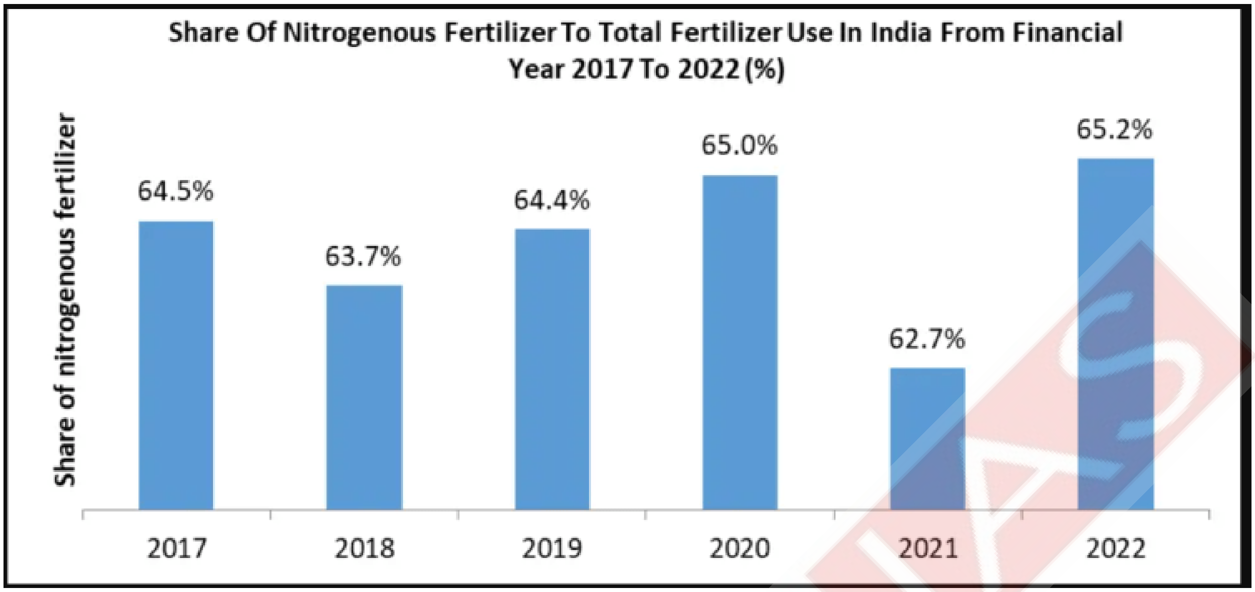
4. Driving India's Agricultural Dominance: The efforts of the fertiliser industry in supplying critical nutrients have helped India maintain its status as a global agricultural powerhouse. Between 2020-21 and 2022-23, the country exported 85 million tonnes of cereals while providing near-free grain to over 813 million people during the pandemic.

5. Sustainability Initiatives: The fertiliser sector encourages the use of advanced products like slow-release fertilisers and those fortified with micronutrients to enhance efficiency and reduce environmental impact.

6. Education and Awareness: The sector works closely with farmers to educate them about proper fertiliser application techniques, soil testing (Soil Health Card), and nutrient management for maintaining soil vitality.

What are the CHALLENGES related to fertilisers in India?

1. Imbalanced Fertiliser Use: A major issue in Indian agriculture is the overuse of nitrogen (N) fertilisers, especially urea, while other essential nutrients like phosphorus (P) and potassium (K) are underused. ***For e.g.*** *in Punjab, nitrogen use is 61% higher than recommended, but under uses potash by 89% and phosphate by 8%.* This imbalance results in green fields but lower crop yields, as plants need all three nutrients for optimal growth.



2. Low Nutrient Use Efficiency (NUE): The efficiency of fertiliser use in India is very low, with only 35-40% of fertilisers being absorbed by crops. The rest is wasted or lost to the environment, such as nitrogen escaping as nitrous oxide, a harmful greenhouse gas. This inefficiency leads to higher costs for farmers and environmental harm.

3. Issues related with fertiliser subsidy:

- **Nutrient Imbalance**: By focusing heavily on urea, the subsidy system has encouraged an imbalanced use of fertilisers, with nitrogen being overused and phosphate and potash underused. This imbalance harms soil health and reduces agricultural productivity in the long run.
- **Financial Strain on the Government**: Fertiliser subsidies are a significant financial burden on the government, amounting to ₹1.88 lakh crore, or nearly 4% of the Union budget. This high expenditure diverts resources away from other critical sectors, such as health and education.

4. Environmental Harm: Excessive and imbalanced fertilizer use has severe environmental consequences:

- **Groundwater Contamination:** Leaching of excess nitrates into groundwater, posing health risks (e.g. "blue baby syndrome").
- **Water Body Eutrophication:** Runoff of nitrogen and phosphorus into surface water bodies (lakes, rivers) leads to algal blooms, depleting oxygen and harming aquatic life.
- **Greenhouse Gas Emissions:** Nitrous oxide ($N2O$), a potent greenhouse gas, is emitted from agricultural soils due to nitrogenous fertilizer use, contributing to climate change. Ammonia volatilization also contributes to air pollution and acid rain.
- **Soil Degradation:** Long-term overuse of chemical fertilizers can alter soil pH, increase salinity in some areas, and negatively impact soil microbiology and structure.

5. Fertiliser Diversion and Smuggling: A significant portion (20-25%) of subsidised urea is diverted for non-agricultural uses or smuggled out of the country. This deprives farmers of necessary fertilisers and strains government finances.

6. Neglect of Micronutrients: Micronutrients like zinc, boron, and iron are often overlooked, despite their crucial role in plant growth. Their deficiency is widespread and contributes to the decline in soil health and agricultural productivity.

7. High import dependency & Global volatility = India does not produce enough fertilizers or their raw materials to meet its domestic demand:

- **DAP:** DAP is India's 2nd most consumed fertiliser (Annual avg sale = 103.4 lt). A significant portion of the consumption comes from imports (57 lt) (because India has limited rock phosphate deposits). China has been one of the top supplier of phosphate fertiliser to India. However, China has put curbs on its exports – to ensure that its farmers has access to the product first & also to meet the growing demand for phosphate in production of EV batteries. It resulted into shortage of key fertiliser DAP in India.
- **MOP (Muriate of Potash):** India is **100% dependent on imports** for MOP, as there are no domestic potash reserves. Similarly, India imports about 90% of its phosphatic fertilizers.
- **Vulnerability to Global Price Fluctuations:** This heavy import dependence makes India highly vulnerable to geopolitical events (like the Ukraine-Russia conflict, Gaza crisis), supply chain disruptions, and fluctuations in international prices of fertilizers and their raw materials (e.g., natural gas, phosphoric acid, rock phosphate). This directly impacts the cost of fertilizers for farmers and the government's subsidy bill.

What are the various GOVERNMENT INITIATIVES related to fertilisers in India?

1. Fertiliser Subsidy: The government provides a subsidy to fertiliser producers so farmers can buy fertilisers at lower prices. The subsidy covers the difference between the cost of making or importing the fertiliser and the price farmers pay. Subsidy on 3 basic fertilisers in India- **Urea**, **DAP** and **Muriate** of Potash (MOP) is discussed below:

- **Subsidy on Urea**: Urea is the most widely produced and used fertiliser in India. It is subsidised only for agricultural use. The government pays a subsidy based on the cost of production at each plant, and urea is sold at a fixed Maximum Retail Price (MRP).The subsidized MRP of 45 kg bag of urea is Rs.242 per bag (exclusive of charges towards neem coating and taxes applicable).
- **Subsidy on Non-Urea Fertilisers**: Non-urea fertilisers, such as DAP and MOP, are generally sold at market prices, but the government has recently regulated them due to global price increases (especially after the Russia-Ukraine war). These fertilisers are covered under the **Nutrient-Based Subsidy (NBS) Scheme**. The MoP is being sold at Rs 1,500-1,600 per bag, while the price of DAP is Rs 1,350 per bag.

Fertiliser subsidy schemes:

Urea Subsidy Scheme	**a.** Under the Urea Subsidy Scheme, urea is sold at a statutorily notified uniform MRP (Maximum Retail Price). Farmers pay a subsidised price of ₹242 per 45 kg bag of urea, significantly lower than the market price. **b.** The difference between the cost of production/importation and the retail price is paid to the urea manufacturer/importer by the government as a subsidy
Nutrient-Based Subsidy (NBS) Scheme	**a.** The NBS scheme was introduced in 2010 to address the nutrient imbalance in Indian agriculture. **b.** Under this scheme, fertilisers are provided at subsidised rates based on the nutrients they contain, namely nitrogen, phosphate, potash, and Sulphur. **c.** Fertilisers fortified with secondary and micronutrients are also given additional subsidies. However, urea is excluded from the NBS scheme.

2. Direct Benefit Transfer (DBT) of Fertilizer Subsidy: 100% subsidy on various fertilizer grades is released to fertilizer companies **after actual sales are made to farmers** by retailers through Point of Sale (PoS) machines. Farmers are identified through their Aadhaar card at the retail outlet. The aim is to improve transparency, reduce diversion, ensure the subsidy reaches the intended beneficiaries, and track real-time sales data.

3. Boosting Domestic Production and Self-Sufficiency:

- **Revival of Closed Fertilizer Units:** A major focus has been on reviving defunct or sick urea fertilizer plants to increase domestic production capacity and reduce import reliance for e.g. Hindustan Urvarak & Rasayan Limited (HURL), Ramagundam Fertilizers and Chemicals Ltd (RFCL), Talcher Fertilizers Limited (TFL).
- **New Urea Policy (NUP) – 2015:** For existing gas-based urea units, this policy aimed at maximizing indigenous urea production, promoting energy efficiency, and rationalizing the subsidy burden. It has led to a significant increase in indigenous urea production.
- **Potash Derived from Molasses (PDM):** To reduce 100% import dependence for Potash, indigenous production of Potash Derived from Molasses has been encouraged and included under the NBS scheme.

4. Promoting Balanced Fertilizer Use and Soil Health:

- **Neem-Coated Urea (NCU):** The government mandated 100% neem-coating of all indigenously produced and imported urea.
- **Soil Health Card (SHC) Scheme:** Promotes soil test-based and balanced use of fertilizers, reduce overuse of chemical fertilizers, save costs for farmers, and improve soil health and productivity.
- **Promotion of Bio-fertilizers and Organic Manures:** Schemes like **Paramparagat Krishi Vikas Yojana (PKVY)**, **National Project on Organic Farming (NPOF)**, **Mission Organic Value Chain Development for North-Eastern Region (MOVCDNER)**, and **Bhartiya Prakritik Krishi Padhati (BPKP)** provide assistance and promote the use of organic fertilizers and bio-fertilizers.

5. PM Programme for Restoration, Awareness Generation, Nourishment, and Amelioration of Mother-Earth (PM-PRANAM): States/UTs receive a grant equivalent to 50% of the fertilizer subsidy saved by reducing chemical fertilizer consumption (Urea, DAP, NPK, MOP) compared to the average of the previous three years. This grant is to be used by states to promote alternative fertilizers and related assets.

6. One Nation, One Fertilizer (ONOF) / Pradhan Mantri Bhartiya Jan Urvarak Pariyojana (PMBJP): Standardize fertilizer brands, reduce farmer confusion, reduce criss-cross movement of fertilizers (thus saving freight subsidies), and ensure a uniform appearance and quality perception for subsidized fertilizers.

7. Nano Fertilizers: The government is actively promoting the adoption of nano-fertilizers, particularly Nano Urea Liquid e.g. IFFCO Nano Urea Liquid.

What can be the WAY FORWARD?

1. Rationalizing the Subsidies: The government should bring urea under the Nutrient-Based Subsidy (NBS) scheme to balance the prices of nitrogen, phosphate, and potash. This will encourage balanced fertiliser use and reduce reliance on urea.

2. Deregulating Fertiliser Prices: Allowing market forces to set fertiliser prices can remove distortions caused by price controls. Farmers should receive direct income support, such as digital coupons or cash transfers, to purchase fertilisers based on their needs.

3. Promoting Micronutrient Use: To address micronutrient deficiencies, the government should promote fertilisers enriched with micronutrients. Encouraging balanced fertiliser use, including micronutrients, is crucial for better soil health and crop yields.

4. Improving Nutrient Use Efficiency (NUE): Improving NUE is essential, which can be achieved through precision farming, better soil testing , and using technology to apply fertilisers more efficiently.

5. Direct Income Support to Farmers: Explore replacing product-specific subsidies with a system of direct income support to farmers (like PM-KISAN, but specifically tied to fertilizer use or nutrient management). This would empower farmers to choose the right fertilizers based on their soil needs, reduce distortions, and prevent diversion.

6. Diversify Import Sources: Reduce over-reliance on a few countries for raw materials (rock phosphate, phosphoric acid) and finished fertilizers (MOP, DAP). Forge long-term agreements and joint ventures with resource-rich countries beyond traditional partners, including those in West Asia, Africa, Latin America, and other regions.

7. Integrated Nutrient Management (INM): Vigorously promote INM, which combines chemical fertilizers with organic manures, bio-fertilizers, and green manures, to improve soil health and reduce reliance on synthetic inputs.

CONCLUSION:

India needs to build a fertilizer sector that is not only robust and self-sufficient but also environmentally responsible, fiscally sustainable, and ultimately contributes to long-term agricultural prosperity and food security.

Read more- Indian Express, Wikipedia
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