ForumIAS

9 PM Current Affairs Weekly Compilation

For UPSC CSE mains examination

सत्यमेव जयते

UPSC

3rd Week

May. 2026

Features :

Arranged as per syllabus Topics
Most complete coverage of major News Papers editorials

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Oslo summit must mark India's northward turn

Source: The post **"Oslo summit must mark India's northward turn"** has been created, based on **"Oslo summit must mark India's northward turn"** published in **"The Hindu"** on **18th May 2026.**

UPSC Syllabus: GS Paper-3- International Relations

Context: The Arctic region is increasingly becoming important due to climate change, new shipping routes, energy resources and geopolitical competition among major powers. The India-Nordic Summit in Oslo reflects India's growing strategic engagement with Northern Europe and the Arctic region.

Why the Arctic is Becoming Strategically Important

a) Emerging Geopolitical Competition

- The Arctic is no longer isolated from global geopolitics and strategic rivalries.
- NATO expansion and renewed interest of major powers have increased geopolitical tensions in the region.

b) Availability of Natural Resources

- The Arctic contains significant reserves of oil, gas, minerals and rare earth resources.
- These resources are becoming increasingly accessible due to melting ice.

c) New Maritime Trade Routes

- Melting Arctic ice is opening new shipping corridors such as the Northern Sea Route.
- These routes can reduce transportation costs and travel time between Europe and Asia.

d) Climate Change Concerns

- The Arctic is warming much faster than the global average.
- Changes in the Arctic directly affect global weather systems and sea-level rise.

Significance of the Arctic for India

a) Impact on Indian Monsoon

- Climate changes in the Arctic influence India's summer monsoon patterns.
- Disturbances in Arctic systems can affect Indian agriculture and food security.

b) Threat to Coastal Regions

- Melting polar ice contributes to rising sea levels.
- This poses risks to India's coastal cities, ports and island territories.

c) Economic and Trade Opportunities

- Arctic shipping routes can improve India's trade connectivity with Europe and Northern regions.

- Reduced shipping time can lower transportation costs for Indian trade.

d) Energy and Resource Security

- The Arctic offers opportunities for cooperation in energy exploration and critical minerals.
- These resources are important for India's industrial and technological growth.

e) Strategic and Geopolitical Importance

- Growing great power competition in the Arctic has global implications.
- India seeks a stronger voice in Arctic governance through multilateral engagement.

f) Scientific Research and Climate Studies

- India has scientific interests in studying Arctic climate systems and environmental changes.
- India joined the Arctic Council as an observer in 2013 to strengthen scientific cooperation.

Importance of India-Nordic Cooperation

a) Cooperation in Green Technology

- Nordic countries are global leaders in renewable energy, offshore wind and green hydrogen.
- India can benefit from Nordic expertise to support its clean energy transition.

b) Maritime and Shipping Cooperation

- Nordic countries possess advanced maritime technology and shipping infrastructure.
- Cooperation can strengthen India's maritime logistics and shipbuilding capabilities.

c) Technology and Innovation Partnership

- Nordic nations are advanced in artificial intelligence, clean technologies and innovation ecosystems.
- Collaboration can support India's technological modernisation and industrial growth.

d) Arctic Research and Climate Monitoring

- India and Nordic countries can cooperate in climate research and Arctic monitoring systems.
- Joint scientific initiatives can improve understanding of climate impacts on the Himalayas and monsoon systems.

e) Supply Chain Diversification

- Nordic cooperation can help India diversify supply chains in critical minerals and green technologies.
- This reduces dependence on dominant global suppliers.

f) Strategic Balancing in Global Politics

- Stronger India-Nordic engagement can help India strengthen partnerships without entering military blocs.
- Such cooperation enhances India's strategic autonomy in global affairs.

Challenges in India's Arctic Engagement

a) Limited Institutional Presence: India lacks a strong institutional and diplomatic presence in the Arctic region. Unlike some Asian countries, India does not have a Special Envoy for Arctic Affairs.

b) Growing Militarisation of the Arctic: Increasing military competition among major powers may complicate India's engagement.

c) Infrastructure Limitations: India currently has limited Arctic-capable maritime infrastructure and ice-class vessels.

d) Environmental Concerns: Resource extraction and increased shipping may create ecological risks in the fragile Arctic ecosystem.

Measures Required

a) Strengthening Arctic Diplomacy: India should deepen engagement with Arctic Council members and Nordic countries.

b) Developing Arctic Research Capacity: India should expand scientific missions and climate research partnerships in the Arctic.

c) Investing in Maritime Infrastructure: India should develop ice-class shipping capabilities and strengthen maritime logistics.

d) Enhancing Green Technology Partnerships: Greater cooperation in renewable energy, green hydrogen and sustainable technologies should be promoted.

e) Creating Dedicated Arctic Policy Mechanisms: India may appoint a Special Envoy for Arctic Affairs to coordinate policy and diplomacy.

Conclusion: The Arctic is emerging as a crucial region for global geopolitics, climate governance, trade and resource competition. For India, the Arctic has important implications for climate security, economic connectivity and strategic interests. Stronger India-Nordic cooperation can help India secure technological, economic and geopolitical advantages while supporting sustainable and rules-based Arctic governance.

Question: The Arctic region is emerging as a major geopolitical and economic frontier in global politics. Discuss the significance of the Arctic for India and examine how India-Nordic cooperation can strengthen India's strategic and economic interests.

Source: The Hindu

India needs to snap out of the agricultural subsidy spiral

Source: The post **"India needs to snap out of agricultural subsidy spiral"** has been created, based on **"India needs to snap out of agricultural subsidy spiral"** published in **"Indian Express"** on **18th May 2026.**

UPSC Syllabus: GS Paper-3- Indian Economy

Context: India's agricultural subsidy system has played an important role in ensuring food security, supporting farmer incomes and maintaining political stability in rural areas. However, the rising burden of fertiliser subsidies, MSP procurement, free electricity and cash transfers has raised concerns regarding fiscal sustainability and economic efficiency.

Reasons Behind Rising Agricultural Subsidies

a) Protection of Farmer Livelihoods

- Indian farmers face multiple challenges such as small landholdings, fluctuating prices and dependence on monsoon rainfall.
- Therefore, subsidies help farmers reduce cultivation costs and sustain their incomes.

b) Rise in Global Input Prices

- The conflict in the Middle East has increased global crude oil and fertiliser prices significantly.
- The depreciation of the Indian rupee has further increased import costs for fertilisers and fuel.
- Despite these global pressures, the government has kept retail fertiliser prices stable for Indian farmers.

c) Political Compulsions

- Political parties fear electoral backlash and farmer protests if subsidies are reduced.
- As a result, governments continue expanding subsidies instead of undertaking difficult reforms.

d) Food Security Concerns

- Subsidies and MSP support encourage the production of wheat and rice required for the Public Distribution System.
- This support system has helped India maintain food security for a large population.

Economic and Fiscal Implications

a) Huge Fiscal Burden on Government

- The government provides massive subsidies on fertilisers such as urea and DAP.
- Farmers pay only a small fraction of the actual market cost of these inputs.
- According to the article, the fertiliser subsidy for a small farmer cultivating 2.5 acres can exceed Rs 1 lakh annually.

b) Increase in Fiscal Deficit and Public Debt

- Excessive subsidy expenditure increases the fiscal burden on the government.
- Continuous borrowing to finance subsidies can increase public debt and weaken macroeconomic stability.

c) Pressure on Foreign Exchange Reserves

- India imports crude oil and fertilisers in large quantities.
- Therefore, high global prices and subsidies create pressure on India's foreign exchange reserves.

d) Distortion in Cropping Patterns

- Cheap fertilisers, free electricity and MSP procurement encourage excessive cultivation of wheat and paddy.
- This discourages crop diversification towards pulses, oilseeds and millets.

e) Environmental Degradation

- Excessive use of subsidised fertilisers damages soil health and reduces long-term productivity.
- Free electricity has also contributed to the over-extraction of groundwater in many states.

f) Delay in Structural Reforms

- Large subsidies reduce the urgency for agricultural reforms and market liberalisation.
- Governments become risk-averse and avoid reforms due to political concerns.

Political Implications Highlighted in the Article

a) Growth of Populist Politics

- Subsidies and welfare schemes are increasingly used as political tools to gain electoral support.
- This has weakened fiscal discipline across political parties.

b) Fear of Farmer Resistance

- The government believes that farmers strongly oppose reforms such as changes in MSP and market regulations.
- This perception has discouraged policymakers from introducing major agricultural reforms.

c) Lack of Fiscal Seriousness

- The article highlights that many political parties prioritise short-term political gains over long-term economic sustainability.
- As a result, difficult but necessary policy decisions are postponed.

d) Risk-Averse Governance

- Governments try to avoid political risks by expanding subsidies instead of implementing structural reforms.

- This creates what the article calls a "paradox of risk", where avoiding reforms ultimately worsens economic challenges.

Measures Required for Sustainable Agricultural Growth

a) Rationalisation of Subsidies

- The government should gradually reduce inefficient subsidies while protecting vulnerable farmers.
- Better targeting of subsidies can reduce unnecessary fiscal expenditure.

b) Promotion of Direct Benefit Transfers

- Direct income support through DBT can improve transparency and reduce leakages.
- Cash transfers can provide flexibility to farmers while reducing market distortions.

c) Encouraging Crop Diversification

- Farmers should be encouraged to shift towards pulses, oilseeds and millets.
- This will improve nutritional security and reduce pressure on water resources.

d) Investment in Agricultural Infrastructure

- Greater investment is needed in irrigation, storage, food processing and rural logistics.
- Strong infrastructure can improve farmer incomes and reduce post-harvest losses.

e) Promotion of Sustainable Farming

- The government should encourage balanced fertiliser use, organic farming and micro-irrigation.
- Sustainable practices can improve soil health and environmental conservation.

f) Agricultural Market Reforms

- Strengthening e-NAM, Farmer Producer Organisations (FPOs) and private investment can improve market access for farmers.
- Efficient markets can increase farmer incomes without excessive dependence on subsidies.

Conclusion: Agricultural subsidies remain necessary for supporting vulnerable farmers and ensuring food security in India. However, excessive and politically driven subsidies are fiscally unsustainable and environmentally harmful in the long run. India must shift from a subsidy-driven agricultural system towards a productivity-oriented, sustainable and reform-based agricultural model. Balanced reforms, targeted support and long-term investment in agriculture are essential for ensuring both farmer welfare and economic stability.

Question: India's growing agricultural subsidies reflect both political compulsions and structural weaknesses in the farm economy. Discuss the economic, fiscal and political implications of the agricultural subsidy regime in India. Suggest reforms for sustainable agricultural growth.

Source: Indian Express

The Challenge for India's Renewable Surge: Storage

UPSC Syllabus: Gs Paper 3- Infrastructure

Introduction

India is rapidly expanding renewable energy to achieve its climate and clean energy goals. Renewable sources now account for **53% of India's installed power capacity**, with solar power contributing over **150 GW**. However, solar and wind energy remain intermittent because generation changes with sunlight and weather conditions. This creates a mismatch between electricity supply and demand, increasing pressure on the grid. As renewable energy grows further, energy storage and stronger grid infrastructure are becoming essential for reliable and stable electricity supply.

Understanding Energy Storage and Its Importance

1. **Meaning of energy storage:** Energy storage systems store excess renewable electricity during periods of high generation and release it when electricity demand rises but generation remains low.

2. **Role in balancing renewable energy:** These systems convert renewable electricity into stored forms of energy and later convert it back into electricity when required. This helps manage fluctuations in solar and wind generation.

3. **Importance for grid stability:** Intermittent renewable energy increases pressure on the power grid. Storage systems help smooth supply fluctuations and improve the reliability of renewable power.

Energy Storage Technologies

1. **Pumped Hydro Storage (PHS):** PHS uses surplus electricity to pump water from a lower reservoir to a higher reservoir. During peak demand, the stored water is released downhill through turbines to generate electricity.

2. **Battery Energy Storage Systems (BESS):** BESS stores electricity chemically and discharges it when needed. Lithium-ion batteries, especially **Lithium Iron Phosphate (LFP)** batteries, dominate grid-scale storage because of falling costs, high efficiency, and long operational life.

3. **Dominance of LFP batteries:** According to BloombergNEF, **LFP batteries accounted for more than 90% of annual storage additions in 2025**. Lithium-ion batteries now form the largest share of global battery storage deployment.

4. **Solar-thermal storage systems:** These systems use mirrors to focus sunlight onto a receiver. Materials such as molten salt store the heat, which is later used to generate steam and electricity.

5. **Compressed-air energy storage:** This system uses excess electricity to compress air and store it in underground caverns or tanks. The compressed air later drives turbines to generate electricity.

6. **Flywheel energy storage systems:** Flywheel systems store electricity as rotational energy by spinning a rotor at very high speeds. They can inject power into the grid almost instantly and help manage short-term fluctuations.

7. **Gravity energy storage systems:** Gravity storage systems use electricity to lift heavy weights to higher elevations. When electricity is needed, the weights are lowered to generate electricity through generators.

India's Energy Storage Capacity and Expansion Plans

1. **Storage deployment lagging behind renewable growth:** India's energy storage deployment has not kept pace with rapid renewable energy expansion. This is raising concerns regarding the grid's ability to absorb larger volumes of renewable power.

2. **Present storage capacity:** India currently has around 0.27 GW of installed BESS capacity and nearly 7.2 GW of PHS capacity. The government is mainly focusing on these two technologies.

3. **CEA projections for 2035-36:** The Central Electricity Authority (CEA) estimates that India's energy storage capacity could reach 174 GW by 2035-36. This includes around 80 GW of battery storage systems (BESS) and nearly 94 GW of pumped hydro storage (PHS), showing that both technologies will play a major role in supporting renewable energy growth.

4. **Importance of storage duration:** The CEA stated that storage systems with durations of four to six hours will become increasingly important beyond 2030. BESS is suitable for short-duration storage, while PSPs are more suitable for long-duration storage.

5. **Expansion of PHS projects:** India is rapidly expanding pumped hydro storage projects. More than 13 GW of PHS capacity is already under construction, around 9.5 GW has received approval, and nearly 75 GW is still under survey and investigation for future development.

6. **Rapid growth in battery storage projects:** Battery energy storage systems are also expanding quickly. Around 10.6 GW of BESS capacity is under construction, while projects worth more than 22 GW are currently at the tendering stage.

7. **Growing momentum in storage deployment:** India's energy storage capacity increased from nearly 507 MWh to around 5 GWh in 2025. Around 102 GWh of projects have also been tendered, including nearly 60 GWh allocated to BESS projects.

8. **Policy support for storage systems:** Measures such as viability gap funding, waivers on interstate transmission charges, and storage obligations are improving project viability. The Draft Electricity (Amendment) Act, 2025 also proposes recognising energy storage as a core part of the power system.

Key Challenges in India's Storage Transition

1. **Grid congestion and transmission bottlenecks:** Renewable energy projects are often located far from demand centres. This creates bottlenecks in power evacuation and sometimes leads to renewable energy curtailment.

2. **Slow transmission infrastructure expansion:** Transmission systems originally designed for thermal power are now supporting renewable energy evacuation. However, transmission upgrades are slower than renewable capacity additions.

3. **Intermittency increasing grid complexity:** Solar generation peaks during the day and falls to zero at night, while wind output remains variable. This makes grid balancing more difficult and increases the need for real-time management.

4. **Heavy dependence on imported battery cells:** India imports nearly 75-80% of its lithium-ion cells, which account for around 80% of battery storage system costs. This increases dependence on global supply chains.

5. **Geopolitical and price risks:** One Asian country dominates more than 75-80% of global battery manufacturing. This exposes India to geopolitical risks, trade frictions, and price volatility.

6. **Need for smart grid technologies:** Digital technologies, automation, and real-time monitoring are becoming increasingly important for managing renewable energy fluctuations and improving grid flexibility.

Global Trends in Energy Storage

1. **Global dominance of PHS and BESS:** PHS and BESS remain the most widely deployed electricity storage technologies globally. Worldwide installed PHS capacity stands at nearly 160 GW.

2. **China leading storage deployment:** China leads global PHS deployment with nearly 66 GW of installed capacity. It also accounted for nearly 60% of global battery storage additions in 2025.

3. **Rapid growth in battery storage:** Global battery storage capacity is estimated at around 270 GW. According to the International Energy Agency, 108 GW of new battery storage capacity was added globally in 2025 alone.

4. **Expansion beyond major markets:** Battery storage deployment is also expanding rapidly in Australia and parts of the Middle East. Storage is increasingly being viewed as essential for electricity security and renewable integration.

Way Forward

Expanding storage infrastructure: India needs faster deployment of both PHS and BESS to match rising renewable energy capacity and future electricity demand.

Strengthening transmission and smart grids: Transmission infrastructure, digital technologies, automation, and real-time monitoring must expand together to improve grid flexibility and manage renewable intermittency more efficiently.

Reducing import dependence: India needs to reduce dependence on imported lithium-ion cells to avoid geopolitical risks, trade disruptions, and price volatility.

Supporting policy and investment: Measures such as viability gap funding, storage obligations, and transmission charge waivers can improve project viability and encourage investments in storage systems.

Building reliable clean energy systems: The focus should shift from only adding renewable capacity to creating a reliable system that can store, transmit, and deliver clean energy efficiently.

Conclusion

India's renewable energy transition now depends not only on increasing clean energy generation but also on improving storage and grid infrastructure. Expanding PHS, BESS, transmission networks, and smart grid systems will be essential for balancing electricity supply and demand. The success of India's clean energy transition will depend on how effectively renewable power can be stored, transmitted, and delivered.

Question for practice:

Discuss the importance of energy storage systems in supporting India's renewable energy transition and the challenges associated with their expansion.
Source : Indian Express

Why power distribution companies are struggling with fixed costs, falling revenues

UPSC Syllabus: Gs Paper 3- Infrastructure
Introduction

Electricity distribution companies (DISCOMs) are facing rising financial pressure because their fixed expenditure is increasing while recovery through fixed charges remains low. A large share of their revenue still depends on electricity consumption. At the same time, rooftop solar, captive generation and open-access power procurement are reducing electricity purchases from DISCOMs. This has widened the mismatch between fixed costs and revenue recovery, increasing pressure on the power distribution sector.

Understanding the Financial Structure of DISCOMs

1. **Nature of DISCOM expenditure:** DISCOMs must regularly pay capacity charges to power generators, transmission expenses, employee salaries and infrastructure maintenance costs. These expenses continue even when electricity sales decline.

2. **Fixed and variable components in electricity bills:** Consumer electricity bills contain fixed charges and energy charges linked to actual electricity consumption. However, the fixed-charge component remains too small to recover the fixed expenditure of DISCOMs.

3. **Meaning of Annual Revenue Requirement (ARR):** ARR represents the total revenue a DISCOM must recover during a financial year to meet operational and capital expenditure obligations.

4. **High share of fixed expenditure in ARR:** Fixed costs account for nearly 38% to 56% of the total ARR of DISCOMs. This shows that a large part of DISCOM expenditure does not depend on electricity sales.

5. **Low recovery through fixed charges:** Fixed charges collected from consumers contribute only around 9% to 20% of total DISCOM revenues. This creates a major recovery gap.

Major Challenges Before DISCOMs

1. **Dependence on electricity consumption for revenue:** Most fixed costs are recovered through variable energy charges. When electricity demand declines, DISCOM revenues also fall sharply.

2. **Burden of long-term power purchase agreements:** DISCOMs must pay fixed capacity charges to power generators even when electricity is not purchased. These obligations continue regardless of actual electricity demand.

3. **Liquidity pressure during low demand periods:** Cool summers or economic slowdowns reduce electricity consumption and revenue collection. However, fixed payments continue, creating liquidity problems for DISCOMs.

4. **Impact of rooftop solar and captive generation:** Large industries and affluent residential users are increasingly producing electricity through rooftop solar systems and captive generation facilities. This reduces electricity purchases from DISCOMs.

5. **Expansion of open-access power procurement:** Large consumers can now buy electricity directly from generators or exchanges through open-access systems. This allows access to cheaper power outside the local DISCOM network.

6. **Rising stranded fixed costs:** Consumers continue using the grid for backup support while purchasing less electricity from DISCOMs. However, DISCOMs still have to maintain expensive transmission and distribution infrastructure.

Central Electricity Authority's Proposed Tariff Reforms

1. **Gradual increase in fixed charges:** The CEA has proposed phased growth in the fixed-charge component of electricity tariffs over the next five years. This aims to improve recovery of fixed expenditure.

2. **Fixed cost recovery targets for consumers:** Domestic and agricultural consumers are expected to recover 25% of fixed costs through fixed charges by 2030 and 50% by 2035. Industrial, commercial and institutional consumers may move towards 100% recovery through fixed charges.

3. **Standardised two-part tariff system:** The proposal supports uniform two-part tariffs across states. Consumers would pay a fixed network charge along with a separate usage-based electricity charge.

4. **Demand-linked billing methodology:** Fixed charges for low-tension residential consumers may be linked to connected load in kilowatts through Rs/kW/month billing. This can make tariffs more cost-reflective.

5. **Revised billing for high-tension consumers:** High-tension industrial and commercial consumers may pay fixed charges based on kilovolt-amperes through Rs/kVA/month billing. This better reflects the load placed on the electricity network.

6. **Separate charges for solar and open-access users:** The proposal includes separate tariff categories for rooftop solar consumers using net-metering systems. Structured standby charges are also proposed for open-access users relying on DISCOM infrastructure for backup supply.

Implications of the Proposed Reforms

1. **Better recovery of fixed expenditure:** Higher fixed charges can help DISCOMs recover infrastructure and network costs more predictably. This may reduce financial instability caused by fluctuating electricity demand.

2. **More uniform and transparent tariff system:** Standardised billing methods and demand-linked tariffs can improve clarity and predictability for consumers across states.

3. **Stronger financial stability for DISCOMs:** Improved recovery of fixed costs can reduce liquidity pressure and support long-term sustainability of the power distribution sector.

4. **Higher compulsory charges for consumers:** Consumers may have to pay a larger fixed amount in electricity bills regardless of actual electricity consumption. Electricity bills may increasingly resemble telecom or internet bills with separate network and usage charges.

Conclusion

DISCOMs are facing growing financial stress because fixed expenditure remains high while revenue recovery depends heavily on electricity consumption. Rooftop solar systems, captive generation and open-access power procurement are further weakening traditional revenue recovery mechanisms. The proposed tariff reforms aim to improve fixed-cost recovery through higher fixed charges and more uniform billing systems to support long-term financial sustainability of the power distribution sector.

Question for practice:

Examine the reasons behind the growing financial stress faced by electricity distribution companies (DISCOMs) and evaluate the tariff reforms proposed to improve their financial sustainability.

Source: Indian Express

Why has the WHO declared a PHEIC over Ebola outbreak?

Source: The post **"Why has the WHO declared a PHEIC over Ebola outbreak?"** has been created, based on **"Why has the WHO declared a PHEIC over Ebola outbreak?"** published in **"The Hindu"** on **19th May 2026.**

UPSC Syllabus: GS Paper-3- Science and technology

Context: The World Health Organization (WHO) declared the Ebola outbreak in the Democratic Republic of Congo (DRC) and Uganda a Public Health Emergency of International Concern (PHEIC). The declaration was made because the outbreak posed a serious public health risk and had the potential for international spread.

About Ebola

1. Ebola virus disease is a zoonotic disease that spreads from animals to humans.
2. The disease is caused by the Ebola virus.
3. Fruit bats and non-human primates are considered major carriers of the virus.
4. Ebola spreads between humans through direct contact with:
    - Blood,
    - Bodily fluids,
    - Secretions,
    - Contaminated surfaces.

About PHEIC

1. A PHEIC is the highest level of global health alert declared by the WHO under the International Health Regulations.
2. It is declared when a health emergency is serious, sudden, unusual, and capable of spreading across countries.
3. The declaration also calls for a coordinated global response to control the outbreak.

Reasons for Declaring Ebola a PHEIC

1. Cross-Border Spread

a. Ebola cases were reported in both the Democratic Republic of Congo and Uganda.
b. The movement of infected individuals increased the risk of international transmission.

2. High Fatality Rate

a. Ebola is a highly dangerous disease that can cause severe illness and death.
b. The outbreak recorded several confirmed and suspected deaths.

3. Serious Public Health Threat

a. The outbreak created pressure on the healthcare systems of affected countries.
b. Weak health infrastructure increased the risk of further spread.

4. Presence of Bundibugyo Strain

a. The outbreak was caused by the Bundibugyo ebolavirus strain.
b. This strain is one of the major Ebola virus variants responsible for outbreaks.

5. Need for International Coordination: WHO considered global cooperation necessary for surveillance, treatment, vaccination, and containment measures.

Impact of Ebola Outbreaks

1. Health Crisis

a. Ebola causes severe symptoms and has a high mortality rate.
b. Large outbreaks can overwhelm healthcare systems.

2. Social and Economic Disruption

a. Ebola outbreaks create fear, panic, and social stigma among people.
b. Trade, travel, and economic activities are negatively affected.

3. Threat to Global Health Security

a. International spread of Ebola can become a major global health emergency.
b. The West Africa outbreak of 2014–16 showed the devastating impact of Ebola.

Measures Taken to Contain the Outbreak

1. Rapid Isolation of Patients

a. Infected individuals are isolated quickly to prevent further transmission.
b. Early treatment improves survival chances.

2. Contact Tracing

a. Health authorities identify and monitor people who came in contact with infected patients.
b. Contact tracing helps break the chain of transmission.

3. Safe and Dignified Burials

a. Special burial protocols are followed because the virus can spread through dead bodies.
b. Safe burials reduce community transmission.

4. Vaccination

a. WHO is using approved Ebola vaccines through ring vaccination strategies.
b. Vaccines are provided to frontline workers and close contacts of infected persons.

5. Monoclonal Antibody Treatment

a. Monoclonal antibody treatments are being used to improve patient survival.
b. Early administration of treatment increases effectiveness.

6. Infection Prevention and Control

a. Strict infection-control measures are implemented in hospitals and health centres.
b. Healthcare workers are provided protective equipment and training.

7. Public Awareness and Social Mobilisation

a. Awareness campaigns are conducted to reduce stigma and encourage early reporting of symptoms.
b. Community participation is important for controlling the outbreak.

8. Surveillance and Laboratory Support

a. Disease surveillance systems are strengthened for early detection of cases.
b. Laboratory testing is expanded for faster diagnosis.

Conclusion: The WHO declaration of PHEIC reflects the seriousness of the Ebola outbreak and the risk of international spread. Effective surveillance, rapid response, vaccination, public awareness, and international cooperation are essential to control Ebola outbreaks and protect global health security.

Question: Why did the World Health Organization (WHO) declare the Ebola outbreak a Public Health Emergency of International Concern (PHEIC)? Discuss the nature of Ebola and the measures required to contain such outbreaks.

Source: The Hindu

Improving efficiency of fertilizer use in India

Source: The post **"Improving efficiency of fertilizer use in India"** has been created, based on **"Improving efficiency of fertilizer use in India"** published in **"The Hindu"** on **19th May 2026.**

UPSC Syllabus: GS Paper-3- Economy

Context: India faces rising food demand and increasing fertilizer consumption. Domestic fertilizer production is insufficient, making the country dependent on imports, especially for urea and phosphatic fertilizers. Excessive and imbalanced fertilizer use has created economic, environmental, and agricultural problems. Therefore, improving fertilizer efficiency has become essential for sustainable agriculture and food security.

Challenges Related to Fertilizer Use in India

1. Heavy Dependence on Imports

a. India relies heavily on imported fuel and fertilizers.
b. The country lacks sufficient mineral rock phosphate, which is important for phosphatic fertilizers.
c. High import dependence increases fiscal burden and affects self-reliance.

2. Excessive Subsidy Burden

a. The government spends heavily on fertilizer subsidies to maintain low prices for farmers.

b. A large share of subsidies does not translate into improved efficiency or productivity.

3. Imbalanced Nutrient Use

a. Indian agriculture is dominated by nitrogen-based fertilizers, especially urea.
b. Farmers prefer urea due to government support and lower prices.
c. Overuse of nitrogen and underuse of phosphorus and potassium disturb soil nutrient balance.

4. Declining Soil Health

a. Excessive fertilizer use depletes soil organic matter and micronutrients.
b. This reduces long-term soil fertility and productivity.

5. Environmental Degradation

a. Fertilizer misuse causes air and water pollution.
b. Ammonia volatilization from urea contributes to air pollution.
c. Phosphate fertilizers pollute water bodies.
d. Imbalanced fertilizer use increases greenhouse gas emissions and climate change.

6. Policy Distortions

a. Minimum Support Price (MSP) policies encourage cultivation of rice and wheat.
b. These crops consume large amounts of fertilizers.
c. Pulses and millets receive comparatively less policy support.

Measures to Improve Fertilizer Efficiency

1. Promote Balanced Nutrient Management

a. Farmers should use fertilizers based on soil requirements.
b. Balanced use of nitrogen, phosphorus, potassium, and micronutrients should be encouraged.

2. Increase Use of Organic Alternatives

a. Biochar produced from agricultural residue and biogas plants can improve soil health.
b. Compost and manure should be promoted to restore soil nutrients.

3. Encourage Crop Diversification

a. Pulses and millets require less fertilizer and improve soil fertility.
b. Pulses also fix nitrogen naturally in the soil.
c. Diversification can reduce excessive dependence on water-intensive crops.

4. Reform MSP and Procurement Policies

a. Greater procurement support should be provided for pulses and millets.
b. This will encourage farmers to shift away from fertilizer-intensive crops.

5. Adopt Efficient Fertilizer Technologies

a. Neem-coated urea should be promoted to reduce nitrogen loss.
b. Precision farming and improved application techniques can reduce wastage.

6. Improve Recycling of Agricultural Waste

a. Crop residue recycling should be encouraged instead of stubble burning.
b. Agricultural waste can be converted into compost and biochar.

7. Strengthen Institutional Coordination

a. Inter-ministerial coordination is necessary for integrated nutrient management.
b. Recommendations of committees such as the NITI Aayog panel should be implemented effectively.

Conclusion: Improving fertilizer efficiency is essential for sustainable agriculture, environmental protection, and food security in India. Balanced fertilizer use, crop diversification, promotion of organic alternatives, and policy reforms can reduce import dependence and improve soil health while maintaining agricultural productivity.

Question: Discuss the challenges related to fertilizer use in India and suggest measures to improve fertilizer efficiency for sustainable agriculture.

Source: The Hindu

Gender, Caregiving, the Law in Indian Research Funding

UPSC Syllabus: Gs Paper 1- Social empowerment **And Gs Paper 2-** Issues relating to development and management of Social Sector/Services relating to Education, Human Resources

Introduction

India's scientific achievements in research, space missions, and pharmaceuticals reflect its growing academic strength. However, women researchers continue to face structural barriers created by unequal caregiving responsibilities, rigid institutional culture, and weak legal support systems. These challenges affect career progression, research continuity, and participation in grant opportunities. Age relaxation in research funding was introduced to reduce this disadvantage, but the issue goes beyond eligibility limits and requires broader institutional, legal, and caregiving reforms to ensure genuine equality in academia.

Constitutional and Legal Basis for Gender-Sensitive Policies

1. **Right to Equality (Article 14):** Guarantees equality before the law and equal protection of the laws for all persons, preventing arbitrary state action based on gender.

2. **Prohibition of Discrimination (Article 15):** Specifically prohibits discrimination on grounds of religion, race, caste, sex, or place of birth. Crucially, Article 15(3) empowers the State to make special provisions (positive discrimination) for women and children.

3. **Equality of Opportunity (Article 16):** Ensures equal opportunity for all citizens in matters of public employment.

4. **Directive Principles of State Policy:** Articles 39(a) and 39(d) direct the State to secure equal rights to an adequate means of livelihood and equal pay for equal work for both men and women. Article 42 mandates securing just and humane conditions of work and maternity relief.

5. **Protection of women's dignity:** Article 51A(e) asks citizens to reject practices harmful to women's dignity. Very low female representation in research grants reflects structural inequality rather than neutral competition.

Caregiving Burdens and Institutional Challenges in Academia

1. **Unequal distribution of domestic responsibilities:** Women researchers continue to carry a larger share of childcare and household work even in dual-career academic families. Studies, including those at the Tata Institute of Social Sciences, show that professional status has not reduced this imbalance.

2. **Pressure during early and mid-career stages:** Women usually enter postdoctoral and early-career research during years of intense family responsibilities. Balancing publication pressure, grant deadlines, travel, and caregiving becomes difficult.

3. **Impact on academic progress:** Unequal caregiving burdens lead to delayed publications, gaps in grant records, reduced research visibility, and slower career advancement.

4. **Stigma around flexibility and caregiving leave:** Researchers who take caregiving leave or seek flexible schedules are often viewed as less committed. This can affect promotions, leadership opportunities, and professional recognition.

5. **Institutional culture and burnout:** Many academic institutions continue to follow a "publish or perish" culture shaped by rigid and patriarchal expectations. Managing multiple responsibilities increases stress, emotional pressure, and burnout among researchers.

6. **Blurring of work-life boundaries:** Flexible work arrangements, including work from home, often extend research work into nights and weekends. This weakens the separation between personal and professional life.

7. **Challenges for students and early-career researchers:** Graduate students and early-career researchers with family responsibilities often remain outside formal institutional support systems. Intensive caregiving duties can affect their academic performance and research continuity.

Legislative Gaps and Unequal Caregiving Frameworks

1. **Limits of the Maternity Benefit Act:** The Maternity Benefit (Amendment) Act, 2017 increased paid maternity leave to 26 weeks and introduced crèche facilities in larger establishments. However, many women researchers work through fellowships or contractual positions that may not fully fall under its protection.

2. **Weak reintegration support after childbirth:** Women returning after maternity leave often face disrupted laboratory work, changed collaborations, and grant timeline mismatches. Institutions rarely provide formal support for smooth re-entry into research.

3. **Absence of statutory paternity leave:** India has no central law on paternity leave. Central government employees receive only 15 days leave under administrative rules, while grant-funded researchers have no comparable provision.

4. **Unequal caregiving assumptions:** Strong maternity support combined with weak paternity provisions reinforces the idea that caregiving is mainly a woman's responsibility. This has influenced the design of women-specific age relaxation policies.

Need and Justification for Age Relaxation in Research Grants

1. **Data showing underrepresentation of women:** The All India Survey on Higher Education (2021-22) showed that women formed only 43% of nearly 16 lakh faculty members, while men accounted for 57%. Women remain especially underrepresented in science and technology institutions.

2. **Lower grant participation and success rates:** The Science and Engineering Research Board (SERB) has reported lower application and success rates among women researchers.

3. **Age relaxation as corrective support:** Age relaxation helps women who lose research years due to caregiving responsibilities. It acts as partial compensation for structural disadvantage rather than special privilege.

4. **Judicial support for substantive equality:** In Vijay Lakshmi vs Punjab University and Others (2003), the Supreme Court recognised that special measures for women are valid when they address real disadvantages. The judgment supported substantive equality rather than only formal equality.

Limitations of Existing Policies

1. **Limited focus on eligibility alone:** Policies such as SERB age relaxation mainly extend eligibility periods for grants. They do not improve the everyday research environment.

2. **Lack of childcare and institutional support:** Existing provisions do not adequately support childcare during proposal writing, maternity-related workload adjustments, or research continuity after career breaks.

3. **Exclusion of other caregivers:** Current policies do not recognise caregivers such as single fathers or researchers caring for elderly or ill family members. Their career disruptions also remain largely invisible.

4. **Need to retain women-specific protection:** Unequal caregiving burdens in Indian academia still justify women-focused support. Expanding caregiving support should not weaken protections already available to women researchers.

Way Forward

1. **Need for flexible funding policies:** Research funding agencies should provide no-cost grant extensions for documented caregiving periods and flexible milestone reporting systems.

2. **Support for re-entry into research:** Women returning after career breaks need re-entry fellowships and institutional assistance to rebuild research continuity.

3. **Role of NEP 2020:** The National Education Policy 2020 supports institutional flexibility and faculty wellbeing, but these ideas have not yet become binding funding policies.

4. **Balanced caregiving framework:** European research councils show that gender-neutral caregiving support can work alongside women-specific provisions to improve fairness without removing protections for women.

Conclusion

Gender-based age relaxation in research funding addresses a real and persistent structural disadvantage faced by women researchers. However, equal opportunity in academia requires more than extended eligibility limits. Stronger caregiving support, flexible funding systems, maternity reintegration measures, and institutional reforms are necessary to create a fair research environment that allows women to sustain long-term academic careers with dignity and equal participation.

Question for practice:

Evaluate the constitutional validity and policy effectiveness of gender-based age relaxation in Indian research funding in addressing caregiving-related inequalities faced by women researchers.
Source: The Hindu

Strategic Spark in India–South Korea Defence Ties

UPSC Syllabus: Gs Paper 2- International relations

Introduction

The recent high-level visits between India and South Korea reflect the growing depth of their defence partnership. What began as limited defence engagement has expanded into defence manufacturing, technology transfer, military modernisation, innovation, and strategic coordination. The partnership is now becoming important for Indo-Pacific stability and regional security cooperation. Both countries are increasingly trying to move beyond defence trade toward a broader strategic partnership based on shared security interests, geopolitical stability, and long-term industrial cooperation.

Expanding Areas of Defence Collaboration

1. **From Limited Ties to Strategic Partnership:** India–South Korea defence relations have evolved from limited engagement into a multidimensional partnership covering defence production, military modernisation, and technology transfer. The 2015 Special Strategic Partnership and the 2020 Defence Cooperation Roadmap strengthened institutional defence cooperation.

2. **K9 Vajra-T as the Flagship Project:** The K9 Vajra-T programme under the 'Make in India' initiative became the biggest symbol of bilateral defence cooperation. It expanded localisation, technology transfer, and defence manufacturing cooperation.

3. **Submarine and Naval Cooperation:** Submarine collaboration has become an important focus area due to South Korea's expertise in lithium-ion batteries, conventional submarines, and air-independent propulsion systems. Cooperation is also expanding in destroyers, logistics vessels, submarine support systems, smart shipyards, and naval propulsion technologies.

4. **Aerospace and Fighter Technologies:** South Korea's aerospace sector has opened new opportunities for cooperation through the KF-21 fighter programme and FA-50 light combat aircraft. Collaboration is growing in fighter technologies, engines, avionics, missile integration, and maintenance systems.

5. **Defence Manufacturing and Joint Ventures:** Indian and Korean defence firms are exploring joint ventures and industrial partnerships across many sectors. Discussions are progressing in light tanks, utility helicopters, future combat vehicles, military lithium batteries, and defence electronics.

6. **Maritime and Shipbuilding Cooperation:** South Korea's strong shipbuilding industry can support India's maritime ambitions in the Indo-Pacific. Cooperation is increasing in shipbuilding, maritime logistics, port development, and shipyard infrastructure.

7. **Expansion into Air Defence and UAV Systems:** India and South Korea are trying to extend the K9 Vajra production model into air defence systems. India is also reconsidering localisation of the K30 Biho anti-aircraft system, while India's growing drone sector is creating opportunities in UAV production.

Shift Towards Innovation-Driven Partnership

1. **Building Defence Innovation Ecosystems:** The partnership is promoting closer links between startups, universities, research institutions, incubators, industries, and investors. This approach aims to strengthen joint innovation and defence technology development.

2. **Launch of KIND-X:** The proposed Korea-India Defence Accelerator (KIND-X) reflects the future-oriented direction of bilateral defence ties. It seeks to create a structured platform for defence innovation and industrial cooperation.

3. **Cooperation in Emerging Technologies:** The partnership is expanding into areas such as Artificial Intelligence-based military systems, autonomous technologies, robotics, surveillance systems, semiconductors, satellites, and defence manufacturing technologies.

4. **Strengthening Co-development and Industrial Partnerships:** Indian and Korean firms are increasing cooperation through joint ventures, co-development, and industrial partnerships across defence sectors.

Strategic Importance in the Indo-Pacific

1. **Strengthening Indo-Pacific Cooperation:** India and South Korea support a free, open, and rules-based Indo-Pacific region. Their growing defence cooperation is improving coordination on regional security and geopolitical stability.

2. **Military Coordination and Interoperability:** Military exchanges, naval exercises, coast guard cooperation, and defence dialogues are increasing interoperability and mutual trust. The partnership is also improving compatibility with systems used by the United States, Japan, and European partners.

3. **Diversification of India's Defence Supply Chains:** India is using cooperation with South Korea to reduce dependence on Russian defence platforms. Localisation and technology transfer are helping India build alternative military supply chains.

4. **Economic and Strategic Benefits for Both Countries:** South Korea offers advanced technology and manufacturing expertise to India. India provides a large market, strategic geography, industrial corridors, and long-term economic opportunities for Korean defence industries.

Emerging Security Challenges Around South Korea

1. **North Korean Security Threats:** North Korea's growing missile and nuclear capabilities remain a major threat for South Korea. Expanding Russia–North Korea military cooperation is also changing the security structure of Northeast Asia.

2. **China's Growing Naval Assertiveness:** China's naval activities around the Korean Peninsula and the South China Sea have increased strategic concerns for South Korea. A large share of South Korea's energy imports and maritime trade passes through these waters.

3. **Internal Structural Challenges in South Korea:** South Korea is facing a declining demographic profile and a shrinking military recruitment pool. These problems are weakening the long-term sustainability of its conventional defence posture.

4. **Challenges in Defence Industrial Cooperation:** Co-development and co-production require solutions related to export regulations, intellectual property rights, licensing systems, funding structures, and defence financing mechanisms. Supply chain integration and certification standards also need coordination.

Way Forward

1. **Strategic Convergence:** India and South Korea must move beyond defence-industrial cooperation because limiting the partnership only to defence trade and manufacturing can weaken long-term strategic cooperation in the Indo-Pacific.

2. **Defence Roadmap:** Both countries should create a long-term and forward-looking defence roadmap to address emerging regional security threats and strengthen strategic coordination across the Indo-Pacific.

3. **Strategic Stability:** India must recognise that deeper defence cooperation depends on South Korea's security, stability, and strategic resilience. Supporting South Korea's ability to manage security challenges should become an important part of the partnership.

4. **Defence Dialogues:** Defence dialogues, foreign policy coordination, and proposed 2+2 frameworks can strengthen institutional security cooperation and improve long-term strategic coordination.

5. **Institutional Coordination:** Long-term defence cooperation requires practical implementation, continuous policy support, industrial participation, and strong coordination among governments, industries, startups, universities, and research institutions.

6. **Policy Continuity:** Long-term defence cooperation requires sustained policy support, regular strategic engagement, and continuous institutional coordination between both countries.

Conclusion

India–South Korea defence ties are moving beyond defence trade toward a broader strategic partnership based on innovation, security cooperation, and Indo-Pacific stability. Rising geopolitical challenges are pushing both countries toward deeper strategic coordination. A strong institutional framework, long-term defence roadmap, and sustained policy cooperation can help both countries build one of Asia's most important defence partnerships.

Source: The Hindu

India's EV ambition needs a grid strategy to match

Source: The post **"India's EV ambition needs a grid strategy to match"** has been created, based on **"India's EV ambition needs a grid strategy to match"** published in **"The Hindu"** on **20th May 2026.**

UPSC Syllabus: GS Paper-3- Science and technology

Context: India is rapidly moving towards electric vehicle (EV) adoption because of rising fuel prices, lower commuting costs, and government incentives. However, the success of EV transition depends not only on vehicle manufacturing but also on the strength and preparedness of the electricity grid. Large-scale transport electrification will significantly increase electricity demand and create pressure on existing power infrastructure.

Challenges posed by large-scale EV adoption

1. Huge increase in electricity demand

a. India has nearly 420 million registered vehicles.
b. Full electrification of vehicles may require an additional 900–1,100 TWh of electricity annually by 2047.
c. This demand is almost equal to one-third of India's current annual electricity generation.

2. Freight transport will consume massive power

a. Electrification of Heavy Goods Vehicles (HGVs) alone may require 450–565 TWh of electricity every year.
b. Medium Goods Vehicles (MGVs) and buses will further increase electricity demand.
c. Freight transport therefore creates very high energy intensity for the power sector.

3. Stress on peak electricity demand

a. Most EV users are likely to charge vehicles during evening peak hours.
b. Simultaneous charging by millions of vehicles can overload the grid.
c. This may lead to grid instability, supply disruptions, and higher electricity tariffs.

4. Inadequate charging infrastructure

a. High-tension electricity connections for charging depots face long delays.
b. Existing charging infrastructure is insufficient for large-scale EV adoption.
c. Distribution infrastructure in many areas is not designed to handle such heavy loads.

5. **Financial stress of DISCOMs**

a. Distribution companies (DISCOMs) are already burdened with financial losses.
b. They may find it difficult to invest in grid upgrades and charging infrastructure.
c. Weak DISCOM finances can slow down EV transition.

6. Lack of smart charging systems

a. India does not yet have a national standard for smart EV charging systems.
b. Many existing chargers cannot respond to grid signals or demand conditions.
c. Delayed adoption of smart charging may increase future retrofitting costs.

7. Continued dependence on coal

a. If rising electricity demand is met mainly through coal, EVs may not significantly reduce emissions.
b. Increased coal use may also increase import dependence on foreign countries.
c. This can weaken the environmental benefits of EV adoption.

8. Battery recycling challenge

a. Millions of EV batteries will eventually reach end-of-life.
b. India currently lacks adequate battery recycling infrastructure at scale.
c. Poor recycling systems can create a future waste-management crisis.

Measures needed for sustainable EV transition

1. Integrate EV demand into power planning

a. EV-related electricity demand should be included in long-term energy planning.

b. The government should model future demand for different levels of fleet electrification.

2. Expand and modernize grid infrastructure

a. Transmission and distribution systems should be upgraded before large-scale EV adoption.
b. Power infrastructure must be strengthened to manage additional loads efficiently.

3. Promote smart charging mechanisms

a. Smart charging systems should be made mandatory for new charging stations.
b. Time-of-use pricing can encourage charging during non-peak hours.
c. Workplace charging during daytime can better utilize solar power.

4. Ensure diversified clean energy mix

a. Solar and wind energy should be expanded to support EV charging demand.
b. Hydro power, batteries, and gas-based plants can help manage variability and peak demand.
c. Small modular nuclear reactors can provide reliable low-carbon baseload power.

5. Improve DISCOM finances

a. Financial reforms should strengthen the capacity of DISCOMs.
b. Government schemes such as RDSS should include EV-readiness benchmarks.

6. Develop corridor-based charging planning

a. Freight corridors and highways should have integrated charging and power infrastructure.
b. Charging networks should be developed before commercial-scale electric truck adoption.

7. Build battery recycling ecosystem

a. India should establish large-scale battery recycling and reuse infrastructure.
b. Circular economy practices can reduce environmental risks and resource dependence.

Conclusion: India's EV transition is necessary for clean mobility and energy security. However, the transition can succeed only if it is supported by a strong, reliable, and sustainable electricity grid. Therefore, coordinated planning in power generation, smart charging, renewable energy integration, and battery recycling is essential for building a sustainable EV ecosystem in India.

Question: "India's transition towards electric vehicles (EVs) requires a matching grid strategy." Discuss the challenges posed by large-scale EV adoption to India's electricity infrastructure. Also suggest measures needed for a sustainable EV transition.

Source: The Hindu

When the learning crisis is bigger than the enrolment crisis

Source: The post **"When the learning crisis is bigger than the enrolment crisis"** has been created, based on **"When the learning crisis is bigger than the enrolment crisis"** published in **"Indian Express"** on **20th May 2026.**

UPSC Syllabus: GS Paper-2-Governance

Context: India has achieved substantial progress in universalising enrolment at the primary level through the Right to Education (RTE) Act and various welfare schemes. However, recent concerns raised by NITI Aayog show that weak learning outcomes and rising school disengagement, especially among adolescents, have emerged as serious challenges for the education system.

Major Issues in School Education

1. High Number of Out-of-School Children

a. A significant proportion of children between the age group of 6–17 years remain out of school despite improvements in enrolment.
b. The problem is more severe in rural areas and among Scheduled Castes, Scheduled Tribes, Muslims and girls.
c. States such as Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan account for a large share of out-of-school children.
d. Many boys discontinue education at an early age because they are expected to contribute to family income.

2. Weak Learning Outcomes

a. Universal enrolment has not resulted in meaningful learning outcomes among students.
b. Many children and parents become disillusioned with the education system because schools fail to meet their aspirations.
c. Students often lose interest in studies due to discouraging school experiences and poor quality of teaching.
d. The learning crisis has weakened the benefits achieved through expansion of school access.

3. Greater Crisis at Secondary and Higher Secondary Levels

a. Policy attention has largely focused on children aged 6–14 years because of obligations under the RTE Act.
b. However, the dropout problem is more serious among children aged 15–17 years.
c. The lack of adequate secondary and higher secondary schools discourages continuation of education beyond the upper-primary level.

Reasons Behind the Crisis
1. Socio-Economic Challenges

a. Poverty forces many children to enter the labour force instead of continuing education.
b. Migration and homelessness disrupt continuity in schooling for many children.

c. Girls face gender-based barriers that limit their educational opportunities.
d. Children with disabilities and those living in remote or conflict-affected regions face additional exclusion.

2. School-Side Deficiencies

a. Long distances to secondary schools discourage regular attendance, especially among girls.
b. Safety concerns prevent many girls from continuing education after upper-primary level.
c. Poor infrastructure and dysfunctional WASH facilities negatively affect the school environment.
d. Language barriers create difficulties for many students in understanding classroom instruction.
e. The absence of a supportive and child-friendly learning environment contributes to student disengagement.

3. Administrative and Governance Barriers

a. Migrant and homeless children often face denial of admission in schools.
b. Schools frequently delay or refuse transfer certificates, which interrupts education.
c. Welfare-linked entitlements are not easily portable across states for migrant families.
d. Non-recognition of caste certificates from other states creates additional difficulties for disadvantaged children.

4. Limited Impact of Incentive Schemes

a. Incentives such as uniforms, books and mid-day meals are insufficient to address deeper structural problems.
b. Such schemes do not adequately resolve issues related to poor learning quality and lack of aspiration fulfilment.

5. Weak Implementation of Technology-Based Tracking

a. Initiatives such as the PRABANDH portal and SHARDA portal have improved identification and monitoring of out-of-school children.
b. However, weak implementation and inadequate coordination with communities reduce their effectiveness.

Measures Needed

1. Improve Learning Outcomes

a. The education system must focus on improving conceptual understanding and foundational learning among students.
b. Teachers should receive better training to create engaging and inclusive classrooms.
c. Schools should provide a child-friendly environment that encourages curiosity and participation.

2. Strengthen Secondary Education

a. The government should establish more secondary and higher secondary schools in underserved regions.
b. Safe transportation and hostel facilities should be provided for girls to reduce dropout rates.

3. Address Needs of Vulnerable Groups

a. Special strategies should be developed for migrant, homeless and disabled children.
b. Welfare benefits and educational entitlements should be made portable across states.
c. Flexible schooling models should be introduced for children in difficult circumstances.

4. Reform Governance and Administration

a. Admission procedures should be simplified for vulnerable children.
b. Schools should be given greater autonomy to address local educational challenges.
c. Administrative barriers related to transfer certificates and documentation should be removed.

5. Strengthen Community Participation and Technology Integration

a. Technology-based tracking systems should be integrated with community-level interventions.
b. Local communities should actively participate in identifying and supporting out-of-school children.
c. Successful models such as Nagaland's Communitisation Act should be replicated in other states.

6. Increase Focus on Adolescents

a. Education policies should give greater importance to children above 14 years of age.
b. Efforts should align with the goals of NEP 2020, SDG-4 and Viksit Bharat 2047.

Conclusion: India's education challenge is no longer limited to ensuring enrolment but also involves guaranteeing meaningful learning and retention. The coexistence of high educational aspirations with growing dissatisfaction from schooling reflects a deeper structural learning crisis. A holistic and inclusive approach focusing on quality education, better governance and support for vulnerable children is essential for achieving the goals of NEP 2020 and building a developed India by 2047.

Question: The learning crisis in India is deeper than the enrolment crisis." Discuss the major reasons behind the persistence of out-of-school children and weak learning outcomes in India. Suggest measures to address the issue.

Source: Indian Express

Great-power competition demands a first-principles foreign policy

UPSC Syllabus: Gs Paper 2- International relation

Introduction

The changing relations among the US, China, and Russia are reshaping India's strategic environment. The growing China-Russia partnership and changing US-China ties have revived debates over India's foreign policy choices. However, the central challenge for India is not every shift in great-power relations, but the long-term consequences of China's rise. This requires a foreign policy based on strategic realism, national interests, internal strengthening, and practical external partnerships.

China's Rise as India's Central Strategic Challenge

1. **Changing Eurasian Balance:** Russia was once seen as a balancing power against China in Eurasia. However, over the last 25 years, Russia has moved much closer to China, especially after the Ukraine war in 2022, which increased Moscow's dependence on Beijing.

2. **China's Expanding Power:** Since the 1980s, China's economic, military, and technological power has grown rapidly against all major powers. This rise has directly affected India's strategic environment.

3. **Border and Regional Pressure:** India faces a long disputed and tension-prone border with China. Beijing is also expanding its influence in India's neighbourhood and increasing its presence in global institutions.

4. **Growing Economic Dependence:** India's trade deficit with China is now above $110 billion. This reflects India's deep dependence on Chinese manufactured goods.

5. **Managing Global Power Shifts:** Relations among the US, China, and Russia have repeatedly changed since World War II. India therefore cannot react emotionally to every shift in great-power relations and must instead focus on long-term national interests.

India's Need for Internal Strengthening

1. **Modernisation as the Main Response:** India cannot control wars, global crises, or changes in great-power relations. What India can control is its own economic and technological modernisation.

2. **Uneven Reform Process:** India performed well after the economic reforms of the early 1990s, but the pace and scope of reforms remained uneven. This has widened the gap between India and China.

3. **Widening Capability Gap:** China's economy is now nearly five times larger than India's. The gap is also increasing in higher education, research and development, technology, and military capability.

4. **Self-Strengthening Remains Essential:** India may not close the gap with China quickly, but stronger domestic capacity can reduce the effects of the power imbalance. Long-term national strength remains the foundation of foreign policy.

Importance of Partnerships with the West

1. **External Cooperation Supports National Growth:** Like China, India has increasingly depended on the West for capital, export markets, technology, and regional security support. Engagement with the US and Europe has expanded rapidly since the 1990s.

2. **Importance of the United States:** The US remains India's largest export market, a major source of technology, and home to an influential Indian diaspora. Despite concerns about American reliability, the US is not the source of India's territorial challenges.

3. **Europe's Growing Strategic Importance:** India exports more goods to the Netherlands, a country with a population of only 19 million, than to China and Russia combined. This highlights the growing importance of Europe in India's economic relations.

4. **Correcting Strategic Imbalance:** Indian strategic thinking long gave greater importance to Russia than to European partners. India is now gradually correcting this imbalance by expanding ties with Europe.

5. **Economic Reality Driving Policy:** India fought to preserve its trade relationship with the US, pushed for a trade deal with the European Union, and increased technology cooperation with both the US and Europe in recent years.

Reassessment of Strategic Autonomy and the Quad

1. **Suspicion Towards the West:** For decades, many political groups in India viewed the US and the West with suspicion. Both anti-imperialist and nationalist thinking often supported limiting deeper cooperation with Western countries.

2. **Strategic Autonomy and Its Political Meaning:** The idea of "strategic autonomy" was presented as a neutral foreign policy approach. In practice, it often meant maintaining distance from the US and Europe while favouring closer engagement with Russia and China through bilateral, trilateral, and multilateral forums.

3. **Changed Strategic Reality:** This approach now faces a major problem because China has become India's main strategic challenge, while Russia has become China's closest partner.

4. **Quad and Multipolar Asia:** The revival of the Quad was linked to the need for a multipolar Asia amid rising challenges from China. Cooperation with Quad partners is part of India's broader balancing strategy.

5. **Debate Over the Quad:** Some voices in India argued that the Quad would trap India in an anti-China military alliance. The same groups now fear that the US may abandon India. However, India has continued active consultations with Quad partners.

6. **Continuing Strategic Relevance:** One diplomatic visit or improvement in US-China relations does not reduce the importance of the Quad. India continues to see value in sustained engagement with its Quad partners.

Conclusion

India's foreign policy must remain rooted in national interests and strategic realism. The real challenge is managing the consequences of China's rise rather than reacting to every shift in global power relations. Faster domestic modernisation, stronger partnerships with the West, and sustained engagement through platforms like the Quad can help India strengthen its long-term strategic position.

Question for practice:

Examine how the rise of China and changing great-power relations are reshaping India's foreign policy priorities and strategic partnerships.

Source: Indian Express

Empowering Local Governments for Innovation and Growth

UPSC Syllabus: Gs Paper 2- issues and challenges pertaining to the federal structure, devolution of powers and finances up to local levels and challenges
therein.

Introduction

India's federalism debate mainly revolves around the Centre and states, while urban local bodies (ULBs) remain neglected despite the **73rd and 74th Constitutional Amendments**. Weak finances, limited administrative powers, and excessive dependence on state governments have reduced the effectiveness of local governance. As India urbanises rapidly, weak urban institutions are creating serious challenges in public service delivery, infrastructure development, accountability, innovation, and sustainable economic growth, making stronger urban governance an urgent necessity.

Major Problems of Urban Local Bodies in India

1. **Weak Position in Indian Federalism:** Urban local bodies remain the weakest tier in India's federal structure. State governments continue to dominate and control local governments despite constitutional recognition.

2. **Poor Administrative Capacity:** In the United States and China, nearly two-thirds of government employees work under local governments. In India, only slightly above 10% of government employees work under local bodies, reducing their service delivery capacity.

3. **Low Financial Strength:** The share of ULBs in tax generation has remained stagnant at only 0.3% of GDP. Their total expenditure remains below 1% of GDP, while states and the Centre spend nearly 15 and 20 times more respectively.

4. **Excessive Dependence on States:** Weak own tax collection forces ULBs to depend heavily on external funds. This dependence reduces their autonomy and strengthens state control over urban governance.

5. **Limited Functional Authority of ULBs:** Out of the **18 functions** listed under the **12th Schedule**, urban local bodies exercise complete autonomy over only a few basic functions such as **street lighting, burial grounds, prevention of cruelty to animals, and slaughterhouse regulation**. Most important urban functions continue to remain under state government control.

Structural Causes Behind the Weakness of Urban Governance

1. **Failure to Monetise Rising Land Values:** Rapid economic growth increased land and property values in both India and China. However, India failed to convert this rise into strong public revenues for cities.

2. **Stagnant Land Revenues:** China increased land revenues from below 1% of GDP to more than 10% during its growth phase. India's land revenues remained stagnant at nearly 1% of GDP throughout the same period.

3. **Weak Public Use of Land Resources:** Several state-controlled entities possessed vacant or encroached land, but large-scale monetisation never happened. India lacked both the political will and institutional ability to use land as a fiscal resource.

4. **Distorted Land and Rental Markets:** Laws such as the Urban Land Ceiling Act, 1976 fragmented land holdings and distorted urban land markets. Land use controls and building by-laws further encouraged rent-seeking and black money in the real estate sector.

5. **Political Economy Trap of ULBs:** Higher levels of government use financial devolution to control lower levels. At the same time, local bodies remain unable or unwilling to tax citizens effectively, creating chronic financial weakness and dependency.

6. **Lack of Administrative Autonomy:** City governments cannot independently appoint municipal commissioners or senior staff. Even when functions are transferred to local bodies, staff accountability largely remains with state governments.

Impact of Weak Urban Governance on Growth and Innovation

1. **Weak Public Service Delivery:** Low manpower and poor finances reduce the ability of ULBs to deliver urban services efficiently. This weakens governance in rapidly growing cities.

2. **Unsustainable Urban Development:** Poorly prepared urban governance has contributed to infrastructure gaps, housing shortages, and growing socioeconomic inequalities. This has created socially, economically, and environmentally unsustainable urban conditions.

3. **Weak Citizen Participation and Accountability:** Limited public consultation, weak transparency, and poor community participation reduce accountability in urban governance. Fragmented responsibilities and weak institutional coordination make ULBs less responsive to citizens.

4. **Urban Problems Affecting Economic Growth:** Poor governance has contributed to problems like pollution in Delhi and severe congestion in Bengaluru. These urban weaknesses are slowing innovation and economic dynamism.

5. **Limited Competition Among Indian Cities:** Weak city governance reduces healthy competition among cities. This limits industrial growth and reduces the ability of cities to attract investment and talent.

6. **Contrast with China's Urban Growth Model:** China's industrial growth was strongly supported by competition among cities. Many industrial policies in China are designed and implemented at the city level rather than only by national authorities.

7. **Rise of Alternative Urban Centres:** Growing problems in major metros are pushing people and investors towards second and third-tier cities such as Bhubaneswar, Coimbatore, Indore, Kochi, Mohali, and Surat. These cities are emerging as new centres of growth.

8. **Weak Decentralisation as a Development Barrier**: Urban local bodies continue to function mainly as civic service agencies instead of empowered self-governments. Weak decentralisation limits India's ability to manage urbanisation and sustain long-term inclusive growth.

Government Efforts to Strengthen Urban Local Bodies

1. **Constitutional Backing Through the 74th Amendment:** The 74th Constitutional Amendment Act, 1992 aimed to improve the functioning of urban local bodies by transferring responsibilities from states to ULBs. It also focused on public participation and strengthening local governance capacity.

2. **Central Urban Development Missions:** Programmes such as the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and Atal Mission for Rejuvenation and Urban Transformation (AMRUT) increased financial support for cities. These schemes linked funding with structural reforms in urban governance.

3. **Greater Financial Support to Local Bodies:** Successive Finance Commissions increased financial transfers to the third tier of government. This provided additional resources to urban local bodies, although the funds still remain far below actual urban requirements.

4. **Focus on Administrative and Municipal Reforms:** JNNURM encouraged states to create separate municipal administration cadres. AMRUT further included professionalisation of municipal cadres among its major reform conditions.

5. **Model Laws and Governance Frameworks:** The Central government introduced reforms through measures such as the Model Municipal Law, Model Tenancy Act, and Model Building By-Laws. These reforms aimed to improve urban planning, governance standards, and accountability.

6. **Efforts to Improve Citizen Participation:** The Model Community Participation Law (CPL) and Model Public Discourse Law (PDL) were introduced to strengthen citizen engagement, transparency, public consultations, and social audits in urban governance.

7. **Promotion of Digital and Participatory Governance:** The government promoted platforms such as MyGov, Swachhata, and National e-Governance Plan (NeGP) to improve citizen participation and transparency. Suggestions such as digitisation of council proceedings and open-data systems were also emphasised.

8. **Limited Impact of Reforms:** Despite several reforms and urban missions, governance improvements remain limited. Weak technical capacity, excessive state control, and top-down implementation continue to restrict effective urban self-governance.

The Way Forward

1. **Full Implementation of the 74th Constitutional Amendment:** States need to transfer functions, funds, and functionaries to ULBs in both letter and spirit. Local governments must function as real institutions of self-governance rather than only civic agencies.

2. **Need for Competitive Sub-Federalism:** Federalism debates must move beyond Centre-state relations and include stronger city governments. Greater competition among cities can improve governance, innovation, and economic performance.

3. **Strengthening Urban Autonomy:** Urban local bodies require greater financial, administrative, and managerial independence. Stronger local decision-making can improve accountability and service delivery.

4. **Supporting Emerging Cities:** Second and third-tier cities need policy and financial support to become future centres of growth. Balanced urban development can reduce pressure on major metropolitan cities.

5. **Rising Importance of Urban Population:** Increasing urbanisation and future intra-state delimitation may give greater political importance to urban voters. This can strengthen demands for better urban governance and decentralisation.

6. **Promoting Digital and Open Urban Governance**: Digitisation, open-data systems, live-streaming of council proceedings, and technology-enabled citizen platforms can strengthen transparency and public participation. These measures can improve communication between citizens and urban authorities.

7. **Strengthening Centre-State Coordination:** The Centre and states need stronger coordination, monitoring mechanisms, transparent audits, and institutional reforms to ensure effective implementation of urban governance reforms.

Conclusion

India's urban future depends on empowered and accountable local governments. Weak autonomy, financial dependence, and excessive state control have reduced the ability of cities to support efficient governance and economic dynamism. Strengthening urban local bodies through genuine decentralisation, stronger institutional capacity, and better financial empowerment is essential for managing rapid urbanisation and sustaining long-term growth.

Question for practice:

Evaluate the major challenges faced by Urban Local Bodies in India and examine how weak urban governance affects innovation, economic growth, and effective urbanisation.

Source: Indian Express

India-US Nuclear Cooperation and the Future of SMRs

Source: The post "India-US Nuclear Cooperation and the Future of SMRs" has been created, based on "India's pitch to US nuclear mission: Scale up capacity, small modular reactors key" published in "Indian Express" on 21st May 2026.

UPSC Syllabus: GS Paper-2- Governance

Context: India and the United States are strengthening cooperation in the civil nuclear energy sector after the passage of the SHANTI Act, 2025. India aims to increase nuclear power generation to improve energy security and clean energy capacity. Small Modular Reactors (SMRs) are emerging as a major area of cooperation between India and the United States.

India–US Nuclear Cooperation

1. Strengthening Strategic Partnership

a. A high-level American nuclear industry delegation recently visited India to explore opportunities in the nuclear sector.
b. The United States has expressed strong interest in participating in India's expanding nuclear energy programme.

2. Technology Transfer and Regulatory Cooperation

a. Several American nuclear companies have received special authorisations under "10CFR810" regulations.
b. These authorisations allow the transfer of nuclear technology to Indian entities under specific conditions.
c. This step has improved technological cooperation between the two countries.

Role of the SHANTI Act, 2025

a. The SHANTI Act, 2025 opened India's nuclear sector to private participation for the first time.
b. The Act allowed private players to participate in plant operations and fuel management activities.
c. The reforms created a favourable environment for foreign investment and international collaboration.

Future of Small Modular Reactors (SMRs)
Importance of SMRs

1. Small Modular Reactors are compact nuclear reactors with lower power generation capacity than conventional reactors.
2. SMRs are designed for modular manufacturing and gradual deployment.
3. SMRs are increasingly considered commercially competitive in the global nuclear energy market.

Benefits of SMRs for India

1. Lower Capital Costs: SMRs require lower initial investment compared to large Light Water Reactors (LWRs). Lower project costs can reduce the burden of high electricity tariffs.

2. Flexible Deployment: SMRs can be installed gradually according to regional energy demand. They are suitable for remote areas and industrial clusters.

3. Energy Security: SMRs can strengthen India's base-load electricity generation capacity. They can support India's transition towards clean and reliable energy sources.

4. Manufacturing Opportunities: India aims to enter the global manufacturing value chain of SMRs.Foreign collaboration can help India develop advanced manufacturing capabilities.

Challenges in India–US Nuclear Cooperation
1. High Cost of Conventional Nuclear Projects

a. Imported Light Water Reactors involve very high project costs.

b. High capital expenditure increases the final cost of electricity generation.

2. Liability Concerns

a. Earlier liability provisions had discouraged foreign nuclear suppliers from investing in India.
b. The SHANTI Act diluted supplier liability provisions, leading to criticism from the Opposition.

3. Safety and Regulatory Concerns

a. Nuclear energy projects require strict safety standards and effective regulation.
b. Increased private participation may raise concerns regarding accountability and safety oversight.

4. Protection of Indigenous Technology

a. India wants to ensure that foreign collaboration does not weaken its indigenous PHWR technology.
b. The government continues to prioritise domestic reactor design and manufacturing capabilities.

Conclusion: India–US nuclear cooperation is entering a new phase with greater private participation and foreign investment opportunities. Small Modular Reactors offer significant potential for clean energy generation, technological advancement, and industrial growth. However, India must balance foreign collaboration with safety concerns, affordability, and protection of indigenous nuclear capabilities.

Question: "India–US nuclear cooperation has gained new momentum after the passage of the SHANTI Act, 2025." Discuss the significance of Small Modular Reactors (SMRs) in India's nuclear energy strategy. Also examine the challenges associated with foreign collaboration and private participation in the nuclear sector.

Source: Indian Express

Measure for measure: On India's courts and criticism

Source: The post "Measure for measure: On India's courts and criticism" has been created, based on "Measure for measure: On India's courts and criticism" published in "The Hindu" on 21st May 2026.

UPSC Syllabus: GS Paper-2- Governance

Context: The issue of criminal contempt has come under debate due to concerns that courts may react excessively to criticism. Critics argue that frequent use of contempt powers may discourage free speech and public scrutiny of the judiciary. At the same time, courts maintain that contempt powers are necessary to protect the authority and dignity of the judicial system.

Concerns Regarding Excessive Use of Contempt Powers
1. Impact on Freedom of Speech

a. Excessive use of contempt proceedings may discourage citizens from openly criticising judicial functioning.
b. Fear of legal action can create a chilling effect on democratic discussion and public debate.
c. Public criticism of institutions is an important feature of democracy and accountability.

2. Declining Public Trust Cannot Be Addressed Through Punishment Alone

a. Public trust in institutions cannot be restored only through legal sanctions.
b. Trust develops through transparency, accountability, and efficient functioning of institutions.
c. Using contempt powers frequently may create the impression that courts are intolerant of criticism.

Difference Between Defamation and Contempt

- Criticism of judges should not automatically be treated as contempt of court.
- Defamation laws already exist to address false and malicious personal allegations.
- Criminal contempt should be used only when criticism genuinely obstructs the administration of justice.

Need for Judicial Accountability and Transparency
1. Accountability Strengthens Institutions

a. Independent institutions become stronger when they remain open to constructive criticism.
b. Transparency and responsiveness improve public confidence in the judiciary.

2. Balancing Dignity of Courts and Free Speech

a. Courts must protect their authority while also respecting democratic freedoms.
b. Genuine criticism made in public interest should not be discouraged.
c. Criminal contempt powers should be exercised cautiously and only in exceptional situations.

Conclusion: The judiciary plays a crucial role in protecting constitutional values and democratic governance. However, excessive reliance on criminal contempt proceedings may undermine freedom of expression and institutional accountability. A balanced approach is needed where judicial dignity is protected without suppressing legitimate criticism and democratic debate.

Question: The increasing use of contempt proceedings against criticism of the judiciary raises concerns regarding freedom of speech and judicial accountability. Discuss in the context of recent debates on criminal contempt in India.

Source: The Hindu

Analysing India's Budgets for Justice

UPSC Syllabus: Gs Paper 2- Governance And **Gs Paper 3**- Indian Economy and issues relating to planning, mobilisation, of resources,

Introduction

The Union Budget 2026–27 did not provide targeted funding to improve justice outcomes, reflecting the limited priority given to rule of law in governance and economic growth. A study of justice budgets across 11 high-GDP States shows that policing receives the largest share of expenditure, while judiciary, prisons, legal aid and oversight institutions remain underfunded. This uneven allocation raises concerns about fairness, accessibility and the overall effectiveness of India's justice delivery system.

Structure of India's Justice Expenditure

1. **Overall justice spending:** Across 11 high-GDP States such as Gujarat, Maharashtra, Karnataka and Uttar Pradesh, justice-related expenditure reached ₹2 lakh crore in 2024–25, forming 4.6% of State budgets on average.

2. **Per capita expenditure pattern:** India spends nearly ₹1,500 per capita on police, compared to ₹450 on judiciary, ₹150 on prisons, and only ₹9 on free legal aid. This reflects uneven distribution within the justice system.

3. **Policing receives the largest share:** The India Justice Report found that policing accounted for more than 80% of total justice allocations across the 11 States. Most of this expenditure is directed towards salaries, administration and infrastructure.

4. **Limited spending on quality improvement:** Less than 1.5% of police budgets is allocated for training, while around 1% goes to forensics. This leaves little support for improving investigation quality and institutional capacity.

Major Concerns Related to India's Justice Expenditure

1. **Rising burden on the judiciary:** Judiciary budgets remain below 1% of total State budgets despite increasing caseloads. Around 3,500 district courts handle seven times more cases than High Courts but receive only three times the budget.

2. **Inadequate judicial strength:** India has only 15 judges per 10 lakh population, much lower than the 1987 Law Commission recommendation of 50 judges per 10 lakh population. District courts also require large clerical and secretarial support for effective functioning.

3. **Weak prison conditions:** The 11 States hold 60% of India's prisoners and recorded 137% occupancy in 2023, higher than the national average of 131%. Prisons function with at least 30% vacancies.

4. **Neglect of prison training and reforms:** Prisons receive only 0.14% of State budgets. Out of every ₹100 spent on prisons, only ₹0.23 is spent on training, limiting rehabilitation and institutional improvement.

5. **Poor support for legal aid and oversight bodies:** Legal aid receives the lowest funding despite supporting low-income and marginalised groups. State Human Rights Commissions receive only 80 paisa per capita, and several operate with over 40% vacancies.

Systemic Imbalance and Its Consequences

1. **Enforcement-oriented justice structure:** The present budget structure gives greater importance to law-and-order capacity and surveillance. Areas linked to adjudication, rehabilitation and equal access receive lower attention.

2. **Weak support for essential justice institutions:** Judicial training, prison staff training, legal aid and independent oversight bodies remain among the least funded parts of the system. This weakens coordination across justice institutions.

3. **High arrests but weak remedy delivery:** The National Crime Records Bureau's Crime in India 2024 report recorded 26 lakh arrests, with most arrests involving socially and economically marginalised communities. The system shows stronger capacity in generating arrests than in ensuring remedies and protection.

4. **Declining accessibility and fairness:** Underinvestment in several justice institutions reduces timely access to legal support and efficient dispute resolution. This affects fairness and public confidence in the justice system.

Way Forward

1. **Reallocate expenditure towards the judiciary:** A larger share of State budgets should be directed towards the judiciary to improve justice delivery. Greater financial support is needed for court infrastructure and day-to-day functioning.

2. **Fill vacancies in courts and support staff:** India's low judge strength requires faster appointments in district courts and higher judiciary. More clerical and secretarial staff are also needed for smooth court functioning.

3. **Expand e-Courts digitisation:** Faster implementation of e-Courts digitisation can improve case management and reduce delays. Better digital infrastructure can also improve accessibility and efficiency.

4. **Increase funding for legal aid:** Central and State governments should expand grants to the National Legal Services Authority (NALSA) and related institutions. Better funding can improve legal representation for poor and marginalised groups.

5. **Strengthen prison infrastructure and staffing:** Prisons require higher investment to address overcrowding and staff shortages. Better staffing can improve prison administration and rehabilitation measures.

6. **Increase spending on training and forensics:** Police, judiciary and prison departments need greater investment in training. More resources should be directed towards forensics, technology and professional skill development.

7. **Promote human rights-based policing and prison management:** Training programmes should include human rights and accountability measures. This can improve fairness and reduce excessive dependence on enforcement-based approaches.

8. **Strengthen oversight institutions:** State Human Rights Commissions require adequate financial support and reduced vacancies. Stronger oversight bodies can improve accountability and rights protection.

9. **Adopt balanced and evidence-based budgeting:** Justice expenditure should support all pillars of the justice system instead of focusing mainly on policing. Balanced allocation can improve accessibility, fairness and institutional coordination.

Conclusion

India's justice budgets remain heavily focused on policing, while judiciary, prisons, legal aid and oversight institutions continue to face inadequate support. This imbalance weakens fairness, accessibility and institutional efficiency within the justice system. A more balanced and evidence-based allocation of resources is necessary to strengthen rule of law and ensure accessible and people-centred justice delivery.

Question for practice:

Examine how the present pattern of justice expenditure in India reflects systemic imbalance in the delivery of justice.
Source: The Hindu

Russia-China Strategic Convergence and Implications for India's Security

UPSC Syllabus: Gs Paper 2- International relation
Introduction

The deepening partnership between Russia and China is becoming an important factor in global geopolitics and regional stability. Recent visits by Vladimir Putin and Donald Trump to Beijing highlighted China's growing diplomatic influence. Russia seeks economic and strategic support from China, while both countries want stronger coordination against Western pressure. This strategic convergence is influencing the global balance of power and creating new security challenges for India.

Historical Evolution of Russia-China Relations

1. **Civilisational ties and border relations:** Russia and China have interacted for centuries as civilisational states and share a 4,300-km border. Their relations remained mostly peaceful despite some periods of tension.

2. **Legacy of unequal treaties:** China considers the treaties of Aigun (1858), Peking (1860), and Tarbagatai (1864) as unfair agreements imposed by foreign powers, including Russia. These treaties led to territorial losses for China.

3. **Communist cooperation after 1949:** The Communist Revolution in China brought Moscow and Beijing closer. Both countries signed the Treaty of Friendship in 1950 and initially shared ideological cooperation.

4. **Ideological differences and mistrust:** Differences emerged over socialist ideology, regional politics and global influence. Mao Zedong opposed Stalin's "socialism in one country" policy and criticised Soviet support to the Kuomintang, which was the main rival of the Communist Party of China.

5. **Sino-Soviet split and armed clashes:** China criticised Nikita Khrushchev's de-Stalinisation programme and Soviet refusal to share nuclear technology. These tensions resulted in the Sino-Soviet schism and armed clashes in 1969.

6. **US-China rapprochement and regional impact:** The Sino-Soviet split allowed the US to improve ties with China through Henry Kissinger's "ping-pong diplomacy" and Richard Nixon's 1972 Beijing visit. The emerging Washington-Beijing-Islamabad alignment weakened India's continental security.

7. **Revival after the Soviet collapse:** China's Jiang Zemin and Russia's Boris Yeltsin signed the Strategic Partnership Treaty in 1992. Relations gained new momentum under Putin and Xi Jinping, leading to the "no-limits partnership" in 2022.

Russia-China Strategic and Economic Convergence

1. **Strong political coordination:** Putin and Xi Jinping have met more than 40 times. Putin has visited China over 20 times, while Xi has visited Russia 11 times, showing sustained political engagement.

2. **Economic complementarity between both countries:** China dominates commerce, finance and technology, while Russia is strong in energy and defence exports. Russia needs Chinese markets and technology, while China depends on Russian energy supplies.

3. **Russia's growing dependence on China:** Western sanctions after the Ukraine war increased Russia's reliance on China. The Russian economy received major support from China after 2022.

4. **Expanding bilateral trade:** Russia's total trade reached about $700 billion in 2025, and trade with China alone stood at $228 billion or 32%. Russia exports crude oil, coal, gas, timber and agricultural products, while importing electronics, machinery, vehicles and telecom products.

5. **Chinese dominance in Russian technology markets:** Chinese automobile, telecom and electronic companies gained a major share in the Russian market after Western companies withdrew. Russian firms now rely heavily on Chinese semiconductors and industrial electronics.

6. **Cooperation in advanced sectors:** Both countries are cooperating in aerospace, satellite navigation, advanced materials and industrial artificial intelligence. This cooperation is deepening technological interdependence.

7. **Energy partnership through pipelines:** The 3,000-km Power of Siberia-1 pipeline reached full capacity in 2025. Work is also progressing on the 2,600-km Power of Siberia-2 pipeline connecting Yamal gas fields to China through Mongolia.

8. **Shift in Russian energy exports:** Before the Ukraine war, Russia mainly supplied gas to Europe. Western sanctions shifted Russian energy exports increasingly towards China.

9. **Growing de-dollarisation in trade:** Trade between Russia and China is increasingly conducted in yuan and ruble. This reflects efforts to reduce dependence on the US dollar.

Outcomes of the Putin-Xi Summit

1. **Expansion of bilateral agreements:** The summit produced a joint statement and more than 40 agreements in energy, transport, technology, investment, digital cooperation, space and culture.

2. **No final agreement on Siberia-2 pipeline:** Despite broader cooperation, both countries did not reach a concrete agreement on the Power of Siberia-2 gas pipeline.

3. **Common opposition to Western dominance:** Russia and China criticised unilateral and hegemonic policies without directly naming the US. Both countries supported a multipolar world order and democratisation of global institutions.

4. **Strategic cooperation against external pressure:** The summit strengthened efforts to build stable bilateral ties protected from global volatility and Western pressure. Both countries want stronger coordination to protect their strategic interests.

Possibility of a Russia-China Military Alliance

1. **Shared rivalry with the US:** Russia and China increasingly view Washington as a structural rival. This common concern has pushed both countries closer strategically.

2. **Limits of formal military alliances:** Military alliances can create two major risks. A country may get dragged into another country's conflict against its own interests, called "entrapment". It may also fear that its partner will not provide support during a crisis, known as "abandonment".

3. **Different security priorities:** China does not want involvement in Russia's conflict with the West over Ukraine. Russia also does not want direct involvement in China-US tensions over Taiwan.

4. **Limited chances of formal alliance:** Strategic cooperation between Moscow and Beijing is likely to grow further. However, a formal military alliance appears unlikely in the near future.

Implications for India's Security and Foreign Policy

1. **Russia-China proximity and India's security concerns:** Russia's growing cooperation and dependence on China has serious implications for India's security. Closer Moscow-Beijing ties may strengthen China's strategic position in the region.

2. **Pressure on India's balancing strategy:** India maintained balance by strengthening ties with both Russia and the US over the last two decades. This diplomatic space is now shrinking.

3. **Changing great-power alignments:** Both Trump and Putin are trying to improve ties with Xi Jinping. This changing geopolitical environment is reducing India's strategic options.

4. **Need for alternative strategic options:** India may not fully rely on the US for continental balance while Trump remains in office. New Delhi may need to explore alternative diplomatic and security strategies.

Conclusion

Russia-China relations have moved from limited cooperation to strong strategic convergence shaped by changing global geopolitics. Their growing political, economic and technological coordination is influencing the

global balance of power. Although a formal military alliance remains unlikely, closer Moscow-Beijing ties are narrowing India's strategic space and creating new challenges for its foreign policy and security strategy.

Question for practice:

Evaluate the growing strategic convergence between Russia and China and examine its implications for India's security and foreign policy.
Source: Indian Express

The fault line in India, US ties: America doesn't understand 'equal

Source: The post **"The fault line in India, US ties: America doesn't understand 'equal"** has been created, based on **"The fault line in India, US ties: America doesn't understand 'equal"** published in "Indian Express" on 22nd May 2026.

UPSC Syllabus: GS Paper-2- International Relations

Context: India–US relations have become an important pillar of global geopolitics and strategic cooperation. However, despite stronger ties, big structural differences continue to shape the relationship. Therefore, India must pursue a realistic and balanced diplomatic approach.

Strengths of India–U.S.A Partnership

- The India–U.S.A partnership has remained strong despite political changes and difficult phases such as the Nixon era and the Trump era.
- Economic relations between both countries have expanded through trade, investment, innovation, and business cooperation.
- People-to-people ties have also deepened due to migration, education, and growing societal links.
- Defence cooperation between both countries continues through military exercises and strategic engagement.
- Platforms such as Quad, INDUS-X, supply-chain partnerships, and technological cooperation provide strong institutional support to the relationship.
- Even after tariff disputes and disagreements, both countries have continued trade negotiations and cooperation.

Major Fault Lines in India–U.S.A Relations

1. Energy Security Concerns

a. India considers energy security a core national interest and prioritizes stable fuel access.
b. U.S.A pressure and double standards regarding India's energy imports from Russia create tensions in bilateral relations.
c. This creates mistrust because India believes its energy choices should be based on national interest.

2. U.S.A-China Engagement

a. The **U.S.A** attempt to improve relations with China may reduce India's strategic importance in America's Asia policy.

b. This weakens the strategic foundation that had strengthened India–US cooperation in balancing regional power.

3. Strategic Autonomy of India

a. India strongly believes in independent foreign policy and strategic autonomy.
b. It does not want to become a subordinate or dependent partner in global politics.
c. Therefore, India seeks cooperation with the US without compromising sovereignty.

4. Difference in Strategic Worldviews

a. The United States generally works through alliance-based frameworks and expects strategic alignment.
b. India, on the other hand, follows a non-aligned and autonomous approach in foreign policy.
c. This difference creates long-term friction in expectations and cooperation.

5. Unequal Perception of Partnership

a. U.S.A often struggles to treat India as a fully equal strategic actor.
b. India sees itself as a civilisational state with its own security concerns, timelines, and geopolitical priorities.
c. Therefore, unequal expectations often create frustration in the relationship.

Opportunities in the Present Situation

1. Current tensions have exposed the reality that India–US relations are not based on automatic convergence.
2. This provides India an opportunity to redefine the relationship on practical and realistic terms.
3. The partnership remains important because military, technological, and economic cooperation continues.
4. Wider sections of the U.S.A establishment, businesses, and strategic institutions continue to support stronger ties with India.

Way Forward for India's Diplomacy

1. Follow Open-Eyed Diplomacy

a. India must engage with the U.S.A through realism rather than emotional expectations.
b. Diplomacy should remain based on national interests and practical cooperation.

2. Preserve Strategic Autonomy

a. India should continue making independent foreign policy decisions.
b. It must cooperate with the US only where mutual interests align.

3. Strengthen Multi-Alignment

a. India should maintain balanced relations with the U.S.A, EU, Russia, China, and other global powers.
b. This approach will reduce overdependence on any one country.

4. Deepen Institutional Cooperation

a. India should strengthen defence, trade, innovation, supply-chain, and technology partnerships with the U.S.A.
b. Institutional ties are more durable than temporary political leadership changes.

5. Seek Equality and Mutual Respect

a. India should push for a partnership based on equality, respect, and recognition of strategic autonomy.
b. A mature relationship requires acceptance of India's independent interests.

6. Broaden Engagement Beyond White House

a. India should strengthen ties with Congress, strategic think tanks, businesses, and civil society in the U.S.A.
b. This will make the relationship more resilient and less dependent on one administration.

Conclusion: The India–US partnership is likely to endure because it is supported by strong economic, strategic, and institutional ties. However, long-term maturity depends on whether both countries can manage structural differences with mutual respect. For India, pragmatic diplomacy, strategic autonomy, and balanced engagement will remain the key path forward.

Question: The India–US partnership is marked by both strategic convergence and structural divergences." In light of the statement, examine the key fault lines in India–US relations and suggest the way forward for India's diplomacy.

Source: Indian Express

Should the NEET-UG be decentralised?

Source: The post **"Should the NEET-UG be decentralised?"** has been created, based on **"Should the NEET-UG be decentralised?"** published in "The Hindu" on 22nd May 2026.

UPSC Syllabus: GS Paper-2- Governance

Context: The National Eligibility cum Entrance Test (NEET-UG) was introduced in 2013 to create a single transparent examination for admission to medical colleges in India. However, repeated paper leaks, administrative failures, and concerns over fairness have raised questions about whether NEET-UG should be decentralised. The debate revolves around balancing transparency, accessibility, affordability, and accountability.

Arguments in favour of decentralising NEET-UG

1. Reducing burden on students

a. NEET was introduced to reduce the burden of multiple medical entrance exams and lower financial and mental stress on students.
b. A decentralised model could allow states to conduct their own exams and reduce pressure on a single national-level examination.

2. Addressing social inequality

a. Rural, poor, and government school students often face disadvantages because of unequal access to coaching and resources.
b. States can design exams that better accommodate vulnerable and socio-economically weaker students.

3. State-specific flexibility

a. State governments can adopt systems based on local needs, including reservation policies and educational priorities.
b. Tamil Nadu's reservation of 7.5% seats for government school students is an example of targeted support.

4. Preventing disruption from single-exam failures

a. Since NEET is a single-window exam, any paper leak or administrative lapse affects lakhs of students nationwide.
b. Decentralisation could reduce the scale of disruption caused by such failures.

5. Reducing over-centralisation

a. Dependence on one national testing agency creates risks when management failures occur.
b. State-level participation may improve accountability and reduce over-centralisation.

Arguments against decentralising NEET-UG

1. NEET ensures uniformity

a. NEET provides a common standard for medical admissions across India.
b. A single exam ensures fairness and equal evaluation of candidates nationwide.

2. Reduced financial burden

a. NEET allows students to appear for one examination instead of multiple entrance tests.
b. This reduces travel costs, registration fees, and stress.

3. Better transparency than multiple exams

a. Before NEET, private medical colleges often had separate entrance exams and high capitation fees.
b. NEET reduced arbitrary admissions and improved transparency.

4. Merit-based admissions

a. NEET acts as both an entrance and eligibility test.
b. It prevents manipulation in admissions by creating a standard benchmark.

5. Avoiding fragmentation

a. Decentralisation may lead to varied standards across states.
b. This could reduce uniformity in medical education quality.

Major issues

1. Repeated paper leaks: The NEET 2024 controversy exposed vulnerabilities in exam security. Paper leaks damaged trust in the examination system.
2. Overdependence on coaching: Students from privileged backgrounds often have better coaching access. This creates inequality for poor and rural students.
3. Financial burden in private medical education: Many deserving students cannot afford expensive private medical education. High fees continue to remain a challenge.
4. Weak implementation of reforms: The Radhakrishnan Committee recommended stronger security measures. Several key recommendations were not fully implemented.
5. Psychological stress: Repeated cancellations and re-tests create anxiety and uncertainty among students.

Suggested reforms for improvement

1. **Strengthen examination security:** CCTV surveillance, secure paper transport, and stricter digital monitoring should be implemented.
2. **Computer-Based Testing (CBT):** NEET can gradually move towards a computer-based system to reduce paper leak risks.
3. **Multi-stage examination:** A preliminary screening test followed by a final exam can reduce pressure and improve management.
4. **Regulate private medical college fees:** Governments should control exorbitant fees to make medical education more accessible.
5. **Improve counselling support:** Strong counselling systems should guide students and reduce stress.
6. **Equal opportunities:** Scholarships, free coaching, and special support for rural and government school students should be expanded.
7. **Stronger accountability of NTA:** The National Testing Agency must ensure transparency, efficiency, and timely response to lapses.

Conclusion: NEET-UG has improved transparency and standardisation in medical admissions, but repeated administrative failures have exposed serious weaknesses. Full decentralisation may create fragmentation, while complete centralisation may increase systemic risks. Therefore, India needs strong reforms, better security, improved inclusiveness, and balanced institutional accountability to ensure a fair and credible medical entrance system.

Question: Should NEET-UG be decentralised in India? Examine the arguments in favour of and against decentralisation of NEET-UG and suggest reforms to improve the examination system.

Source: The Hindu

India's Peak Power Demand Challenge

UPSC Syllabus: Gs Paper 3- Infrastructure
Introduction

India's electricity demand is increasing rapidly, with peak demand crossing **256 GW** during the April 2026 heatwave period. Rising temperatures, expanding electrification, cooling needs, electric vehicles, and agricultural consumption are putting heavy pressure on the power system. While renewable energy is helping

meet daytime demand, managing evening and non-solar peaks remains difficult. The challenge is no longer limited to increasing electricity generation capacity but ensuring reliable, affordable, and flexible power supply across different seasons and time periods

Understanding Peak Power Demand in India

1. **Meaning and Nature of Peak Demand:** Peak demand refers to the highest electricity consumption recorded on the grid during a short period, usually a 15-minute interval. Though it occurs at one moment, the peak period generally lasts for 2-4 hours with very high electricity use.

2. **Seasonal and Daily Demand Pattern:** Summer peaks extend from afternoon to late night because of heavy use of air conditioners and coolers. Winter peaks remain high during morning and evening hours due to heating and lighting needs, especially in northern States.

3. **Heatwave Impact on Electricity Demand:** Peak demand rose sharply during April 24-25, 2026, when temperatures reached 47.4°C and average temperatures stayed between 40-45°C.

4. **Importance of Peak Duration Management:** The grid must instantly meet peak demand even if it lasts only for a few hours. Building infrastructure only for these short periods is costly because the system remains underutilised during off-peak hours.

5. **Rising Night-Time Electricity Use:** Electricity demand remained very high during the heatwave period, mostly staying above 220 GW. Demand also stayed high between 9:30 p.m. and 12 a.m., showing the impact of heated nights on power consumption.

Mechanisms Used by States to Meet Electricity Demand

1. **Dependence on Long-Term Power Contracts:** States mainly depend on long-term Power Purchase Agreements signed between DISCOMs and generators. Around 85%-90% of India's electricity demand is met through contractual supply arrangements.

2. **Use of Power Exchanges During Shortages:** DISCOMs buy electricity from power exchanges when demand rises suddenly or supply falls short. Around 10%-15% of electricity is traded through these short-term markets.

3. **Demand-Side Management Measures:** Most States ask consumers to reduce electricity use during peak hours between 6 p.m. and 11 p.m. Delhi has increasingly used Time-of-Day tariffs and smart metering to reduce evening demand.

4. **Importance of Better Demand Planning:** Electricity demand projections can vary sharply because of changing weather conditions. Lower temperatures and intermittent rains in 2025 kept demand lower than expected despite similar forecasts.

Factors Driving India's Rising Power Demand

1. **Expansion of Electrification and Appliance Use:** Rising household electrification and increasing appliance usage are steadily increasing electricity demand. Cooling appliances are becoming a major contributor to summer demand peaks.

2. **Growth in Electric Vehicles and Agricultural Demand:** Electric vehicle charging and agricultural power consumption are adding further pressure on the grid. Agricultural demand becomes especially high during the paddy-sowing season.

3. **Sharp Rise in Peak Demand Levels:** India's peak demand increased by 37% in the last five years, rising from 183 GW in December 2020 to over 250 GW in April 2026. Future projections estimate summer demand could reach 270 GW or even 289 GW.

4. **Rising Role of Renewable Energy:** Renewable energy met nearly 30% of peak demand on April 25, 2026. Solar energy alone contributed 24% of the peak demand with 58.2 GW capacity during the period.

5. **Growing Importance of Non-Fossil Capacity:** Non-fossil fuel sources now account for more than half of India's installed power capacity. During afternoon hours, non-fossil sources met nearly 42% of the 239 GW demand.

Major Challenges Faced by States

1. **Price Volatility in Short-Term Markets:** DISCOMs tied to fixed long-term contracts must buy expensive electricity during shortages. Electricity prices in power exchanges touched the regulatory ceiling of ₹10 per kilowatt-hour during peak periods.

2. **Weak Distribution Infrastructure:** Distribution network expansion has not matched rising electricity demand. This has increased stress on last-mile electricity delivery systems.

3. **Uneven Growth in Power Infrastructure:** Generation capacity increased by 76%, transmission lines by 47%, and transformation capacity by 115% over the last decade. However, distribution infrastructure upgrades remained inadequate.

4. **High Transformer Failures and Local Outages:** Nearly 13 lakh distribution transformers fail annually in India. Some northern States face transformer failure rates close to 20%, leading to local outages during peak demand periods.

5. **Financial Stress on States:** Financially stressed States struggle to buy costly short-term electricity and modernise distribution systems. States such as Uttar Pradesh and Bihar continue to face overloaded transformers and ageing infrastructure.

6. **Dependence on Fossil Fuels During Non-Solar Hours:** Coal-based thermal power contributed nearly 66% of peak demand. Gas-based power plants are increasingly used to manage sudden fluctuations because they can ramp up power quickly.

7. **High Cost of Gas-Based Power:** Gas-based electricity often costs three to five times more than coal or solar power. Its use increases during non-solar hours when renewable generation falls sharply.

8. **Operational Maintenance Challenges:** India faced non-solar shortages of 5.4 GW and 4.2 GW on April 24 and 25 because large power capacities remained under outage and maintenance. Coal power plants also faced heavy operational pressure during evening hours.

Way Forward

1. **Expanding Renewable Energy Capacity:** India needs faster expansion of solar and wind capacity to reduce pressure on fossil fuel-based generation during peak demand periods. States with higher renewable energy capacity, such as Gujarat, Karnataka, and Tamil Nadu, have shown better ability to manage daytime demand.

2. **Increasing Energy Storage Infrastructure:** Battery Energy Storage Systems (BESS) and Pumped Hydro Storage (PHS) need large-scale expansion to manage sudden fluctuations in renewable energy generation. PHS is already emerging as an important solution in Maharashtra, Andhra Pradesh, Tamil Nadu, and Karnataka.

3. **Improving Renewable Energy Utilisation:** Solar generation currently falls sharply after sunset even when electricity demand remains high. Better storage systems can help store excess daytime solar power and reduce dependence on costly fossil fuel-based electricity during evening hours.

4. **Enhancing Coal Fleet Flexibility:** Coal-based thermal plants need better operational flexibility to support higher renewable energy integration. Reducing the minimum operational limit of coal plants from 55% to 40% can create additional space for renewable energy during daytime hours.

5. **Strengthening Distribution and Transmission Networks:** India needs stronger transmission systems and upgraded distribution infrastructure to handle rising electricity demand efficiently.

6. **Promoting Demand-Side Management Measures:** Measures such as Time-of-Day tariffs, smart metering, daytime EV charging, and agricultural load scheduling can reduce pressure during non-solar peak hours.

7. **Improving Peak Demand Planning:** Future electricity planning needs to account for heatwaves and rising night-time temperatures because weather conditions strongly influence electricity consumption.

8. **Reducing Dependence on Expensive Short-Term Power:** Financially stressed States require stronger distribution systems and better planning to reduce dependence on costly power exchange purchases during shortages.

Conclusion

India's rising peak power demand is exposing weaknesses in distribution systems, dependence on fossil fuels, and limits of existing grid infrastructure. Heatwaves and rising cooling demand are making peak management

more difficult. Stronger renewable integration, energy storage expansion, flexible thermal operations, smarter grids, and better demand-side management will be essential for ensuring reliable and affordable electricity supply in future.

Question for practice:

Discuss the major causes, challenges, and possible solutions related to India's rising peak power demand.
Source: The Hindu

Caste away: On the Court and caste count

UPSC Syllabus: Gs Paper 2- Polity and governance
Introduction

The Supreme Court refused to stop caste enumeration in Census 2027 and called it a policy matter of the government. The decision revived the wider debate on caste, welfare, representation and the long-standing contradiction in India's approach towards caste. While the state wants a casteless society, many welfare and reservation policies still depend on caste identity. The coming Census will also become India's first full caste enumeration exercise since **1931** and the first fully digital Census.

Historical Background of Caste Enumeration

1. **Colonial-Era Caste Counting:** India last conducted a full caste census in 1931. After Independence, Census exercises recorded only Scheduled Castes and Scheduled Tribes, not all caste groups.

2. **Post-Independence Policy Approach:** Early governments believed that counting castes would strengthen caste identities. The larger goal was to gradually create a casteless society.

3. **Contradiction in State Policy:** The government avoided full caste enumeration but still used caste for reservations, legislative representation and public employment. This created a continuing policy paradox.

4. **Changing Political Positions:** The recent government approved caste enumeration in April 2025 despite earlier criticism of the idea. The opposition also changed its earlier position and began demanding a caste census.

5. **Debate within Society and Politics:** Some organisations had warned that caste surveys could divide Hindu society. At the same time, supporters argued that accurate caste data is needed for welfare and representation.

Importance of Caste Census

1. **Supreme Court's Position:** The Court said the issue falls within the government's policy domain. The Chief Justice stated that governments must know how many people are backward and need welfare support.

2. **Welfare and Representation Needs:** A large part of India's welfare system is linked to caste profiles. Supporters believe updated caste data can help identify backward groups more accurately and improve policies related to welfare, jobs, education and representation.

3. **Impact of Census Delay:** The decennial Census was originally due in 2021 but got delayed due to the COVID-19 pandemic and logistical problems. This delay affected planning and policymaking.

4. **New Nature of Census 2027:**

• The delayed Census 2027 will become **India's first fully digital census** and the **first comprehensive caste enumeration since 1931.**

• The exercise will take place in **two phases,** with **house listing** from April 2026 to September 2026 and **population enumeration in February 2027**, where individuals will identify their caste instead of only SC or ST status.

Challenges in Conducting Caste Enumeration

1. **Problems in Earlier Exercise:** The 2011 Socio-Economic and Caste Census was the only major post-Independence caste counting effort. Most of its findings were never published.

2. **Massive Data Errors:** The 2011 exercise produced more than 46 lakh caste names and nearly 8 crore data errors. This made the dataset unreliable and difficult to use.

3. **Difficulty in Classification:** Open-ended caste identification created confusion in recording and verification. Proper classification of caste groups remains a major administrative challenge.

4. **Concerns over Methodology:** Petitions before the Supreme Court questioned the process of recording and verifying caste data. The petitioners demanded a transparent questionnaire and clear classification methods.

5. **Court's Trust in Institutions:** The Court refused to interfere with the census process. It said **authorities under the Census Act, 1948 and Census Rules, 1990 are empowered to manage census operations with expert support.**

6. **Suggestions without Intervention:** The Court accepted that some concerns raised by petitioners were relevant. However, it only asked authorities to consider those suggestions without stopping the census exercise.

Debate and Concerns around Caste Census

1. **Fear of Reinforcing Caste Identity:** Critics believe caste enumeration may strengthen caste consciousness instead of reducing it. Continuous identification through state records may make caste identities more rigid.

2. **Concerns about Misuse of Data:** Some petitioners argued that caste data could be misused by politicians and corporate groups. They questioned the need for collecting such large-scale caste information.

3. **Argument for Social Justice:** Supporters believe caste data can help governments design fairer policies using actual social data. They see enumeration as necessary for targeted welfare and affirmative action.

4. **Continuing Constitutional Paradox:** India continues to balance two opposing goals. One is the removal of caste divisions, while the other is the use of caste data for affirmative action policies.

5. **Demand for Individual Choice:** People should also have the freedom to identify themselves as casteless if they wish. The larger social goal should still remain the annihilation of caste.

Conclusion

The caste census reflects the continuing tension between social justice and the goal of a casteless society in India. Accurate caste data may improve welfare targeting and representation, but it can also strengthen caste identities. The government therefore faces the challenge of ensuring reliable enumeration while keeping the larger objective of reducing caste divisions in society intact.

Question for practice:

Evaluate the significance and challenges of conducting a caste census in India in the context of Census 2027.
Source: The Hindu

Cyber warfare is outpacing global legal accountability

Source: The post **"Cyber warfare is outpacing global legal accountability"** has been created, based on **"Cyber warfare is outpacing global legal accountability"** published in "The Hindu" on 23rd May 2026.

UPSC Syllabus: GS Paper-2- Governance

Context: Cyber warfare has increasingly become a part of modern conflict and is often used alongside traditional military force. Recent tensions involving the United States, Israel, and Iran highlight how cyber operations are being used to disrupt communication systems, hack websites, and influence the information environment. This has created a growing gap between cyber conflict and effective global legal accountability.

Major Challenges in Global Legal Accountability for Cyber Warfare

1. Difficulty in establishing the threshold of use of force

a. International law, particularly **Article 2(4) of the United Nations Charter,** prohibits the use of force, and this principle applies to cyberspace as well.
b. However, it remains difficult to determine when a cyber operation becomes serious enough to qualify as an internationally wrongful act or use of force.

c. Cyber attacks on essential services may cause significant disruption, but their legal classification often remains unclear.

2. Problem of attribution

a. Attribution is one of the most serious challenges in cyber warfare.
b. For a breach of international law to be established, the cyber act must be clearly linked to a state.
c. However, cyber operations are secretive in nature and are often routed through multiple networks and jurisdictions.
d. Even when governments may be reasonably suspected, it becomes difficult to convert suspicion into legally admissible evidence.
e. This creates a major gap between political certainty and legal proof.

3. Lack of suitable legal forums

a. Sensitive cyber disputes are rarely taken to international courts such as the International Court of Justice because such cases require state consent.
b. Domestic courts also face limitations because foreign states often enjoy immunity.
c. As a result, there are very limited legal forums where cyber-related disputes can be effectively addressed.

4. Strategic hesitation by states

a. States often avoid legal proceedings because cyber disputes may escalate geopolitical tensions.
b. Legal action may also expose intelligence capabilities or sensitive national security information.
c. Therefore, many cyber incidents are handled through diplomacy and political negotiation instead of formal legal mechanisms.

5. Evidentiary difficulties

a. Cyber incidents usually involve technical data, classified intelligence, and complex chains of causation.
b. It becomes difficult for courts to establish who carried out the attack and how the attack directly caused specific harm.
c. This makes legal accountability both complicated and uncertain.

6. Weaknesses of existing international frameworks

a. Existing mechanisms, such as the Budapest Convention on Cybercrime and the United Nations Convention against Cybercrime, mainly focus on cybercrime and law enforcement.
b. These frameworks do not adequately address issues of state responsibility when cyber operations are linked to geopolitical conflict.
c. Therefore, there is a mismatch between emerging cyber threats and existing legal structures.

Consequences of the Legal Gap

1. Cyber operations are becoming more frequent and, in some cases, more damaging.
2. These operations increasingly extend conflict beyond physical battlefields into digital infrastructure and communication systems.
3. The absence of strong legal accountability reduces credible pathways for justice and responsibility.

4. As a result, the gap between law and reality continues to widen.

India's Role in Shaping Cyber Norms

1. Increasing digital dependence

a. India has become highly dependent on digital infrastructure for finance, energy, governance, and essential services.
b. This makes cybersecurity and cyber governance a national priority.

2. Strengthening domestic resilience

a. India must improve cyber resilience and build stronger domestic regulations to protect critical infrastructure.
b. Effective internal preparedness is essential for handling future cyber threats.

3. Contribution to international norm-building

a. India can play a major role in shaping international discussions on cyber accountability and attribution.
b. It can contribute to developing norms related to responsible state behaviour in cyberspace.
c. India can also support stronger legal standards for cyber warfare at the global level.

Way Forward

1. There is a need to develop stronger international legal frameworks specifically focused on cyber warfare and state responsibility.
2. Global cooperation must improve in areas such as intelligence sharing, attribution mechanisms, and cyber threat response.
3. International institutions should create clearer legal standards for defining cyber attacks and determining liability.
4. States should strengthen domestic cyber laws and improve the resilience of critical infrastructure.
5. Diplomatic engagement and multilateral discussions must be encouraged to establish norms of responsible state behaviour in cyberspace.
6. Countries like India should actively participate in global cyber governance and help bridge the gap between technological advancement and legal accountability.

Conclusion: Cyber warfare is challenging traditional principles related to force, attribution, and state responsibility under international law. The central challenge is not only recognising cyber conflict as a part of modern warfare, but also ensuring that legal systems evolve to address it effectively. Without stronger accountability mechanisms, clearer legal norms, and better international cooperation, cyber operations may continue to remain beyond the effective reach of law.

Question: Cyber warfare is outpacing global legal accountability." Examine the major legal and practical challenges in holding states accountable for cyber operations during geopolitical conflicts. Also discuss India's role in shaping cyber norms.

Source: The Hindu

Home and abroad: on the Prime Minister's five-nation diplomatic tour

Source: The post **"Home and abroad: on the Prime Minister's five-nation diplomatic tour"** has been created, based on **"Home and abroad: on the Prime Minister's five-nation diplomatic tour"** published in "The Hindu" on 23rd May 2026.

UPSC Syllabus: GS Paper-2- International Relations

Context: Prime Minister Narendra Modi's visit to the UAE and Europe, including the Netherlands, Sweden, Norway, and Italy, had important diplomatic and strategic significance. The visit came at a time of rising geopolitical instability due to conflicts such as Russia-Ukraine, the U.S.-Israel conflict with Iran, and China's growing coercive economic measures. The visit highlighted India's attempt to strengthen cooperation with Europe in trade, energy security, and multilateral engagement.

Significance of Modi's Europe Visit

1. Strengthening India-Europe strategic partnership

a. The visit reflected a renewed push for stronger India-Europe ties.
b. It demonstrated growing cooperation between India and Europe amid global uncertainty and changes in the international rules-based order.
c. It also showed shared strategic interests between both sides.

2. Enhancing trade and economic cooperation

a. The India-European Free Trade Association (EFTA) trade agreement had already come into force earlier in the year.
b. The India-European Union Free Trade Agreement (FTA) is expected to be ratified or signed later.
c. These developments indicate efforts to diversify supply chains and markets.
d. This is especially important in reducing overdependence on specific regions and ensuring economic resilience.

3. Energy security collaboration

a. Energy security was a major focus of the visit.
b. Discussions in the UAE included long-term strategic petroleum reserves.
c. In Europe and at the Nordic India Summit, emphasis was placed on "Green Strategic Partnerships."
d. This aimed to deepen cooperation in energy conservation, sustainable energy, and long-term energy resilience.
e. Such partnerships are important for India's growing energy demands.

4. Geopolitical and multilateral cooperation

a. The visit involved discussions on major geopolitical developments such as the Ukraine conflict.
b. It also strengthened India's outreach before future international engagements like the G-7 summit in France.
c. This reflects India's expanding role in multilateral diplomacy and global governance.

5. Focus on technology and innovation

a. There was also discussion on AI governance and critical mineral initiatives.
b. These areas are becoming central to future economic growth and strategic competitiveness.
c. Cooperation in these sectors can strengthen technological and industrial collaboration.

6. Arctic and maritime cooperation

a. Nordic countries focused on maritime cooperation and scientific collaboration in the Arctic region.
b. The Arctic is increasingly significant due to climate change, resource access, and strategic importance.
c. Such cooperation broadens India-Europe engagement beyond traditional trade and diplomacy.

7. Diplomatic goodwill and deeper engagement

a. Even though the visit did not produce major trade deals, it strengthened diplomatic goodwill.
b. It created expectations for deeper India-Europe collaboration.
c. Continued engagement was expected through bilateral visits and trade negotiations.

Concerns Highlighted During the Visit

1. Limited visible outcomes

a. The visit yielded few concrete trade or strategic deals.
b. While symbolic engagement was strong, immediate deliverables remained limited.

2. Questions over democratic accountability

a. During visits to the Netherlands and Norway, journalists questioned leaders and Prime Minister Modi over the absence of press conferences.
b. This raised concerns regarding transparency and accountability in democratic leadership.

3. Concerns regarding media interaction

a. While press meets are common in Europe, Prime Minister Modi largely avoided taking questions during foreign visits.
b. The refusal to hold press interactions attracted criticism and public attention.

4. Internal reflection on democratic values

a. After the India-Nordic Summit in Oslo, Modi emphasized shared commitment to democracy, rule of law, and multilateralism.
b. Such democratic values must also be reflected internally through transparency and accountability.

Way Forward

1. India should continue to strengthen strategic engagement with Europe in trade, energy security, and technology.
2. Faster progress on the India-EU FTA can improve economic cooperation and supply chain diversification.
3. Green energy partnerships and strategic petroleum cooperation should be expanded to improve energy resilience.

4. Collaboration in AI governance, critical minerals, and Arctic research should be institutionalised.
5. India must also strengthen democratic transparency and accountability to enhance its global credibility.
6. Diplomatic goodwill should be converted into concrete policy outcomes and long-term strategic partnerships.

Conclusion: Prime Minister Modi's visit to Europe reflected India's growing strategic engagement with Europe amid global uncertainty. It advanced cooperation in trade, energy, technology, and geopolitics. However, concerns related to limited outcomes and democratic accountability also emerged. Going forward, India must convert diplomatic momentum into concrete cooperation while reinforcing democratic values and transparency.

Question: India's recent diplomatic engagements in Europe reflect both strategic opportunities and democratic challenges. Discuss the significance of Europe visit for India-Europe relations, particularly in energy security, trade, and geopolitical cooperation. Also, examine the concerns highlighted during the visit.

Source: The Hindu

Rupee Depreciation, RBI Measures and India's External Sector Concerns

UPSC Syllabus: Gs Paper 3- Indian economy

Introduction

The rupee has weakened sharply and touched nearly **₹97 per dollar**, increasing concerns over inflation, rising oil import costs, and external sector stability. Widening trade deficits, foreign capital outflows, global monetary tightening, and speculative financial pressures have intensified pressure on the currency. This has triggered a wider debate on whether the RBI should intervene to reduce volatility or allow market forces to adjust the rupee naturally.

Causes Behind Rupee Depreciation

1. **Widening Current Account Deficit (CAD):** India imports more goods than it exports, increasing the demand for foreign currency. Rising prices of crude oil and other essential imports have widened the trade deficit and increased pressure on the rupee.

2. **High Crude Oil Dependence:** India imports nearly 80–85% of its crude oil requirement, making the economy highly vulnerable to global energy price shocks. Rising crude oil prices have significantly increased India's import bill.

3. **Foreign Capital Outflows:** FIIs and FPIs have withdrawn investments from Indian markets due to better returns in the US and concerns regarding Indian market valuations. This has increased dollar demand and weakened the rupee further.

4. **Advance Dollar Purchases by Importers:** Indian firms dependent on imported goods are buying dollars in advance to protect themselves from future depreciation. This precautionary demand has added pressure on the forex market.

5. **Limited Export Competitiveness:** A weaker rupee does not automatically improve exports because many Indian export sectors depend on imported inputs, which have become more expensive.

6. **Trade Tensions :**The 50% tariff imposed by the US on Indian goods has affected export competitiveness and increased market uncertainty.

7. **Geopolitical Risks:** Global conflicts and tensions around the Strait of Hormuz have pushed crude oil prices above $100–$110 per barrel, increasing pressure on India's import bill and the rupee.

8. **Strengthening of the US Dollar:** During global uncertainty, investors prefer the US dollar because it is considered a safe-haven currency. This has increased pressure on emerging market currencies like the rupee.

9. **US Federal Reserve's Interest Rate Policy:** Higher US interest rates have made dollar assets more attractive, leading to capital outflows from India and further weakening the rupee.

10. **RBI's Neutral Monetary Policy:** The RBI maintained a neutral policy stance and kept repo rates largely unchanged during 2025, prioritising liquidity management and growth over aggressive defence of the rupee.

Argument for Non-Intervention

1. **Market Forces Should Determine Exchange Rates:** Some economists argue that the rupee should be allowed to find its natural market level without RBI intervention. Artificial support may delay economic adjustment.

2. **Weak Rupee Can Reduce Imports:** A depreciating rupee makes imports more expensive, which may gradually reduce import demand and help correct the current account deficit.

3. **Weak Rupee Can Support Exports:** Depreciation can make Indian goods cheaper in international markets and improve export competitiveness over time.

4. **Intervention Can Delay Adjustment:** Artificially supporting the rupee may prevent import demand from falling naturally. This can continue the same imbalance that caused depreciation initially.

Difference Between Weak Rupee and Falling Rupee

1. **Nature of Currency Movement:** A weak rupee refers to a rupee that has depreciated to a lower level against the dollar. In contrast, a falling rupee refers to continuous depreciation with expectations of further decline.

2. **Impact on Export Demand: A** weak rupee can make Indian exports cheaper and more competitive in global markets. However, a falling rupee may not increase exports because foreign buyers may wait for the rupee to weaken further before purchasing goods.

3. **Impact on Import Behaviour:** A weak rupee can gradually reduce imports by making foreign goods more expensive. In contrast, a continuously falling rupee can increase short-term import demand

because consumers and firms may purchase goods early if they expect the rupee to weaken further and prices to rise later.

4. **Effect on Current Account Deficit:** A weak rupee may help reduce the current account deficit through higher exports and lower imports. A falling rupee can increase import values without ensuring immediate export growth, allowing the deficit to continue.

5. **Effect on Inflation:** A weak rupee may create manageable price adjustments in the economy. A continuously falling rupee can sharply increase the prices of imported fuel and essential goods, worsening inflationary pressure.

6. **Role of Market Expectations:** A weak rupee reflects adjustment in exchange rate levels. A falling rupee reflects expectations of further depreciation, which can increase uncertainty and speculative behaviour in financial markets.

Role of Speculative Capital Flows

1. **Speculative Outflows and Currency Pressure:** A large part of the rupee's depreciation has been driven by speculative foreign capital outflows rather than only trade fundamentals.

2. **Global Interest Rate Pressures:** Expectations of higher interest rates in developed economies have encouraged capital outflows from emerging markets like India.

3. **Investor Sentiment and Currency Pressure:** Foreign investors may believe Indian assets will provide lower future returns, increasing pressure on the rupee.

4. **Currency Value Driven by Speculation:** The exchange rate movements are increasingly shaped by speculative financial behaviour rather than real economic fundamentals.

RBI Intervention

1. **Direct Forex Market Intervention:** The RBI has sold dollars from India's forex reserves to reduce volatility. India's forex reserves declined from above $720 billion to nearly $697 billion during recent pressures.

2. **Measures to Reduce Dollar Demand:** State-owned oil refiners were encouraged to use dedicated foreign currency credit lines instead of buying dollars directly from spot markets.

3. **Steps to Control Speculation:** The RBI imposed a mandatory daily limit of $100 million on Authorised Dealers' Net Open Position (NOP) to reduce excessive speculation.

4. **Efforts to Attract Foreign Capital:** Policymakers are considering special NRI deposit schemes and measures to make Indian government securities more attractive to foreign investors.

5. **Managing Inflationary Pressures:** The government reduced central excise duty on fuel by ₹10 per litre to protect consumers from rising petrol and diesel prices.

6. **Reducing Non-Essential Imports:** Import duties on gold and silver were increased to reduce pressure on foreign exchange reserves.

7. **Limits and Challenges of Intervention:** Intervention against speculative flows is difficult and costly. If speculative pressure becomes too strong, governments may struggle to maintain market confidence.

Way Forward

1. **Strengthen Domestic Macro Fundamentals: Improve Energy Security:** Greater domestic oil and gas exploration, renewable energy expansion, ethanol blending, and efficient use of Strategic Petroleum Reserves can reduce import dependence.

2. **Reduce Import Dependence:** Domestic production of electronics, chemicals, and capital goods should increase to reduce external vulnerability.

3. **Expand Rupee-Based Trade:** India should promote rupee trade settlements and local currency arrangements with countries like Russia and the UAE.

4. **Maintain Adequate Forex Reserves:** Strong forex reserves and flexible exchange rates can help the RBI manage volatility and reassure financial markets.

5. **Improve Export Competitiveness:** Reforms in logistics, trade facilitation, skilling, and manufacturing can improve India's position in high-value exports.

6. **Attract Stable Long-Term Capital:** India should focus more on stable FDI and long-term investments instead of depending heavily on short-term speculative capital.

7. **Protect Vulnerable Households:** Targeted support measures such as calibrated fuel taxes and food security support can reduce the burden of imported inflation on poor households.

8. **Continue Structural Reforms:** Reforms related to land, labour, financial inclusion, and digital infrastructure can improve productivity and support long-term currency stability.

Conclusion

Rupee depreciation has emerged as both an external sector challenge and a financial market concern. Rising oil prices, speculative capital flows, and global monetary tightening have increased pressure on the currency. While market adjustment remains important, excessive volatility can prolong inflation and instability. India therefore requires balanced RBI intervention along with stronger macroeconomic and external sector resilience.

Question for practice:

Examine the causes behind the depreciation of the Indian rupee and discuss the debate surrounding RBI intervention in managing external sector pressures and currency volatility.

Source: The Hindu

India's Expanding Data Centre Sector: Opportunities and Challenges

UPSC Syllabus: Gs Paper 3- Infrastructure

Introduction

India is rapidly emerging as a major global digital infrastructure hub as rising data consumption, Artificial Intelligence (AI), cloud computing, and digital services increase demand for advanced data storage and processing systems. Large-scale investments, policy reforms, and growing private participation are accelerating the expansion of data centres across the country. At the same time, rising electricity demand, sustainability concerns, infrastructure gaps, connectivity needs, and skilled manpower shortages pose important challenges for building a resilient and globally competitive digital infrastructure ecosystem.

Why Data Centres are Becoming Strategically Important

1. **Backbone of digital economy:** Data centres support cloud services, AI systems, enterprise IT, digital payments, OTT platforms, e-commerce, and digital governance. They have become central infrastructure for the digital economy.

2. **Data as strategic national asset:** India now sees the data economy as a strategic opportunity linked with employment, investments, energy systems, and geopolitical competitiveness. Digital infrastructure is increasingly shaping future global economic power.

3. **"Next oil economy" concept:** Data centres are being viewed as the "next oil economy" because future economic influence will depend on data control, secure technology systems, and digital infrastructure networks.

4. **Rapid digital expansion in India:** India has more than one billion internet users and widespread smartphone penetration. Digital service expansion in the country is among the fastest in the world.

5. **Gap between consumption and capacity:** India accounts for nearly **20% of global data consumption but has less than 5% of global data centre capacity**. This shows the large infrastructure gap and future growth potential.

6. **Growing dependence on digital services:** The rise of digital payments, social media, OTT platforms, cloud computing, and e-commerce has sharply increased the need for data processing and storage infrastructure.

7. **Importance for AI ecosystem:** AI systems, machine learning, advanced analytics, and generative AI require high-performance computing infrastructure. Data centres are becoming essential for AI-led economic growth.

8. **Shift from support system to core infrastructure:** Data centres are no longer just technology facilities. They are becoming the physical foundation of India's digital economy and future development model.

India's Rapid Data Centre Expansion

1. **Strong capacity growth projections:** India's installed data centre capacity is projected to rise from around 1.5 GW to nearly 5–6.5 GW by 2030. This growth is being driven by rising data consumption, AI adoption, cloud computing, and rapid digitalisation across sectors.

2. **Massive investment commitments:** Announced investments in India's data centre ecosystem are estimated at US$ 60–70 billion over the next five years. Global hyperscalers and large technology firms are leading this expansion.

3. **Investments after AI Summit:** At the India AI Impact Summit 2026, over US$ 250 billion investments were announced across AI infrastructure, computing systems, and data centres.

4. **Expansion by global and Indian firms:** Global technology firms, telecom operators, hyperscalers, real estate developers, and Indian conglomerates are rapidly scaling infrastructure across India.

5. **Growth of next-generation digital ecosystem:** AI, 6G, semiconductors, and digital public infrastructure are rapidly expanding India's digital ecosystem and increasing demand for advanced data infrastructure.

6. **Rising internet and mobile usage:** India had nearly 751.5 million internet users at the beginning of Calendar Year 2024. Growing mobile internet use is increasing pressure on digital infrastructure.

7. **Growth in data consumption:** India's monthly data consumption increased from 4.5 exabytes in FY2018 to 12.9 exabytes in FY2025 due to OTT services, social media, e-commerce, and digital payments.

8. **Enterprise cloud migration:** Businesses across sectors are increasingly moving towards cloud platforms for operations and storage. This is creating additional demand for data centres.

9. **Expansion of sovereign AI infrastructure:** Under the IndiaAI Mission, over 38,000 GPUs (Graphics Processing Unit) have already been allocated and another 20,000 GPUs are planned to strengthen domestic AI infrastructure capacity.

Policy and Government Support

1. **Long-term tax incentives:** The Union Budget 2026–27 proposed tax holidays until 2047 for eligible foreign cloud service providers using Indian data centres for serving global customers.

2. **Stable investment environment:** Long-term policy certainty is improving investment confidence in a capital-intensive sector with high infrastructure costs and long project timelines.

3. **Data protection and localisation support:** The Digital Personal Data Protection Act, 2023 and localisation mandates are encouraging enterprises to build domestic digital infrastructure.

4. **Support for frontier technologies:** Government initiatives like the **National Quantum Mission, Semiconductor Mission, and National Research Foundation** are strengthening India's digital and deep-tech ecosystem.

5. **Rapid progress in quantum communication:** India has already crossed 1,000 km of secure quantum communication infrastructure within three years against the target of 2,000 km in eight years.

6. **Opening strategic sectors to private participation:** Sectors such as space and nuclear energy have been opened for private participation to support future technological growth.

7. **State-level incentives for data centres:** States like Maharashtra, Tamil Nadu, Telangana, Karnataka, and Uttar Pradesh are offering land subsidies, electricity duty exemptions, stamp duty waivers, and single-window clearances.

8. **Dedicated data centre promotion schemes:** The proposed **Data Centre Incentivisation Scheme (DCIS) and Data Centre Economic Zones (DCEZs)** aim to promote domestic equipment use, attract investments, and strengthen India's digital infrastructure ecosystem.

9. **RBI data localisation mandate:** The RBI's 2018 mandate requiring financial data storage within India increased investment in domestic data storage and processing infrastructure.

Opportunities Emerging from Data Centre Growth

1. **Large-scale job creation:** The sector is expected to generate nearly one lakh engineering jobs in AI systems, cooling technologies, smart grids, renewable energy integration, and digital infrastructure.

2. **Growth of regional data hubs:** Mumbai and Chennai together account for nearly two-thirds of India's operational data centre capacity because of strong connectivity and subsea cable infrastructure.

3. **Expansion into new states:** States such as Telangana, Karnataka, Andhra Pradesh, and Uttar Pradesh are emerging as important digital infrastructure centres with growing technology ecosystems.

4. **Rise of edge data centres:** Edge data centres are expanding in Tier-2 and Tier-3 cities to support IoT, online gaming, real-time analytics, and 4K streaming with lower latency.

5. **Boost to foreign investment:** Global technology companies and cloud providers are increasing investments in India to serve domestic and regional digital demand.

6. **Technology transfer and innovation:** Foreign investment in data centres is helping technology transfer, infrastructure development, and knowledge sharing across the digital ecosystem.

7. **Strong STEM talent pool:** India produces over 35 million STEM (Science, Technology, Engineering, and Mathematics) graduates annually, creating a large skilled workforce for the expanding digital infrastructure sector.

8. **Strengthening India's global position:** India aims to emerge as a trusted global data centre hub supported by scale, policy support, talent availability, and lower operating costs.

Key Challenges and Concerns

1. **Rising electricity demand:** AI-linked infrastructure could increase sectoral power demand from 10–15 TWh (Terawatt-hour) in 2024 to 40–45 TWh by 2030. Data centres may account for nearly 3% of India's electricity consumption this decade.

2. **Need for reliable power supply:** Data centres require uninterrupted electricity supply and stronger grid connectivity to support high-density computing operations.

3. **Sustainability concerns:** AI computing has increased pressure on energy systems. Sustainable infrastructure models are becoming necessary for future expansion.

4. **Infrastructure bottlenecks:** Future growth depends on resilient supply chains, subsea cable systems, advanced telecom connectivity, and transmission infrastructure expansion.

5. **Cooling and operational challenges:** AI workloads generate high heat and require advanced cooling systems, liquid cooling technologies, and efficient power management infrastructure.

6. **Skilled manpower requirement:** Rapid expansion of the industry requires specialised engineering talent and technical expertise across digital infrastructure operations.

Way Forward

1. **Integrated national coordination:** India needs stronger coordination between government, telecom providers, infrastructure firms, renewable energy stakeholders, and research institutions.

2. **Expansion of green technologies:** Renewable energy, efficient cooling systems, modular infrastructure, and energy-efficient hardware should become central to future expansion.

3. **Strengthening distributed infrastructure:** Greater focus on edge computing, Tier-2 and Tier-3 city expansion, and advanced telecom networks can improve digital service delivery and reduce latency.

4. **Continued policy support:** Long-term incentives, stable regulations, and strong implementation at both Union and state levels are important for sustaining investments.

5. **Investment in transmission infrastructure:** India must strengthen grid connectivity, power transmission systems, and subsea cable infrastructure to support future digital demand.

6. **Faster infrastructure execution:** Simplified approvals and coordinated implementation can reduce project delays and improve execution certainty for investors.

Conclusion

India's expanding data centre ecosystem is becoming the foundation of its digital economy, AI ambitions, and future technological competitiveness. Strong policy support, rising digital demand, and increasing investments provide major growth opportunities. However, sustainable energy systems, resilient infrastructure, skilled manpower, and efficient coordination between government and industry will determine India's success as a trusted global digital infrastructure hub.

Question for practice:
Discuss the opportunities and challenges associated with India's expanding data centre sector in the context of the country's digital and AI-driven growth.
Source: PIB