

For UPSC CSE



# MONTHLY CURRENT AFFAIRS MAGAZINE



December 2025 (Mains)

YOUR SIMPLIFIED GUIDE TO CURRENT AFFAIRS



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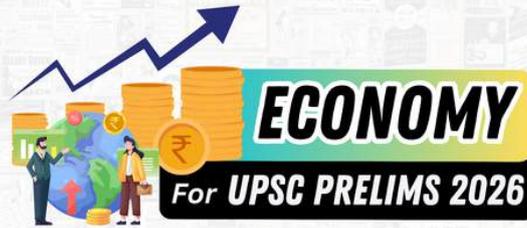


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# GS-1

## 1) What are rare-earth elements and why is everyone looking for them?

**Syllabus: GS I: Distribution of key natural resources across the world (including South Asia and the Indian subcontinent).**

### Background

- **Rare-earth elements** are a **set of 17 metallic elements** in the periodic table.
- Even when they're **not very scarce** in the earth's crust, they tend to be **spread out in low concentrations and mixed together with each other** in the same minerals, so they're **difficult and expensive to separate**.
- However, countries worldwide are interested in acquiring them because they're **crucial for many green technologies and electronics**.

### History and technology

- They're called 'rare earths' for historical reasons. Many of these elements were first identified as oxides from which they **couldn't be isolated easily**.
- However, the term '**rare-earths**' is used loosely, leading to confusion. For instance, some bundle rare-earths with 'strategic' or 'critical' elements such as lithium, cobalt.
- Rare-earth elements show up in many **contemporary technologies** because of their useful **electrical, magnetic and/or optical behaviour**.
- For example, rare earth elements are used in **permanent magnets** and in **motors and generators**.
- REEs are also incorporated in **lasers and optical devices** (including in fibre optics). They are also used in **catalysts, glass and ceramics, polishing powders, and other specialised materials**.

### Magnetic chemistry

- Every good magnet needs two things - a **large magnetisation**, meaning a strong magnetic field; and **stability** which means once the field lines up, they don't easily get knocked out of alignment by heat, vibrations or even an opposing magnetic field. **Magnets with rare-earth atoms have both**.
- Motors and generators that use such magnets thus work efficiently even at **high speeds and high temperatures**.
- Rare-elements are also **good phosphors** because they produce sharp, stable colours. Phosphors are synthetic fluorescent substances, especially one used to coat the screen of a cathode ray tube.

### How are rare-earths extracted?

- Economically feasible rare-earth ore deposits are usually found in a **few pockets of rock and soil, often mixed together with certain minerals** that carry rare earth elements in higher concentrations.
- **Many mines are open-pit** since these minerals are usually dispersed through large volumes of rock and the ore has to be dug out, crushed, and moved in bulk.
- Since some minerals **occur alongside thorium or uranium**, the **waste rock needs to be handled carefully**.
- Mines may also need **copious amounts of water and specific chemicals** to produce an initial concentrate, making the process **environmentally complicated**.
- On the other hand, rare-earth minerals are present with solids that contain many elements together, and they must be **separated at very high purity** for applications.
- The problem is that neighbouring rare-earth ions behave similarly in solution, so the corresponding **separation process is voluminous** and energy-intensive.



- Usually, the producer sets up to extract a specific oxide or metal. So, if a separator is short on one element or can't deliver the required purity, the **factory can't switch one element for another**, unlike oil refineries.

### How are rare-earths processed?

- Minerals are **crushed and mixed in solutions** to remove impurities and separate minerals of different concentrates.
- The **hardest step is separating** this mixture into individual rare-earth elements of high purity because their ions are of similar size.
- The producers run the liquids through **many stages in a row** to separate elements at high purity.
- Sometimes, when processed with acids and bases, it can create **hazardous wastes** which have to be captured, treated, and recycled properly.

### China's dominance

- Because rare-earth elements' midstream refinement is so arduous, a country can have substantial deposits in the ground but still have to depend on other countries if it doesn't have the **means to convert the ore into rare-earth oxides**.
- Some notable reserves include China, Brazil, India, Australia, Russia, Vietnam, the U.S., and Greenland.
- The **International Energy Agency** has estimated that **China's position is especially strong in separation and refining, accounting for around 91% of global production**.

### Conclusion

- Since many green technologies require motors, generators, and other hardware where high-performance magnets are crucial, countries are focusing on building refining and magnet-making capacity, rather than just approving new mines.



## GS-2

### 1) VB-G RAM G BILL - IS IT A RETREAT FROM SOCIAL PROTECTION?

**Syllabus: GS II: Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes; mechanisms, laws, institutions and Bodies constituted for the protection and betterment of these vulnerable sections;**

#### **MGNREGA - The economic ground beneath our feet**

- It is difficult to imagine a public programme of comparable scale that was both so carefully designed and **so consequential in its effects**.
- It is too often dismissed as a mere welfare handout, or defended only as a normatively attractive rights-based scheme. In fact, the MGNREGA represented a far deeper revolution in how **poverty alleviation, labour markets and service delivery** are conceptualised in India.
- The **multiple studies** on the scheme documented findings that went far beyond the scheme's direct benefits.
- They showed that the **general equilibrium effects** were substantial: Household earnings rose by about 14 per cent, poverty declined by roughly 26 per cent.
- The programme **increased the bargaining power of labour**. This led to higher wages and greater local demand, which in turn generated additional non-farm employment, and increased overall employment.
- The worry of **wage growth outpacing productivity growth** is moot owing to the precarious nature of the Indian poor.
- The scheme provided a critical lifeline to millions of households and played a key role in sustaining rural demand during the **Covid shock**.
- The MGNREGA thus functioned not merely as a welfare measure, but as an instrument that generated a **virtuous cycle of economic effects** across the rural economy.

#### **MGNREGA - Its theoretical principles**

- The MGNREGA grasped a fundamental truth about governance in India: Targeted programmes are exceptionally prone to failure and manipulation. Universality, or **self-targeting designs** the best chance of success.
- This logic was also used in expanding food security coverage.
- MGNREGA targeted anyone who was willing to work. In states such as Tamil Nadu, nearly 80 per cent of the MGNREGA employment days generated in 2023 accrued to women. Few public policies have so **decisively altered gendered patterns of labour force** participation at scale.
- The demand-driven nature of it also allowed it to respond to diverse local conditions and **shifting economic circumstances** across states.
- While in principle, the scheme could certainly be improved, for example, by better linking it to skill formation or more durable public asset creation, many of its **apparent shortcomings were deliberate design** choices.
- The **gains from simplicity far outweighed the benefits** of burdening the programme with multiple, and often conflicting, objectives.
- The new bill alters the scheme by **allocating work to states on supposedly objective criteria** determined by technocrats in NITI Aayog to represent a regression.
- On the surface, extending the employment guarantee to 125 days appears progressive. In practice, however, this is likely to be nullified by seasonal pauses, by converting a demand-driven entitlement into a **budget-capped, supply-driven programme** and by shifting a greater financial burden onto states.
- The MGNREGA, for all its limitations, was also a significant **instrument of decentralisation**, empowering gram panchayats in meaningful ways.



### VB-G RAM G Bill - A reform, not a retreat

- Apart from the **increase in 125 days**, the Bill also provides for an **unemployment allowance** in case employment is not provided within 15 days of application, by removing MGNREGA-era disentanglement provisions.
- The Bill seeks to **restore credibility** to the employment guarantee by strengthening statutory obligations relating to **transparency, social audit and grievance redressal**.
- These peripheral features are central to making the right meaningful on the ground. The bill seeks to convert a frequently frustrated **entitlement into a real, enforceable guarantee**.
- The most common criticism is that VB-G RAM G undermines the **demand-driven nature** of rural employment. This claim does not withstand a plain reading of the Bill.
  - Clause 5(1) places a clear **statutory obligation** on the government to provide not less than 125 days of guaranteed wage employment in every financial year to any rural household whose adult members volunteer to undertake unskilled manual work.
- The **criticism of centralisation** can also be combated with clauses in the law which anchors **all work plans to be prepared at the village level**.
- Requiring all works to be aggregated into the **Viksit Bharat National Rural Infrastructure Stack** creates a unified planning and visibility framework.
- The law also vests **planning, implementation and monitoring authority in panchayats, programme officers and district authorities** at appropriate tiers. What the Bill facilitates is **visibility, coordination and coherence — not centralisation**.
- Concerns regarding **agricultural labour shortages** during peak seasons are explicitly addressed.
  - Clause 6 empowers state governments to notify, in advance, **periods aggregating to 60 days in a financial year** covering **peak sowing and harvesting seasons** during which **works under the Bill shall not be undertaken**.
- Critics also point to fears of **fiscal tightening**.
  - Clause 4(5) and Clause 22(4) require **state-wise normative allocations** to be determined on objective parameters prescribed in the Rules.
  - State governments are empowered to notify and **operationalise their own schemes** within the state, consistent with the minimum statutory framework laid down in the Bill, showing cooperative federalism in practice.

### New role for Tech

- Apprehensions about **technology-driven exclusion** overlook the safeguards built into the Bill.
- Clauses 23 and 24 mandate **technology-enabled transparency** through biometric authentication, geo-tagged works, real-time dashboards and regular public disclosures — addressing concerns around fake attendance, ghost workers and unverifiable records.
- Clause 20 **strengthens social audits** by the gram sabha, reinforcing community oversight. Technology underpins accountability.

### Conclusion

- By enhancing the employment guarantee, embedding local planning, balancing worker security with farm productivity, converging schemes, strengthening frontline capacity through enhanced administrative support, and modernising governance, the Bill seeks to restore credibility to a promise that too often fell short in practice.



## 2) The Changing Pattern of India's Student Migration

**Syllabus: GS II: Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.**

### Context

- In Ministry of External Affairs data, more than **13.2 lakh Indian students** were enrolled in over 70 countries by 2023.
- India is one of the **top senders of international students**, with the United States and Canada as the top destinations (40%), followed by the United Kingdom, Australia and Germany.
- According to the report of the Parliamentary Committee on the Welfare of Indian Diaspora (2022), students are one of India's major diaspora categories.

### The True Picture of Migration

- Student migration today is characterized by middle-class households who invest heavily in the promise of a global degree and **upward social mobility**.
- While all this is seen by some as **democratisation of foreign education**, with doors opening to students from different socio-economic classes, the reality is more complex.
- Many of these students are channeled into lower-tier institutions often into courses unrelated to their expertise and without much job prospects.
- The outcome is **widespread deskilling and underemployment**, with many graduates unable to transition into skilled work. For instance, reports suggest that approximately only one in four Indian postgraduates in the U.K. secures a sponsored skilled visa.
- The partnership between recruitment networks and less credible private colleges abroad is driven primarily by commissions and profit. They operate in a grey legal zone and its expansion in recent years is **largely unregulated**.
- Thus, student migration from India represents a middle class aspiration with significant risks.

### Reverse Remittances

- Most students **migrate through education loans**, mortgaging family properties in hopes of securing better employment and higher wages that would repay their debts.
- However for many, the **journey ends in debt** or underemployment or they're forced to return.
- Economists describe this phenomenon as reverse remittances, where **Indian households subsidise foreign economies**.
- Foreign students **contribute significantly to host economies**. In the U.S., roughly 4,00,000 Indian students, in 2024, spent an estimated \$7 billion-\$8 billion annually on tuition, housing and living costs, sustaining universities and local economies.
- Rising rents, restricted working hours, and visa caps exacerbate financial and mental strains that students face. **Restrictive visa rules, limited post-study employment** options and a lack of placement support from low-ranked colleges exacerbate these strains, pushing students to downward mobility.
- For instance, **Kerala** is a state historically defined by Gulf labour migration. However, the Kerala Migration Survey (KMS) 2023 reports that student migration doubled in five years.
- This resulted in outward student remittances from Kerala growing to about **20% of total inward remittances** from labour migrants.

### The local context

- The outflow of students needs to be understood within the domestic context that is driving it.
- The reason is structural. For many, studying in OECD countries is not only about education, but about **permanent residency, social mobility** and an escape from a third world identity.
- Ironically, this wave of student migration has created a **new form of cheap labour** in OECD countries.



## Conclusion

- This rapid expansion of Indian student migration exposes deep systemic contradictions between aspiration and outcome, and between opportunity and exploitation.
- It calls for **stronger regulation** of education agents, pre-departure counselling, and **bilateral frameworks** to ensure institutional accountability abroad.

## 3) Will the new Act aid India's nuclear development?

**Syllabus: GS II: Government policies and interventions for development in various sectors and issues arising out of their design and implementation.**

### Introduction

- The parliament has passed the Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Act which repeals legislation that governs nuclear activity — the Atomic Energy Act, 1962, and Civil Liability for Nuclear Damage (CLND) Act, 2010.

### Why is SHANTI significant?

- SHANTI encourages **private companies to participate** and potentially, **allow foreign funding** to flow in India's nuclear sector.
- **India's current nuclear capacity is 8.8 GW** and it aims to increase it to **100 GW by 2047**. State-owned nuclear power plants are projected to add 54GW, with the rest, presumably, from private companies.

### What are the major differences in SHANTI?

- Given nuclear energy's history with accidents (Chernobyl 1986, Fukushima 2011) there is **extreme caution and restrictions** in all aspects of nuclear plant operations.
- Currently, the global consensus is that in case of an accident, a **plant operator must compensate victims** immediately without waiting for ascertaining the causes and those responsible for the accident.
- Following this, however, if the plant operator can establish that it was not its management but rather **faulty equipment** (provided by a supplier) that led to the catastrophe, it can **claim recourse**. This was one of the instances that was allowed in the erstwhile CLND. In SHANTI, this clause has been **done away with**.
- Despite the **Indo-U.S. nuclear deal of 2008** that allowed India access to uranium and international nuclear technology (restricted, because of its nuclear tests of 1974 and 1998), **American, and French makers of reactors were hesitant** because as 'suppliers' they could in theory be held liable for billions of dollars.

### Does SHANTI load the dice against operators?

- The earlier laws enabled those affected by a nuclear accident to **claim compensation** from a nuclear plant operator for an **amount up to ₹1,500 crore**. If the claim exceeded this, the centre would chip in.
- SHANTI goes for a **graded approach**. Plant operators' liability increases as their plant size increases.
- The government said that this gradation was meant to "not scare off" potential private sector participants.

### Will SHANTI spur India's nuclear vision?

- The original vision of Homi Bhabha, the father of India's atomic energy programme, was to provide for **India's energy security through nuclear power** and **make up for India's scarcity of uranium through the use of thorium**.
- **Stage 1** of our nuclear program involves building and making **pressurised heavy water reactors** which use **natural uranium (U-238)** to produce plutonium and energy.



- In the **second stage**, by using ‘**fast breeder reactors**,’ more plutonium and uranium-233 is made along with energy.
- In the **final stage**, **U-233 is combined with the plentiful thorium** to make electricity and create a **self-sustaining thorium power-generating system**.
- The second stage was supposed to be active in 2025, but India only has a prototype Fast Breeder Reactor.
- For its nuclear goals, India is looking to rely on **Small Modular Reactors (SMRs)**. They are smaller versions of existing similar Stage 1 reactors that can be built and assembled separately.
- While some of them have slightly better safety designs, the SMRs produce less electricity per unit than a large reactor and do not address the problem of nuclear waste.

#### 4) Unlocking the potential of India-Africa economic ties

**Syllabus: GS II: Bilateral, regional and global groupings and agreements involving India and/or affecting India’s interests.**

##### **Background:**

- The recent decade has witnessed a fresh momentum in India’s relations with various African countries.
- PM Modi’s visits to **Namibia and Ghana** (July 2025), **Ethiopia** (Dec 2025), **entry of the African Union** as a full-time member of the **G-20** during India’s presidency in 2023 is evidence of this.
- India and Africa share a **long history of cultural affinity and political solidarity**, but their **relationship has increasingly been shaped by economics** in recent decades.

##### **Uncertainties in western markets**

- In FY24, **India’s exports to the United States and the European Union** constituted around **40% of its total exports**. Given the rising unpredictability of these markets, Africa provides a viable alternate market.
- **India is Africa’s fourth-largest trading partner**, with bilateral trade reaching nearly \$100 billion.
  - The key export destinations included Nigeria, South Africa and Tanzania, while the key goods exported include Petroleum products, engineering goods, pharmaceuticals, rice and textiles.
- On the other hand, **China’s trade with Africa is valued at over \$200 billion**, a third of whose imports are industrial machinery and semiconductor devices.
- India has already set a target of **doubling its trade with Africa by 2030**. Here is a **five-point strategy** that may enable India to fulfil its target.
- Firstly, **removing trade barriers and engaging in negotiations for preferential trade agreements and comprehensive economic partnership agreements** with regional economic communities and the major African economies.
- Secondly, moving from low-value commodity exports to **two-way value-added and cross-border joint venture manufacturing**, enabled by incentives offered by African governments.
  - For Indian enterprises, **setting up manufacturing facilities across Africa** presents a **strategic dual advantage** - allowing them to maintain preferential access to the U.S. market through favourable tariff regimes and simultaneously capitalising on Africa’s growing consumer base and industrial demand.
- Thirdly, **scaling-up of the Lines of Credit and improving accessibility to trade finance**. As opposed to first world countries, African markets offer a great opportunity for the MSME segment.
  - Measures such as adopting trade in local currencies, and forming a joint insurance pool to cover political and commercial risks can help in **achieving a sustainable trade relationship**.



- Fourthly, India should focus on **lowering freight and logistics costs** by investing in port modernisation, hinterland connectivity and in developing India-Africa maritime corridors.
- The final strategic pillar involves the **scaling up of services, digital trade, and people-to-people links**.
  - India can leverage its strength in Information Technology, health care and professional services to boost services exports and stimulate goods trade. **Services enable high-value exports** and facilitate greater two-way trade.

### Investment in Africa

- Indian firms can **strengthen their investments** in African manufacturing, agro-processing, infrastructure, renewable energy and critical and emerging technologies. Currently, India's investments in the region are focused in Mauritius, often with an intent to evade taxes.
- Multiple factors, including **bureaucratic hurdles, political instability and financing costs** act as barriers for Indian firms to invest in Africa.
- **Public sector units must take the lead** in investing in the African continent, particularly in **mining and mineral exploration**.

### Conclusion

- Ultimately, India's engagement with Africa must **go beyond transactional trade** and move towards building **long-term, sustainable partnerships**.
- As **global supply chains undergo restructuring** and the world shifts towards a multipolar economic order, Africa will remain central to India's aspirations of becoming a global economic power.

## 5) On the right to a healthy environment

**Syllabus: GS II: Indian Constitution- historical underpinnings, evolution, features, amendments, significant provisions and basic structure; GS III: Conservation, environmental pollution and degradation, environmental impact assessment.**

### Background

- Amid rising air pollution, legal interpretations linking environmental rights to the right to life and explicit constitutional provisions to enforce environmental protections, are the need of the hour.
- Every winter, Delhi grapples with smog and low air quality, affecting everyday life and health.

### Air Pollution and its severity

- Some of the major causes of air pollution include the **burning of fossil fuels, transport, industrial processes, waste management, demolition and agriculture**.
- However, **particulate matter is the most deadly** of them all causing major health hazards like stroke, heart and lung diseases which kill a large number of people every year.
- One of the most severe of them all is particles emitted from the **burning of diesel called DPM (Diesel Particulate Matter)** are mostly less than 1 micron in size. These cause severe health hazards, even in children.

### Constitutional provisions

- Though the original Constitution did not mention any provisions for environmental protection, the **concepts of natural justice and protection of nature** were enshrined in the entire constitutional scheme.
- However, over the years, proper safeguards for the protection of the environment were inserted. **Articles 48A and 51A (g)** outlined the responsibilities of the state and citizens respectively.
- In **Subhash Kumar vs State of Bihar**, 1991, the Supreme Court read Articles 48A and 51A (g) with Article 21, and inferred that every citizen has a right to pollution-free air and water, which are necessary for a meaningful life.



- The **right to live in a pollution free environment** was recognised as **part of Art. 21** by the Supreme Court in **M.C. Mehta vs Union of India**.
- **Articles 32 and 226** have also been used as an innovative tool for social and environmental justice. Moreover, a healthy environment is also one of the **elements of a welfare state**.
- The right to live in an environment **free of the danger of disease** and infection is an important attribute of the **right to live with human dignity**.

### Disasters and environmental protection

- During times of disasters and calamity, whether natural or man-made, the issue of protecting the environment assumes greater significance.
- While **'strict liability'** is the concept that makes an entity responsible for the consequences of an action, even if it did not intend to cause harm or was not at fault, **'absolute liability'** is the imposition of legal responsibility on a party for damages caused, regardless of fault or negligence.
- Another principle that assumes significance in cases of disasters which affect the environment is the **'precautionary principle'** (**Vellore Citizens' Welfare Forum vs Union of India, 1996**)
  - The **precautionary principle** is an approach wherein **states should adopt precautionary measures** (according to their own capabilities) if there are serious threats to the environment.
- The traditional concept that development and ecology are opposed to each other, is no longer acceptable.
- The **'polluter pays principle'** is the commonly accepted practice that those who are responsible for the pollution should bear the costs of managing it to prevent damage to human health or the environment.

### Public trust doctrine

- In **M.C. Mehta vs Kamal Nath**, the Supreme Court explained the doctrine as a reflection of a **social contract** between the state and the people, in which the state serves as the trustee while the people or the communities own the resources.
- In the Indian constitution, **Art. 39(b)** also provides for **community ownership** of material resources.
- Thus, the **State has the right to own resources**, use them for the welfare of the public and the citizens have a duty to allow the state to do so.
- For example, in **Radhey Shyam Sahu**, the Supreme Court held that the doctrine of public trust emanates from the provisions of Article 21.
- In **M. K. Ranjitsinh vs Union of India (2024)** recognised the **right against adverse effects of climate change** as being part of Article 21 and Article 14.

### Conclusion

- While national and foreign governments have claimed to have taken steps for the protection of the environment, their **claims have been far from satisfactory**.
- It is therefore, the opportune moment to **expressly include the right** to a clean and healthy environment in the Constitution to make both the state and the citizens equally responsible.



## 6) Is the 'health for all' campaign on track?

**Syllabus: GS II: Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.**

### Background:

- India faces an avalanche of non-communicable diseases, resurgent infectious diseases, climate change-related issues, concerns relating to quality control in the burgeoning pharmaceutical industry, and funding for health care.
- India needs to prioritise and realign areas of care and attention to **ensure health for all**.

### Why is there a funding deficit?

- Trump's **withdrawal of the United States from the World Health Organization** reduced availability of funds for various health and development projects.
- For India, **funds** committed under PEPFAR (U.S. President's Emergency Plan for AIDS Relief) suddenly dried up, forcing the Union and State governments to make good this funding deficit.
- **Key health intervention projects** in the fields of HIV/AIDS, population services and maternal and child health were affected.

### What about budgetary allocation?

- The **National Health Policy** set a target health expenditure of **2.5% of the GDP**.
- A sum of ₹99,859 crore was allocated for various health projects in the 2025-26 fiscal year, an **11% rise from the previous year's**, and it is **yet to hit the sweet spot of over 2% of the GDP**.
- While the post-pandemic years have brought health closer to the people, in terms of diagnostic labs and the number of beds, a **huge gulf remains between demand and supply in funding and infrastructure**.
- India **needs more funding** to handle the resurgence of several infectious diseases and health issues brought on by reducing air quality.

### Why did India miss the TB elimination goal?

- **India advanced the global target** for achieving the **elimination of tuberculosis by two years** and reassigned **2025** as the year it would eliminate tuberculosis.
- While **several advancements** have been made, complete elimination remains a pipe dream.
- **Improved diagnostics** has not only enabled the speedy detection of the mycobacterium infection, but also drug resistance.
- However, the growing number of cases of **multidrug-resistant TB** and extensively drug resistant TB continues to be a cause for worry.

### Why is AMR a cause for worry?

- The WHO's recent Global Antimicrobial Resistance and Use Surveillance System (GLASS) report noted that **one in three people** who had bacterial infections in India bore **resistant organisms**, against one in six globally.
- The challenging factors that **aggravate AMR** are widespread over-the-counter antibiotic access, self-medication, incomplete courses, environmental contamination, and uneven enforcement of regulations.
- Notably, **Kerala** is the only State where stewardship in AMR has led to an actual lowering of AMR levels in the community.

### Why does India need to address its pharma quality issues?

- India's struggle with quality in the pharma sector has had dire consequences - leading to **deaths of children** in Madhya Pradesh, countries in Africa.
- These quality issues are a statement on the **pharma quality regulatory framework** of the country.
- India, which is on a Make-in-India trajectory, will scarcely move ahead unless it gets a hold of quality, before it realises its '**pharmacy of the world**' goal.



- The coming year will hopefully see India wrestle with contentious issues in the health care sector and overcome at least some of the glitches that threaten mortality and morbidity.

## 7) The India-New Zealand FTA — unlocking growth

**Syllabus: GS II: Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests**

### Background:

- India's recent FTAs with New Zealand, the United Kingdom and Oman reflect its emergence as an **reliable economic partner** in a time of increasingly unpredictable global trading regime.
- The fast-tracked negotiations (concluded within nine months), reflect political will to forge mutually beneficial global partnerships, further **India's global vision for a just, equitable and rules-based trading system.**

### Complementarity without compromise - Services and investment

- The India-New Zealand FTA emphasises **services and labour mobility** — areas where India enjoys a clear comparative advantage, offering India the widest service access so far.
- New Zealand has also committed to **invest \$20 billion in India over 15 years.**
- Mobility provisions for skilled professionals and post-study work opportunities for Indian students can position India as a **key supplier of high- and semi-skilled workforce.**
- Inclusion of an annex on **health and traditional medicine services** creates new opportunities for India's pharmaceutical and health-care sectors.

### Trade

- New Zealand has agreed to **eliminate duties on 100% of its tariff lines**, giving duty-free access to all Indian exports, while India has offered market access on 70% of its tariff lines.
- Benefits could accrue to India in **labour-intensive sectors**: textiles, apparel etc.,
- **Duty-free intermediate inputs** lower manufacturing costs for final products, especially in steel, engineering goods and construction.

### Agriculture

- The FTA envisages **value chain development** through knowledge transfers and agri-technology collaboration on apples, kiwifruit, and honey.
- **No duty concessions** have been made in dairy, sugar, spices and edible oils - thereby **protecting the livelihood of farmers.**

### Challenges in optimal utilisation

- In the past, India has exhibited a **low utilisation rate of the FTA** - only about 25% as in contrast with developed economies touching 70%-80%.
- This occurs due to **awareness gaps, compliance challenges, and non-tariff barriers (NTBs).**
- However, the India-New Zealand FTA has **provisions to address technical barriers** to trade through enhanced regulatory cooperation, streamlined customs procedures and transparency.
- Business associations and policymakers sharing responsibility to build awareness and developing capabilities can translate the negotiated benefits into effective market access.

### A strong foundation exists

- The FTA can build on the **strong foundations** of a **growing middle class, a skilled workforce, and a reform-driven, innovation-based Indian economy.**
- It carries elements of global integrated production and service export growth (India already ranks among the top five globally), both of which can **propel Indian firms up global value chains.**
- Notably, with the India-New Zealand FTA deal, India has now concluded economic partnership agreements with **all Regional Comprehensive Economic Partnership (RCEP) members, except China.**



## Conclusion

- The kind of access in terms of labour mobility and services that New Zealand is willing to extend to India **reflects growing strategic trust**, lending credence to India as a country with a stable trade policy, and **capable of establishing norms of effective cooperation** through balanced, high-quality agreements that protect domestic interests while promoting openness and growth.

## 8) Labour Laws Transition to Unified Codes Simplified

**Syllabus: GS II: Welfare Schemes for Vulnerable Sections of the population by the Centre and States and the Performance of these Schemes; Mechanisms, Laws, Institutions and Bodies constituted for the Protection and Betterment of these Vulnerable Sections.**

### Context

- November 21, 2025, marked a watershed moment in India's economic history with the **implementation of the four Labour Codes**. Hailed by the government and industry as a giant leap towards a 'Viksit Bharat', the move has simultaneously sparked intense debate and opposition from trade unions, creating a clear dichotomy of perspectives.

### Why were the Codes needed?

- The impetus for reform was the recognition that India's labour laws, many dating back to the 1940s and 1950s, were **outdated and fragmented**.
- The old system with its **overlapping definitions, multiple compliances, and varying interpretations across states** was a barrier to growth.
- The codes aim to **simplify, harmonize, and modernize this framework** to fit a dynamic economy characterized by gig work, e-commerce, and a vast informal sector.

### The Four Pillars of Change

The four codes **consolidate 29 central laws into a more streamlined structure:**

- The Code on Wages, 2019:** Aims for universal minimum wages and a national floor wage.
- The Industrial Relations Code, 2020:** Alters rules for trade unions, disputes, and retrenchment.
- The Code on Social Security, 2020:** Expands security nets to include unorganized, gig, and platform workers.
- The Occupational Safety, Health and Working Conditions (OSH) Code, 2020:** Focuses on workplace safety and allows women to work night shifts with safety provisions.

### Merits:

- The transition from earlier labour laws to the new Labour Codes represents a significant consolidation and modernization of India's regulatory framework.
- Previously governed by 29 separate statutes with over 1,400 rules**, the system has been streamlined into **just 4 unified Codes with 351 rules**.
- This shift simplifies administrative processes by **replacing multiple registrations, licenses, and returns with single, centralized procedures**.
- Compliance has been eased through the introduction of **annual consolidated electronic returns, moving away from frequent and state-specific monthly filings**.
- Furthermore, the **inspection regime has evolved from traditional on-site paper audits to a more efficient, risk-based digital model**.
- Finally, **grievance redressal has been unified through single facilitation centres**, eliminating the **earlier complex system of multiple tribunals**.
- Ensures **universal minimum wages**, timely payment, a **48-hour work week**, and extends **social security to 40 crore new-age and informal workers**.
- Fixed-term employment provides flexibility**. Improved notice periods and retrenchment compensation protect workers. Clearer rules encourage formalization.



- **Single registration and return reduce compliance, especially for MSMEs.**
- The **inclusion of gig workers and provisions for reskilling** prepare India for the evolving world of work, embracing flexibility and digital livelihoods.

### Critical View:

- The Labour Code mandates **health and safety regulations for establishments based on their size and use of power**: those with 20 or more workers where manufacturing uses power, and those with 40 or more workers where it does not.
  - For **contract workers**, the Code only applies to establishments or contractors **employing 50 or more workers**.
  - This threshold **automatically excludes small and micro-enterprises**—which constitute most workplaces in India—from mandatory compliance, thereby leaving their workers without legally assured health, safety, and welfare protections.
- The codes **"legalise fixed-term employment and promote hire and fire,"** undermining job security and weakening collective bargaining rights of trade unions
- **Simplifying compliance at the cost of worker rights will not attract stable investment.** Unsatisfied workers will lead to industrial unrest, creating a volatile environment.
- **By centralizing power and stripping states and unions of their voice,** the codes are a regression to a "colonial" era of weakened worker rights.
- The Labour Codes have consciously **centralized judicial review at the High Court level,** trading the accessibility of civil courts for the perceived authority, uniformity, and filtering mechanism of the higher judiciary.
  - The real-world test will be whether this system delivers fair and timely justice or becomes a procedural bottleneck that discourages workers from enforcing their rights.
- The **Code grants state governments arbitrary power to exempt new factories from its provisions in the name of boosting economic activity and employment.** This discretionary power risks being misused at the cost of worker safety and rights.

### Way Forward

- The implementation of the Labour Codes represents one of the most significant structural reforms since the GST. Its success, however, hinges on critical next steps:
- **State Alignment:** States must align their rules with the central codes to ensure nationwide uniformity and clarity.
- **Bridging the Trust Deficit:** The government faces a significant challenge in addressing the concerns of trade unions. Reconvening the Indian Labour Conference could be a crucial first step towards dialogue and building consensus.
- **Balancing the Scales:** The ultimate test of the codes will be whether they can truly balance the need for a competitive business environment with the non-negotiable requirement of robust worker protection.

### Conclusion

- Whether this reform will fuel India's journey to a developed nation or lead to increased industrial strife will depend entirely on how this balance is struck on the ground. The nation watches as this new chapter in India's labour history unfolds.



## GS-3

### 1) India's Critical Minerals Strategy

**Syllabus: GS III: Indian Economy and issues relating to Planning, Mobilization of Resources, Growth, Development and Employment.**

#### Context

- India has approved a ₹7,280-crore plan to **boost domestic manufacturing of Rare Earth Permanent Magnets (REPMs)**.
- This is a direct strategic move to **counter China's dominance, which controls over 90% of this critical market**.
- A rare earth permanent magnet is an **extremely strong, modern magnet made from special metals found in the periodic table's "rare earth" section**.
- REPMs are essential components for: **Electric Vehicles (EVs), Clean Energy Systems (e.g., wind turbines), Defence Technologies, Advanced Electronics etc.**

#### Core Weakness: Mining vs. Refining

- While India has reformed mining laws to encourage exploration and auctions, a **critical gap remains**:
  - **Current Focus:** The reforms help India "dig" – i.e., extract minerals.
  - **Missing Link:** They do not help India "refine" – i.e., process ores into high-value materials.
  - **The Result:** Every green tech product begins with refined materials, but almost all processing happens outside India, creating **vulnerable supply chains**.

#### Why is this vulnerability critical?

##### Geopolitical Risk:

- U.S.-China trade tensions have triggered tariffs and export restrictions.
- China cites national security to control exports of refined rare earths and battery technologies.
- Without domestic processing, India remains exposed to these external shocks.

##### Broad Strategic Dependence:

- India imports **nearly all of its lithium, nickel, and cobalt**.
- **High-purity materials are not just for clean energy**; they are vital for: **Semiconductors, Telecommunications, Pharmaceuticals, Automotive and Defence systems etc.**

##### The Global Chokepoint:

- The midstream (processing & refining) segment is the bottleneck.
- **China controls over 90% of global rare earth and graphite refining.**

#### Way Forward

- **India must scale up its processing and refining capacity as a national priority.** Begin with minerals India already produces or recycles.
- The recently approved ₹21,500-crore critical minerals recycling scheme is a key initiative.
- India already **mines and processes seven critical minerals**: Copper, Graphite, Silicon, Tin, Titanium, Rare Earths, Zirconium. In each case, **India's refining lags behind in either scale or quality.**

#### 5 steps to develop critical mineral processing

##### 1. Turn Research Labs into Business-Ready Factories

- Goal: Move new refining technologies from the lab to actual factories.
- How: Use the nine special "Centres of Excellence" to focus on solving industry problems and creating high-purity materials.

##### 2. Mine Our Waste (Urban Mining)



- Goal: Get critical minerals from the industrial waste we already produce.
- How: Recover valuable minerals from waste like Coal Fly Ash (contains rare earths), Red Mud (contains gallium), Zinc & Steel Waste (contains cobalt and vanadium).

### 3. Train a New Generation of Specialists

- Goal: Build a skilled workforce that knows how to refine complex minerals.
- How: Use the ₹7,100 crore set aside for skills to train current workers, create new diploma courses and updated university programs.

### 4. Give Companies Confidence to Invest

- Goal: Reduce the financial risk for companies building expensive refineries.
- How: The government can act as a guaranteed buyer and market stabilizer. Follow the U.S. approach, where the government promises to buy a certain amount at a stable price.

### 5. Upgrade International Deals from Buying to Building

- Goal: Change India's role in global mineral deals from a raw material buyer to a processing partner.
- How: First, prove India can reliably produce high-quality refined materials. This will attract foreign companies to co-invest and build joint processing plants ("Critical Mineral Parks") in India, instead of just selling us raw ore.

### Conclusion

- The core challenge for India is not about finding more mines, but about mastering the technology to turn raw rocks into usable industrial materials. Success in these five steps will determine if India remains just a supplier of dirt and rocks, or becomes a powerful manufacturer of the clean energy and high-tech products of the future.

## 2) Cyber Fraud in India

**Syllabus: GS III: Challenges to Internal Security through Communication Networks, Role of Media and Social Networking Sites in Internal Security Challenges, Basics of Cyber Security; Money-Laundering and its prevention.**

### Context

- With **rapid digitalisation in India** through UPI, digital wallets, and mobile banking, **cyber fraud** has emerged as a significant threat to internal security.
- While financial inclusion improves access to services, it also exposes citizens and institutions to sophisticated cyber attacks.

### Causes and Methods of Cyber Fraud

- The rapid adoption of digital payments is exploited by criminals who leverage human psychology—trust, fear, and greed—making users the weakest link. Advanced technologies like AI and deepfakes are used to impersonate trusted individuals.
- Common methods include:
  - **Phishing:** Fraudulent communications impersonating banks or government agencies.
  - **UPI/OTP Scams:** Manipulating victims to extract confidential transaction codes.
  - **Fake Apps & Websites:** Cloned platforms designed to harvest sensitive data.
  - **AI & Deepfake Fraud:** Impersonating officials or family to manipulate victims.
  - **Mule Accounts:** Unwitting citizen involvement in illegal transactions, which can aid organised crime and terror financing.

### Vulnerable Populations

- **Senior citizens, rural and semi-urban populations, and first-time digital users** are most at risk.



### Implications for Internal Security

- The repercussions of widespread cyber fraud are multi-faceted:
  - **Financial Stability:** It undermines public trust in financial systems.
  - **Organised Crime & Terror Financing:** Provides channels for money laundering and funding illicit activities.
  - **Legal Challenges:** Unknowing participants in fraud face legal consequences, adding to the enforcement burden.
  - **National Cyber Resilience:** Weakens governance, erodes citizen trust, and impacts e-governance services.

### The Central Role of Cyber Hygiene

- Technological safeguards by banks and awareness campaigns like 'RBI Kehta Hai' are **essential but insufficient**. The most effective defense is **individual vigilance and awareness**.
- Cyber hygiene (the routine practices to maintain digital security) must become a daily habit.
- Key measures include:
  - Using strong passwords with two-factor authentication.
  - Keeping software updated and securing devices.
  - Recognizing and resisting phishing, deepfakes, and social engineering.
  - Avoiding unsecured public Wi-Fi and regularly backing up data.

### Way Forward

- Prevention requires a multi-pronged strategy:
  - **Citizen & Community Awareness:** Embedding cyber hygiene education in schools, colleges, workplaces, and community gatherings. Discussions on digital risks should be as routine as those on physical safety.
  - **Institutional Measures:** Banks and agencies must enhance cybersecurity tech and grievance redressal.
  - **Policy Integration:** Cyber fraud prevention must be core to national internal security strategies, integrating law enforcement, financial regulators, and cybercrime units.

### Conclusion

- Cyber fraud is a critical internal security challenge intersecting with financial stability, law enforcement, and citizen welfare. It highlights that human vulnerability is as critical as technological vulnerability.
- **Strengthening digital literacy, legal frameworks, technological defences, and, above all, fostering a culture of collective vigilance** are central to securing the digital age.

## 3) A bold step amid an ambitious nuclear energy target

**Syllabus: GS III: Infrastructure: Energy, Ports, Roads, Airports, Railways etc.**

### Introduction

- **Human development** correlates with **energy consumption**. The primitive man needed energy only for food. As economies and societies passed through the agricultural, industrial and technological stages, the need for energy also rose (energy needs for transportation, home etc).
- The present era - **digitalisation of the economy** demands additional energy.

### Growth rate and generation

- The metric "**Human Development Index (HDI)**" is a fair representation of human development. Using the **correlation between HDI and per capita Final Energy Consumption (FEC)**, one can determine the level of energy needed to reach a specific HDI.
- As a member of the G-20, India rubs shoulders with countries that have an HDI above 0.9. **India will need to expand its energy generation to meet this target.**



- However, India has to redesign and **decarbonise its energy mix**. The present share of electricity in the FEC is about 22% and must rise significantly. Energy sources must be replaced by non-carbon emitting sources (Hydro, nuclear, solar and wind power).
- This should be accompanied by more **end-use electrification** to replace carbon based fuels such as LPG and petrol.

### The decarbonised energy mix

- Firstly, **Hydro and wind potential in India is limited**. Diverting large tracts of land for the deployment of solar photovoltaic is also not feasible.
- While the full potential of hydro, solar and wind must be exploited, **their potential is insufficient** to provide the energy level necessary to achieve an HDI above 0.9. **Nuclear Energy can bridge this gap**.
- Secondly, **electricity generated by solar and wind has seasonal variations**. To match such intermittent supply with electricity demand, it must be stored when in excess and augmented when in deficit. However, **storage is expensive**.
- To provide affordable electricity to consumers, the electricity mix must have **sufficient baseload generation capacity** — that is, generation that is not dependent on seasons or time of day.
- **Nuclear power plants are base-load** and must be a part of a decarbonised energy mix.

### Nuclear energy as an alternative

- To realise this imperative, the Department of Atomic Energy, in cooperation with Indian industry, has been working to harness nuclear energy in a manner so that the **complete supply chain is indigenous**.
- India has **developed technology** for fabricating fuel, producing heavy water, and manufacturing all the equipment that is needed to support the construction of **Pressurised Heavy Water Reactors (PHWRs)**.
- It is **only uranium that has to be imported** as India does not have enough uranium.
- The **Bhabha Atomic Research Centre** has developed technologies to reprocess spent nuclear fuel to **recover valuable materials** and handle nuclear waste.
- These efforts have made **nuclear power generation a technically-feasible, affordable and safe option** for India.

### The SHANTI Bill

- The central government set a target of **100 GW** of nuclear installed capacity by mid-century.
- The SHANTI Bill is an overarching piece of legislation and combines provisions included in the **Atomic Energy Act, 1962, and the Civil Liability for Nuclear Damage Act, 2010**.
- The bill allows for **private sector participation**, revised responsibilities for safety, security and safeguards for the nuclear power generation.

### Conclusion

- The bill is a bold step in line to help India achieve its ambitious nuclear energy target. This energy generation will be key to help India become a developed country.

## 4) The significance of a strong defence industrial base

**Syllabus: GS III: Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.**

### Introduction

- India's aspiration to become a **developed nation by 2047** rests not only on **social and economic transformation** but also on the **strength of its strategic capabilities**.
- In the past, **restrictive policies in the defense manufacturing ecosystem** resulted in **limited private participation** and **excessive reliance on imports**.



- The result was a **structural vulnerability** that affected both economic potential and national security.

### A shift after reforms

- Recently, **opening up to the private sector, liberalised foreign direct investment norms, corporatisation of the Ordnance Factory Board, and a progressive expansion of the list of arms and armaments to be procured under the 'Make' procedure** apart from a **pro-active promotion of innovation**, have all contributed to rapid progress.
- These trends signal a **maturing ecosystem** that is increasingly capable of meeting domestic requirements while also contributing to global supply chains.

### Evolving Global Security Landscape

- Conflicts in Europe, West Asia and Asia, have exposed the fragility of international peace and the **risks of supply-chain disruptions**.
- India also faces persistent challenges along its borders and in the maritime domain, so **self-reliance in defence is not only desirable but also indispensable**.
- **Shifting geopolitical dynamics** are opening up new possibilities - Europe's renewed emphasis on defence spending, the saturation of traditional suppliers, and growing demand for cost-effective and reliable platforms.
- These opportunities, along with India's strategic location and growing diplomatic profile strengthens its potential to emerge as a **credible supplier of defence equipment**.

### Simplify procedures

- However, **regulatory complexities** continue to hinder private-sector participation, especially for micro, small and medium enterprises and startups.
- **Export licensing, joint ventures and technology-transfer approvals** need to be speeded up.
- **Long-term demand projections and ensuring policy continuity** will help give the private sector the confidence to make large investments.
- Aligning with the global best practices, **DRDO's role needs to evolve to focus on frontier research** while **production, scaling and commercialisation should shift to industry**.
- A **dedicated export facilitation agency** would reduce fragmentation, streamline outreach and provide a single-window interface for global partners.

### Key steps to take

- **Overhauling financial, testing and certification frameworks** can help Indian manufacturers secure competitive credit lines and **protect them from excessively stringent domestic standards**.
- **Specialised export financing instruments, expanding integrated testing facilities** and adopting **international certification protocols** can improve domestic industry competitiveness.
- **Proactive use of lines of credit, government-to-government agreements, and long-term service commitments** can improve its credibility.

### Conclusion

- Defence exports are not merely a commercial undertaking. They signify technological maturity, strategic reliability and the **emergence of a nation as a major actor in the international security architecture**. They also generate **high-skilled employment**.
- While progress in recent years is encouraging, consistent efforts to deepen reforms and build an ecosystem that encourages innovation and investments is necessary for India's emergence as an influential global power.



## 5) Beyond chips, data centres lies India's AI opportunity

**Syllabus: GS III: Science and Technology - developments and their applications and effects in everyday life**

### Background

- The world's competition over AI is not merely a race towards a smaller chip, a larger data centre, or a faster model. The winner will be determined by those who turn innovation into impact, weaving AI into everyday life at the national level and adding product value.

### The distinct Eras of the AI Age

- The first is the **Compute Era**, in which **chip supply chains and hyperscale data centres** determine market share, tilting towards those with capital and other traditional resources.
- The second is the **Diffusion Era**, where nations with population-scale digital platforms and **deep real-economy deployment** shape how and where value is created, captured, and compounded.
- The third is the **Governance Era**, in which **sovereign power** and political legitimacy — as well as geopolitical leverage — pick winners among AI systems.
- As **investment increases in data centres** and supporting facilities grows, we may see the peaking of the Compute Era.
- These resources will become a utility - regulated and priced like legacy utilities - as is often the path of new technology, where a sudden investment boom transforms the **core infrastructure for broader innovation** and growth.
- What you do with compute infrastructure is what will **create value in the Diffusion Era**. Nations like India — experienced at adopting and adapting technology at scale — will have a natural advantage.
- The benefits of compute as a utility will flow to those who can build applications that create value for the greatest number. Success will depend upon how much **trust can be nurtured**.
- **Large Language Models (LLMs) will have to localise**. Large models are trained on the Common Crawl, which over-represents Western data and misrepresents the cultural context of countries like India. Hence, new winners will emerge from within communities.
- **Governments will respond** to the Diffusion Era by guarding data sovereignty more zealously, will seek to control the utilities left over from the Compute Era, and intervene in the competitive dynamics of the Diffusion Era.

### Questions that India must ask

- First, can Indian companies take the **necessary risks**? It will require a change in mindset, in corporate governance, and risk appetite to bet on an unknown future.
- Second, can Indian institutions **finance such a risk**? Can capital emerge from India and the world that can support and develop infrastructure at a utility scale?
- Third, can the government create a **world-beating regulatory structure** that blends private profit and public good, while protecting individual rights and digital sovereignty without stifling entrepreneurial fever — like, for example, the Digital Public Infrastructure model?
- If India can answer these three questions, it will dominate the threefold era of AI.



## 6) The good news is, lower-income states are catching up

**Syllabus: GS III: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment; Inclusive growth and issues arising from it.**

### Background

- The strength of the Indian economy rests on the strength of its states, because after all **national GDP** is the **sum of state gross domestic products (GSDPs)**.
- States with lower income per capita have significant potential to generate strong growth. Thus, it makes **per capita income convergence** across states an important macroeconomic question.

### What does the data say?

- Exploration of pre-pandemic (FY13-FY19) and the post-pandemic (FY19-FY25) data shows that in the former, there were **no signs of convergence**. Lower-income states grew more slowly than higher-income ones.
- However, in the **post-pandemic period stage** there's evidence of **lower-income states growing faster** on average.
- What adds to the puzzle is that this shift has occurred both during and after the pandemic, when one might have expected lower-income states to suffer more.
- To get a clearer picture, a host of **variables were examined** - including economic structure, human capital, infrastructure and logistics, technology adoption, and various forms of government spending.
- The one variable stands out in explaining this convergence is **public capital expenditure** by states. Several emerging states — such as Assam, UP, Rajasthan, and Bihar — have invested substantially more in infrastructure in recent years.
- This improves the physical backbone for economic activity, signals a reform-oriented government, crowds in private-sector investment together **driving higher growth**.

### Can this momentum be sustained?

- **Strong state revenues** result in fiscally comfortable states allowing them to invest more - an effect seen in low income states.
- In the period immediately after the pandemic, **central transfers to states increased through GST Compensation and capex loans** to state programmes.
- However, there are two developments co-exist that could potentially **hurt the capex cycle**.
- First, we are entering a phase in which the **Centre's tax revenues are weakening**, driven by tax cuts and lower-than-expected nominal GDP growth. After several years of increases, state revenues declined in FY25.
  - However, rather than cut capex, states chose to **widen fiscal deficits**.
- Second, **expenditure pressures have risen**. For instance, through a wave of cash transfer schemes, particularly ahead of state elections.
  - If these remain, pressures on capex could emerge.

### Can anything be done to keep capex and convergence on track?

- To sustain the capex drive, the **Centre could step in by expanding support to states**; in particular, by **increasing the capex loans to states programme**, broadening its use, and introducing greater flexibility.
- This **loan programme is ring-fenced for state capex** and cannot be diverted to other uses. It crowds in states' own capital spending and complements the central government's capex.
- For example, while the Centre builds national highways, states can invest in urban infrastructure to complete the transport loop.
- The **onus is not only on the Centre**. States must also seize growth opportunities.



- The centre has led a **deregulation drive**, highlighting about 23 ground-level reforms India's states can implement, eased labour laws and enacted new Industrial Relations Code. States that want to industrialise should make the most of these reforms.
- Opportunities to **attract FDI into labour-intensive mid-tech manufacturing** sectors such as textiles, footwear, furniture, toys etc. must be utilised.

### Conclusion

- Countries like **Vietnam have grown quickly** by seizing this opportunity and now the world may be looking for new manufacturers. India's emerging states enjoy a wage advantage.
- If this is combined with better infrastructure, further deregulation, and easier labour laws, they can attract investment and **integrate into global manufacturing supply chains**.
- India's emerging states are showing early signs of faster growth and catch-up potential. If they can stay the course on public capex and capitalise on reform opportunities, they could become a **powerful driver of India's rising place** in the world.

## 7) Decoding air pollution concerns in Delhi-NCR

**Syllabus: GS III: Conservation, environmental pollution and degradation, environmental impact assessment.**

### Background:

- In Delhi, **vehicular emission** is the primary source of air pollution.
- However, unfortunately, officials, un-official agencies, citizens and the higher judiciary have held stubble burning **farmers responsible** for Delhi's deteriorating air quality.

### On the Polluter Pays Principle (PPP)

- The principle envisages that the person or firm **who damages the environment must bear the cost** of such damage.
- In *Vellore Citizens Welfare Forum vs Union Of India and Ors. (1996)*, the Supreme Court of India held that the **PPP is part of the law of the land**, which paved the way for **statutory recognition of the principle** in the **National Green Tribunal Act, 2010**.
- Its **application is complex** due to the presence of multiple point and non-point sources of pollution. Some of these are transboundary indirect pollutants which are contingent on cooperation among neighbouring entities.
- In this case, the jurisprudence laid down in the **Standley case** decided by the **European Court of Justice** is relevant.
- It introduced the **proportionality dimension to the PPP** which amounts to saying that seasonal stubble burning by the farmer cannot be held liable for the air pollutants created by other sources.
- The narrative that **air pollution is not simply local in nature** but is subject to **regional and global influences** is yet to gain traction in this part of the world.
- The **Gothenburg Protocol (PM 2.5)** and the **ASEAN Agreement on Trans-boundary Haze Pollution (2002)** are examples of air pollutants travelling long distances.

### Government-Pays Principle

- The judiciary in India recognised that the precise scope of the PPP and its implications for those involved in polluting activities have **never been satisfactorily agreed**.
- In *S. Jagannath vs Union Of India*, the court leaned on the formula of compensation to human victims of pollution and environmental restoration. This is more aligned with **corrective justice** and less with PPP.
- In India, PPP has shifted to the **government-pays principle** by incorporating specialised authorities and vesting them with wide powers.

### Activist judiciary



- These authorities suffer from **administrative failures** like the rest of the bureaucracy and the executive.
- The increasingly activist judiciary tends to take greater note of these issues and creates an **obligation on governments to bear the entire costs** of monitoring air pollution and only secondarily to impose liability on the polluters.

### Conclusion

- The judiciary takes special interest, on account of **welfarism**, since most victims of environmental degradation have little means of suing.
- This approach projects the government's welfare-maximising nature but **does not fully internalise the costs of pollution prevention**.

## 8) The quiet foundations for India's next growth phase

**Syllabus: GS III: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.**

### Background

- As 2025 draws to a close, the loud headlines are easy to spot, but the quieter, steady work of governance is what has helped **India cross \$4.1 trillion in nominal GDP and overtake Japan as the world's fourth largest economy**.
- Standard and Poor's upgraded **India's sovereign rating to BBB** after 18 years, signalling not only a fast, but durable macroeconomic story.
- At a time of political churn, India's stable leadership helps convert private caution into private investment.
- Rules at multilateral forums are only as good as the incentives they create. Opaque procedures expands discretion, resulting in well-intentioned policy that discourages enterprise. Clean and time-bound procedures competition thrives, investment plans get executed, and jobs follow.

### India's exports

- **India's total exports hit \$825.25 billion** during 2024-25, representing an annual growth of over 6%.
- To support this volume of trade, the government introduced several digital tools such as:
  - **Trade Connect ePlatform**: a single digital window for exporters.
  - **Trade Intelligence and Analytics (TIA) portal**: providing real-time market data.

### The trade agreements

- **India-UK Comprehensive Economic & Trade Agreement**: allowing duty-free access and clearer pathways for services and skilled mobility.
- **Comprehensive Economic Partnership Agreement with Oman**: strengthening a strategic economic corridor for goods, services, and investment.
- **Free Trade Agreement with New Zealand**: expanding India's reach into high value markets.

### Startup sector, Innovation and Infrastructure.

- India's **startup sector expanded** to include **over two lakh government-recognised startups**.
- The **Open Network for Digital Commerce (ONDC)** averaged over 5.9 lakh daily transactions and **Government e-Marketplace (GeM)** saw a transaction value of over ₹16.41 lakh crores.
- India also improved its position in the **Global Innovation Index**, rising to 38th place.
- **PM GatiShakti National Master Plan** enabled private sector participation in infrastructure development.

### Legislations, Ease of Doing Business and Investment

- Parliament passed the **Repealing and Amending Bill 2025**, clearing out 71 obsolete Acts, Embracing trust-based governance.



- The **four labour codes** came into effect, consolidating 29 central labour laws into a simpler framework.
- **District-level reform frameworks** (District Business Reform Action Plan 2025) sought to make local administrations more responsive, bringing regulation closer to entrepreneurs.
- The **National Single Window System** processed more than 8.29 lakh approvals.
- The **Securities Markets Code Bill** strengthened SEBI's investigative and enforcement capacity, proposed specialised market courts, stronger information sharing with regulators, and time-bound grievance redressal.
- This enables **savings flow into productive investment**.

### Logistics

- **Nearly 95% of India's trade by volume and about 70% by value moves through maritime routes**, so port and shipping efficiency is a competitiveness issue.
- **Indian Ports Act, 2025** introduced modern governance tools, including state-level dispute resolution, a statutory coordination council, and stronger norms on safety, disaster readiness and environmental preparedness.
- The **Merchant Shipping Act, 2025** outlined liabilities and dispute frameworks to reflect contemporary commerce.
- Through the **Maritime Development Fund**, the government aims to build industrial depth, reduce dependence, and keep freight value within India over time.

### Energy Reforms

- Amendments and new rules in **petroleum and natural gas regulation** sought to reduce investor risk by emphasising stability during lease and clarity for approvals. New policies allowed for **wider exploration for oilfields**.
- The **National Deep Water Exploration Mission** signalled a strategic focus on domestic resources, technology, and capability in complex exploration.
- The **SHANTI Bill, Nuclear Energy Mission** with an outlay of ₹20,000 crore to accelerate small modular reactors all aligns with the goal of adding low carbon power to the grid.

### Conclusion

- Put together, these reforms show a pattern: clean up the statute book, decriminalise the trivial, modernise labour compliance, strengthen market governance, digitise trade processes, fix logistics, and de-risk long cycle energy investment.



## RELATED PYQS

- 1) What are the rare earth minerals? Discuss their availability in India and their importance in industrial development. (2012)
- 2) With growing energy needs should India keep on expanding its nuclear energy programme? Discuss the facts and fears associated with nuclear energy? (2018)
- 3) Give an account of the growth and development of nuclear science and technology in India. What is the advantage of the fast breeder reactor programme in India? (2017)
- 4) Increasing interest of India in Africa has its pros and cons. Critically Examine. (2015)
- 5) With the growing scarcity of fossil fuels, atomic energy is gaining more and more significance in India. Discuss the availability of raw materials required for the generation of atomic energy in India and the world. (2013)
- 6) Foreign Direct Investment (FDI) in the defence sector is now set to be liberalized. What influence is this expected to have on Indian defence and economy in the short and long Run? (2014)
- 7) Introduce the concept of Artificial Intelligence (AI). How does AI help clinical diagnosis? Do you perceive any threat to privacy of the individual in the use of AI in healthcare? (2023)
- 8) "Investment in infrastructure is essential for more rapid and inclusive economic growth". Discuss in the light of India's experience. (2021)



## PRACTICE QUESTIONS

- 1) Rare-earth elements have emerged as critical resources in the global transition to clean energy and advanced technologies. However, merely possessing reserves is not sufficient. Explain.
- 2) What are the features of VB-G RAM G Bill? Is it a reform or retreat?
- 3) Examine the changing patterns of student migration from India and its effects on the economy.
- 4) 'The SHANTI Act can help India achieve its nuclear goals.' Critically Examine.
- 5) Discuss the strategic significance of the African continent for India with an emphasis on its economic potential.
- 6) Analyse the evolution of environmental rights in India. Discuss in light of constitutional articles and judgements in this regard.
- 7) What are key emerging issues that plague the health sector in India?
- 8) Discuss the key features of the recent India- New Zealand FTA. What can be the possible challenges in reaching its full potential?
- 9) The transition to the four Unified Labour Codes represents a paradigm shift from a fragmented, colonial-era regulatory framework to a modernized system. However, the success of this reform hinges on balancing the 'ease of doing business' with the 'dignity of labour.' Critically analyze.
- 10) "There's a pressing need to strengthen India's critical minerals sector but more focus needs to go into the often overlooked part of the value chain — processing and refining". Discuss.
- 11) What are the principal causes for the escalating cyber threats to India's digital landscape? Recommend a multi-pronged framework to enhance cyber resilience.
- 12) Energy is crucial for India to reach its \$5 trillion economy by 2027. Explain the role of nuclear energy in light of this statement.
- 13) What role of the defense industry in making India an influential global power?
- 14) Examine the scope for India to emerge as a leader in AI. Suggest measures that can be undertaken.
- 15) Per capita income inequality between states provides scope for certain states to grow faster. Examine.
- 16) What is the 'polluter pays' principle? Evaluate the range of its success in holding polluters responsible.
- 17) What factors has contributed to India's growth as the world's fourth largest economy? Elaborate.

