

The Hindu Important News Articles & Editorial For UPSC CSE

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Retail inflation in India fell to 3.34% in March 2025, marking its lowest level since September 2019. This decline in inflation is primarily attributed to the significant moderation in food prices.

- The easing inflation trajectory comes on the back of two consecutive repo rate cuts by the Reserve Bank of India (RBI), each by 25 basis points. This development has significant implications for monetary policy, fiscal space, household consumption, and overall macroeconomic stability.

Retail inflation at its lowest since 2019

Cooling in food prices seen as key factor; softening inflation trails 2 repo rate cuts by RBI; analysts expect price rise to stay below 4% in coming months, possibly leading to a further 50 bps rate cut; CPI data, released on the same day, moves in the same direction as wholesale price data

Ashokamithran T.
MUMBAI

Retail inflation eased to a five-and-a-half-year low of 3.34% in March, from 3.61% in the previous month, mostly due to lower food prices, according to data from the Ministry of Statistics and Programme Implementation. Vegetables, eggs, and pulses were significantly cheaper, though edible oils and fruits continued to see high inflation.

Rural inflation came in at a lower 3.25% in March, down from 3.79% in February, though urban inflation increased marginally from 3.32% in February to 3.43% in March.

Dip in food inflation

Fuel and light inflation increased moderately to

1.48%, with prices rising for the first time since September 2023.

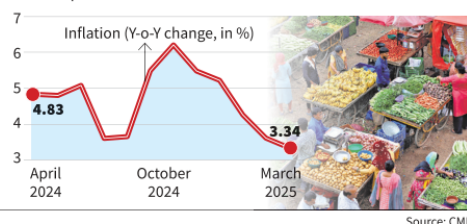
Consumer food price inflation (CFPI) hit a three-year low of 2.7% in March, a sharp drop from 3.75% in the previous month, according to data from the Centre for Monitoring Indian Economy (CMIE).

The slowing prices come on the heels of two consecutive repo rate cuts, each by 25 basis points (bps) or 0.25%, by the Reserve Bank of India indicating that the central bank is more worried about growth than inflation.

Economists agreed that the inflation is likely to stay under 4% in the coming months, which they said would prompt a 50 bps rate cut. "The softer than expected [Consumer Price Inflation] CPI will provide

Cooling prices

Retail inflation in March was the lowest since August 2019 as food prices continued to moderate



further comfort to the RBI to continue to prioritise growth. We retain our view that the RBI will continue on its accommodative stance with the terminal repo rate likely around 5% to 5.25%," said Upasna Bhadraraj, the chief economist at Kotak Mahindra Bank.

Kerala had the highest inflation of 6.6% followed

by Chhattisgarh, Maharashtra, Tamil Nadu, Karnataka, Assam, and Haryana which all had inflation of above 3.3%. Inflation was lowest in Delhi and Telangana coming in at 1.5% and 1.1% respectively.

Among major crops, tomato prices plunged almost 35% in March the reporting month, steeper than the 29% deflation in

February. Potato prices rose 2.3%, which was the lowest in a little more than a year. The kitchen staple's price had increased 26% in the previous month. Onion prices increased 19% in March, from 30% in the previous month. Overall, vegetable prices deflated 7% for the second consecutive month. Pulses and products prices deflated 2.7% in March, while egg prices fell over 3%. Rice and wheat prices rose 4.9% and 9% in March, lower than the 5.3% and 9% gains of the previous month.

The CPI data moved in the same direction as the wholesale price inflation data, which was released on the same day by the Commerce Ministry. Wholesale prices eased 2.05% in March, from 2.38% in February. Primary articles prices increased at a mod-

est 0.76% in March, down from 2.8% in the previous month. Fuel and power prices increased 0.2 % from a deflation of 0.7% in February 2025. Prices of manufactured goods too increased 3.07% in March, from 2.86% in the previous month. The WPI food index increased at a slower pace of 4.66% in March 2025 from 5.9% in the previous month.

Vivek Rathi, the national director of research at Knight Frank India, said that excluding the food and fuel basket, inflationary pressures persist among households, potentially tightening consumption expenditure, especially for lower-income households that are more sensitive to price increases.

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Key Highlights and Trends:

- Retail inflation, measured by the Consumer Price Index (CPI), dropped from 3.61% in February to 3.34% in March. The major contributor to this decline is the Consumer Food Price Inflation (CFPI), which registered a sharp fall to 2.7%, the lowest in three years. Prices of essential food items like vegetables, eggs, and pulses declined significantly. For instance, tomato prices fell by 35%, while pulses and eggs saw deflation of 2.7% and 3%, respectively.

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- Interestingly, urban inflation showed a marginal increase from 3.32% to 3.43%, while rural inflation fell to 3.25% from 3.79%. This divergence reflects the differences in consumption baskets and cost structures between rural and urban households.
- Fuel and light inflation, which had been in deflationary territory since September 2023, rose moderately to 1.48%. Despite this, overall price pressures remained subdued, with economists suggesting that inflation is likely to remain below the RBI's medium-term target of 4% in the near future.

Policy Implications:

- The consistent softening of inflation strengthens the case for further monetary policy easing. Economists now anticipate a 50 basis point rate cut in the near term. The RBI's recent decisions indicate a shift in priority from inflation management to supporting economic growth, especially amid global headwinds and domestic demand fragility.
- The terminal repo rate is expected to stabilize between 5% and 5.25%, suggesting that the central bank may adopt a more accommodative stance in the coming quarters. This aligns with the broader goal of stimulating investment and consumption to sustain economic recovery.

WPI Trends and Confirmation:

- The Wholesale Price Index (WPI) data released by the Commerce Ministry also reflected a similar trend, with wholesale inflation easing to 2.05% in March from 2.38% in February. The WPI food index rose at a slower pace, and manufactured goods inflation remained under control. This convergence of CPI and WPI data indicates a broad-based easing of price pressures across the supply chain.

Regional Variations and Social Impact:

- Inflation continues to show significant inter-state variation. Kerala reported the highest inflation at 6.6%, while Delhi and Telangana recorded the lowest rates at 1.5% and 1.1%, respectively. These disparities reflect differences in supply chains, local demand conditions, and administrative efficiency.
- However, despite lower food and fuel inflation, underlying core inflation (excluding food and fuel) remains sticky. According to experts, this could adversely affect lower-income households, who face sustained price pressures in non-food essentials such as housing, education, and healthcare. This raises concerns about real consumption expenditure, particularly in the informal sector.

Conclusion:

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- The recent decline in retail inflation is a positive sign for the Indian economy, offering the RBI room to support growth without the immediate threat of overheating. However, structural concerns remain. The persistence of core inflation and uneven impact across regions and income groups warrant careful monitoring.
- For long-term economic stability, it is crucial to maintain inflation within the target band while ensuring that monetary easing translates into inclusive growth, particularly in rural and lower-income segments.

UPSC Mains Practice Question

Ques :The recent moderation in retail inflation is largely driven by declining food prices, but core inflation remains persistent. Discuss the challenges this divergence poses to monetary policy formulation in India.



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The Supreme Court has issued a landmark judgment cautioning parents about the growing menace of child trafficking. The case involved a plea against the bail granted by the Allahabad High Court to 13 accused involved in an inter-State child trafficking racket. The apex court took a stern view of the issue and passed multiple directives to address systemic gaps in dealing with trafficking cases.

Beware of child traffickers, top court cautions parents

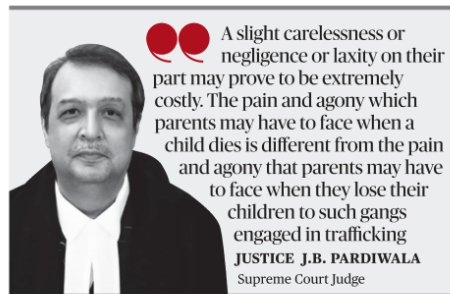
Supreme Court says licence of hospitals will be suspended if newborn babies go missing; Bench asks High Courts to ensure pending child-trafficking case trials are completed within six months

Krishnadas Rajagopal
NEW DELHI

The Supreme Court, in a judgment on Tuesday, warned parents to be "extremely vigilant" against gangs trafficking children for sexual exploitation, forced labour, begging, petty crimes, armed conflict, and child marriage and even camouflaging sale of infants as inter-country adoption.

A Bench of Justices J.B. Pardiwala and R. Mahadevan gave a chilling portrayal of the helplessness of child victims and their loved ones, mostly drawn from the poor sections of society and hardly equipped to deal with the well-networked child kidnapping rackets which use technology to share information, photos, and locations of victims and to transfer money.

"We want to convey a message to one and all, more particularly to parents across the country, that they should remain extremely vigilant and careful with their children. A slight carelessness or negligence or laxity on their part may prove to be ex-



A slight carelessness or negligence or laxity on their part may prove to be extremely costly. The pain and agony which parents may have to face when a child dies is different from the pain and agony that parents may have to face when they lose their children to such gangs engaged in trafficking

JUSTICE J.B. PARDIWALA
Supreme Court Judge

remely costly. The pain and agony which parents may have to face when a child dies is different from the pain and agony that parents may have to face when they lose their children to such gangs engaged in trafficking," Justice Pardiwala observed.

The court said there was no closure for parents whose children were lost.

Plea against bail

The 95-page verdict was on an appeal filed by the parents of victims through senior advocate Aparna Bhat against bail granted by the Allahabad High Court to 13 members of an inter-State child trafficking ring, most of whom have absconded with their whereabouts unknown to the police. At

least one of the accused was a nurse serving in a primary health centre in Chhattisgarh.

The court held that hospitals would have their licence suspended and be exposed to legal action if newborns were found missing and trafficked.

"When any woman comes to deliver her baby in any hospital, it is the responsibility of the administration of the hospital to protect the newborn infant in all respects," Justice Pardiwala ordered.

The court said trafficking of children to force them into crime was on the rise due to the protections offered to minors in the juvenile justice system. "A protection mechanism for children is exploited as a

safe haven for committing heinous crimes," it said.

Justice Pardiwala said that significant waiting periods for adoption in India had encouraged criminal networks to engage in large-scale abduction and sale of children.

The Bench cancelled the bail granted to the accused by the High Court. It said the decision of the High Court to set them at liberty was a "very callous" one. The apex court ordered their trial be completed in six months. The police were given two months' time to trace the absconding accused persons.

The Bench said the Uttar Pradesh government had hardly bothered to even appeal against the High Court decision. "We are thoroughly disappointed with the manner in which the State handled the situation... The State, unfortunately, has exhibited no seriousness worth the name," Justice Pardiwala noted.

The High Courts across the country were asked to pull up all pending cases of child trafficking and ensure that the trials were completed in six months.

Key Highlights of the Judgment:

- Warning to Parents:
 - The court highlighted that trafficking networks exploit minor lapses in parental vigilance.

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- Emphasis was placed on the trauma and enduring pain of parents whose children are trafficked, contrasting it with the grief of a child's death, underscoring the psychological agony.
- Hospital Accountability:
 - The Supreme Court ordered that any hospital from which newborns go missing may face suspension of license and legal action.
 - The administration of healthcare institutions is made directly responsible for ensuring the security of newborns.
- Critique of State Machinery:
 - The Uttar Pradesh government was criticized for its lack of seriousness and failure to appeal the High Court's lenient bail order.
 - The court noted the absconding of accused persons and a lack of effective police action.
- Direction to High Courts:
 - All High Courts were directed to expedite child trafficking cases and complete their trials within six months.
 - A call was made to treat these cases with urgency and sensitivity.
- Trafficking under the Guise of Adoption:
 - The court highlighted how delays in legal adoption processes are being exploited by trafficking networks to sell children under the guise of inter-country adoption.
 - Technology is being misused by traffickers for coordination, tracking victims, and financial transactions.
- Misuse of Juvenile Justice System:
 - Children are increasingly being trafficked for criminal activities due to leniency in the juvenile justice system.
 - The system intended for child protection is ironically being used as a shield for committing crimes.

Significance for Governance and Policy:

- **Judicial Vigilance:** The judgment reinforces the Supreme Court's role as a guardian of child rights and underscores the judiciary's proactive stance in addressing systemic failures in law enforcement.
- **Strengthening Child Protection Framework:** The observations call for immediate reforms in hospital protocols, inter-State policing coordination, and monitoring mechanisms in adoption processes.
- **Federal Responsibility:** The critique of the Uttar Pradesh government underlines the critical responsibility of States in tackling organized crimes like trafficking.
- **Need for Policy Innovation:** With criminal networks leveraging legal loopholes and systemic delays, there is an urgent need for faster adoption processes, stricter hospital security protocols, and use of technology by law enforcement.

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Conclusion:

- This judgment serves as a wake-up call for all stakeholders—governments, hospitals, civil society, and the judiciary. It places the issue of child trafficking in the national spotlight and calls for multi-layered institutional reforms. The directive to conclude pending trials within six months sets a strong precedent and reiterates that justice delayed is justice denied, especially in the context of vulnerable children.

UPSC Mains Practice Question

Ques : The recent Supreme Court judgment on child trafficking reflects the proactive role of the judiciary in safeguarding vulnerable sections of society. Discuss the significance of judicial interventions in protecting child rights in India.



In a landmark verdict in *State of Tamil Nadu vs. Governor of Tamil Nadu*, the Supreme Court laid down critical guidelines interpreting Articles 200 and 201 of the Constitution concerning gubernatorial and presidential assent to Bills. Invoking Article 142, the Court fixed time limits for decision-making, rejected unfettered discretion of constitutional authorities, and reaffirmed democratic supremacy in the legislative process.

A proclamation of democracy in legislative process

The recent judgment by the Supreme Court of India, in *The State of Tamil Nadu vs Governor of Tamil Nadu*, was a historic one. But it has also led to another development – the passing of laws without the assent of the Governor or President, which is an unprecedented event in the history of the republic. The Court invoked Article 142 of the Constitution to do “complete justice” in the case and fixed a time limit for the gubernatorial and presidential responses to the Bills passed by the State legislature. It interpreted Articles 200 and 201 of the Constitution dealing with the powers and functions of the Governors and the President and laid down principles governing these provisions. It emphatically said that the Governor cannot torpedo the laws made by the legislature that reflects the people's will.

The judgment that runs into 414 pages has embarrassed the Centre. The Governor of Kerala is on record for his criticism of the judgment. He has expressed his view that the Court has overstepped into the domain of Parliament and exceeded its authority by subjecting even the President of India to judicial review.

The issue of interpretation

The Constitution is not a static document when it requires interpretation. The Court does not read the text of the Constitution in a mechanical way; rather, it interprets it organically in each situation. A centralist Constitution such as India's often calls for a federalist elucidation, to balance the interest of the States, which essentially means the people of India. Again, very many deficits in the constitutional provisions might require imaginative and purposive construction to fulfil their objective. Scholar Robert Post has rejected the plain meaning theory of interpretation as not a theory at all, for it does not actually involve a process of interpretation.

Constitutional interpretation, unlike statutory interpretation, is bound to be panoramic, futuristic and extensive. The Court's long journey from the narrow understanding of Article 21 in *A.K. Gopalan* (1950), which validated the preventive detention, to the broader prepositions on privacy based on the very same article in *K.S. Puttaswamy* (2017) shows the significant transformation in the process. The present judgment, which was rendered by Justice J.B. Pardiwala and Justice R. Mahadevan, demonstrates constitutional modernity and realism.

Article 200 of the Constitution is about the Governor's duties (not powers) with respect to the Bills passed by the State legislature. Primarily,



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when a Bill is placed before her, the Governor has three ways ahead: to give assent; to withhold it; or to make a reference to the President.

Returning the Bill that is withheld, for reconsideration is the next option. Once a Bill so returned is reiterated by the House with or without amendment, the Governor cannot withhold assent any further. The Article also provides for reserving the Bill for presidential clearance in certain cases. Situations of repugnancy, and patent unconstitutionality on account of breach of express constitutional provisions could be reasons for such a course. Article 201 is on the obligations of the President on reservation of the Bill for her consideration. She can either give assent or withhold it. Also, she can direct the Governor to return the Bill to the President with a message when it is not a money Bill. Reconsideration of such a returned Bill should happen within six months. On reiteration, the Bill should be again ‘reconsidered’ by the President.

Requirement of a reasoned order

This scheme indicated in the constitutional text is not comprehensive. The Court, while deciding the illustrative instance of the Tamil Nadu Governor dragging the Bills, had occasion to scan the intent and the content of the constitutional provisions. One major deficit of the provisions is a lack of a time limit for the Governor or the President to carry out their prescribed function. Again, provisions imply a great element of trust in the constitutional functionaries, which, however, stands betrayed over a period, especially in the recent past. A textual reading of the provisions can only perpetuate these deficits, which in turn, cannot resolve the issue placed by Tamil Nadu in the given case. This realisation has constrained the Court to fix the time limit for gubernatorial and presidential decisions on the Bills. This again has led to the judicial assertion that certain actions or inactions by the constitutional functionaries under these provisions cannot escape judicial scrutiny. In the given scenario, the idea of deemed assent by the President was a constitutional synthesis, for which Article 142 of the Constitution provides a formidable foundation.

The judgment relied on the Sarkaria Commission Report (1988) which said that “nonconformity of a state Bill to the policy of the Union Government is not always a safe ground for withholding presidential assent from it”. The verdict has also underlined the requirement to have reasoned orders when constitutional functionaries choose to decline assent. It rejected

the idea of “simpliciter withholding” of the Bills. Thus, the perceived immunity attached to the Governor and the President in the legislative process is completely removed by the judgment. It is a proclamation of people's democracy in the legislative process.

Therefore, the criticism that the Court has exceeded in its jurisdiction in the given case is clearly misconceived. It is erroneous to think that the Court has ‘amended’ the Constitution only because it supplemented (not supplanted) the constitutional provisions to meet the exigencies. It does not amount to legislation either, as the conclusions in the judgment only rest on a thorough precedential survey on the issue. It quoted Justice V.R. Krishna Iyer in *Shamsher Singh & Anr vs State of Punjab* (1974), a seven-judge Bench judgment, which is still regarded as the *locus classicus* on gubernatorial functions under our constitutional scheme. The present verdict imported the people's right to enact laws while *Shamsher Singh* was more on the binding nature of the decision of the cabinet chosen by the voters. The Court could reject the idea of “unfettered discretion” in referring the Bills to the President, as laid down in *B.K. Pavitra vs Union of India* (2019), based on larger Bench decisions such as the one in *Shamsher Singh*. It is promising to see the judiciary in an assertive mode, after a long interval, that too in a case where it directly confronted the political executive at the Centre.

Suggestions to consider

Yet, two suggestions may be useful for the time to come. The first is that in critical constitutional adjudication, instead of rendering huge verdicts after a long time, the Court needs to resort to the practice of delivering shorter judgments within a shorter span of time. The judgment of the U.K. Supreme Court in the Brexit-related case, *R(Miller) vs The Prime Minister* (2019), was just 24 pages. Brevity and promptness in the judicial process could be of great support for a nation in trouble.

Second, when matters of the similar nature are pending adjudication, the Court must have a system to club them together so that the same Bench hears the cases together. A lack of proper internal management in the Court was felt when after the Tamil Nadu judgment, a request had to be made on behalf of the State of Kerala to place its petition seeking similar relief before the same Bench. Propriety demands that such a request is heeded to forthwith, to ensure certainty, predictability and clarity, which are essential facets of constitutional adjudication.

The perceived immunity to the Governor and the President in legislative process has been completely removed by the Supreme Court's recent judgment

Key Takeaways from the Judgment:

- Assertion of Judicial Review:
 - The Court reaffirmed that governors and even the President are not beyond judicial scrutiny in the legislative process.

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- Discretion exercised without reasons or timelines is subject to judicial correction, especially when it blocks the will of elected legislatures.
- Time Limit on Assent Process:
 - A major lacuna in Articles 200 and 201 was the absence of any time limit for gubernatorial or presidential action on Bills.
 - The Court filled this constitutional vacuum by prescribing timelines using Article 142 – a power to ensure "complete justice."
- Rejection of Arbitrary Withholding:
 - The judgment held that withholding assent without reasons is unconstitutional.
 - Any decision to refer, withhold, or return a Bill must be reasoned, ensuring accountability and transparency in constitutional functions.
- Doctrine of "Deemed Assent":
 - By invoking Article 142, the Court hinted at the possibility of deemed assent, especially in cases of unjustified delay, to protect legislative supremacy.
- Use of Precedents and Commission Reports:
 - Relied on Sarkaria Commission (1988): Non-alignment with Union policy is not a valid ground to withhold assent.
 - Cited Shamsher Singh (1974) to establish that the Governor is bound by the advice of the State Cabinet.

Significance of the Judgment:

- Democratic Supremacy: The verdict strengthens popular sovereignty by asserting that elected legislatures cannot be undermined by appointed functionaries.
- Judicial Modernism: The Court's organic and purposive interpretation goes beyond textual rigidity, showing flexibility to respond to constitutional exigencies.
- Federal Balance: The decision counters centralisation tendencies and reinforces the federal spirit, where States are not passive units but co-equal partners.

Criticisms Addressed:

- The Kerala Governor and critics claimed judicial overreach.
- The Court clarified it has not amended the Constitution, but interpreted it harmoniously to uphold democratic values.
- It emphasised that constitutional silence cannot be a tool for executive inaction.

Suggestions for Future Governance and Judicial Process:

- Brevity and Timeliness:

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- Judicial decisions, especially in constitutional matters, must be concise and prompt, as in the UK Supreme Court's 2019 Brexit judgment.
- Efficient Case Management:
 - Similar cases (like Kerala's plea) should be clubbed together for judicial consistency and administrative propriety.

Implications for Indian Polity:

- The verdict is a proclamation of democracy in the legislative process.
- It repositions the Governor as a constitutional figurehead, not an obstructive political tool.
- It sends a strong message against executive delay and inaction in matters of public policy and legislation.

Conclusion:

- This judgment marks a progressive constitutional milestone by redefining the boundaries of gubernatorial discretion and reinforcing institutional accountability. It reflects the judiciary's proactive role in preserving democratic norms and preventing misuse of constitutional provisions for political convenience. In the broader context, it rejuvenates federalism, separation of powers, and constitutional morality—principles vital for India's democratic evolution.

UPSC Mains Practice Question

Ques : "The Governor is a constitutional figure, not a political gatekeeper." Critically examine the role of the Governor in the legislative process in light of the recent Supreme Court judgment on delay in granting assent to Bills.

The regulation and governance of Artificial Intelligence (AI) have become globally significant due to AI's transformative potential and risks. While many countries have either passed laws or drafted AI-specific legislations, India has yet to adopt a comprehensive legal or policy framework. This analysis explores India's evolving approach, its challenges, and the way forward.

The approach to regulating AI in India

The governance and regulation of Artificial Intelligence (AI) have garnered significant global attention over the past year. While the discourse has recently shifted from a focus on social safety, inclusivity, and human rights towards prioritising innovation and economic prosperity, only a few countries or regions have so far introduced laws to regulate AI. These include China, the European Union, Canada, Korea, Peru, and the U.S. (though U.S. President Donald Trump has now revoked former President Joe Biden's Executive Order related to the utilisation of AI). Several countries, such as the U.K., Japan, Brazil, Costa Rica, Colombia, and Pakistan have draft Bills awaiting approval from their respective legislative assemblies.

A more common approach globally has been the publication of a policy or strategy document that outlines the country's intentions, plans, budgets, and a road map for leveraging AI to foster socio-economic development, while ensuring that the resultant growth is inclusive, ethical, and sustainable. About 85 countries and the African Union have published some official (National) AI Strategy documents.

India's approach
India, however, appears to have taken a different approach. It has neither an officially approved National AI Strategy document nor a law specifically regulating AI. Instead, it has focused its resources on a government mission designed to support the development and adoption of AI. The NITI Aayog document titled 'National Strategy for Artificial Intelligence' from 2018, while comprehensive and strong in its suggestions, remains a recommendation without formal endorsement from the Government of India or an implementation plan or budget. The IndiaAI mission, through its seven pillars, aims to foster an innovative, skilled, safe, and



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There are various approaches to AI governance and regulation, and valuable lessons can be drawn from how different countries worldwide have handled data regulation and policies

trustworthy AI ecosystem. Several initiatives, such as a foundational AI model, are in the pipeline. An advisory group of experts is currently working to develop recommendations for governance frameworks that could be suitable for India. But there is limited clarity regarding whether these recommendations will be adopted into official governance policies or integrated as internal mechanisms.

While there are several benefits to this approach – primarily the flexibility to adapt plans in response to the evolving nature of technologies, their adoption, geopolitics, economics, trade, and citizen sentiment – it also leaves a significant gap. Specifically, it does not provide a comprehensive view of India's vision, priorities, capacity, achievements, planned milestones, initiatives, or accountability mechanisms. The initiatives remain reactive and may or may not follow a planned trajectory towards the envisioned goals. They also risk dependence on individual leadership.

AI development remains predominantly concentrated in the U.S., the EU, the U.K., and China, but India is experiencing a rapid and substantial rise in AI adoption. As AI usage expands, it is essential to ensure that its implementation does not lead to discrimination, exclusionary practices, unfair outcomes, cybersecurity threats, privacy breaches, or unequal opportunities. At present, the guardrails surrounding AI implementation are largely voluntary and lack clarity. There is little to no public awareness of algorithmic use, efficacy or evaluation metrics even in sectors that directly impact citizens' everyday lives, such as banking, insurance, education, healthcare, and public administration. Subsequently, there is little civic discourse on important issues such as algorithmic alignment with societal values, model evaluation outcomes, data and content provenance, labour

market disruptions, or the potential cybersecurity and privacy risks driven by AI. This lack of discussion is especially concerning in light of the fact that India has already experienced several instances of violence and social harm, largely fuelled by AI-generated content on social media platforms in recent years.

Lessons to be drawn

There are various approaches to AI governance and regulation, and valuable lessons can be drawn from how different countries worldwide have handled data regulation and policies. With the Digital Personal Data Protection (DPDP) Act, 2023, the Government of India has adopted an approach similar to the EU's General Data Protection Regulation (GDPR) and China's Personal Information Protection Law – cross-sectoral, centralised, and comprehensive. In contrast, the U.S. has taken a more decentralised and sector-specific approach to data protection and privacy. China has implemented focused laws for different types of AI (for instance, generative AI) or a use case (for example, deep synthesis). India could adopt any of these approaches or develop a hybrid model, building on the framework established by the centralised DPDP Act, 2023.

An AI policy could be a viable short-term goal for India. Such a policy would also allow the government to pilot enforcement tools before introducing formal legislation. Insights from the 85 AI policies worldwide suggest key areas that should be addressed in the official document. These include India's vision for AI, strategies for building capacity and infrastructure to support AI development and adoption, the government authority responsible for policy implementation, ethical guidelines for responsible AI use, and priority sectors where AI can drive socio-economic growth. Public discussion on AI use need to be urgently initiated by the government too.

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India's Current Approach:

- Lack of Formal Legislation:
 - India does not yet have a dedicated AI regulation law or an officially approved National AI Strategy.
 - The 2018 NITI Aayog "National Strategy for Artificial Intelligence" remains an unendorsed recommendation with no binding implementation framework or allocated budget.
- Mission-Based Strategy:
 - The IndiaAI Mission, guided by seven pillars, aims to develop a trustworthy, safe, and inclusive AI ecosystem.
 - An expert advisory group is currently working on AI governance recommendations, though their formal adoption remains uncertain.
- Flexible but Fragmented:
 - While this approach allows India to remain adaptable in response to fast-changing tech landscapes and geopolitics, it lacks coherence, vision, and accountability.
 - Initiatives risk becoming reactive rather than strategic and may be heavily dependent on individual leadership rather than institutional frameworks.

Concerns and Challenges:

- Absence of Guardrails:
 - India currently has no binding AI usage regulations, leaving implementation decisions largely to private discretion.
 - There is minimal public awareness about how algorithms are used in critical areas such as healthcare, banking, education, or public service delivery.
- Social and Ethical Risks:
 - Unregulated AI systems can lead to bias, discrimination, exclusion, and even violence, particularly when used for surveillance or social media content manipulation.
 - India has already experienced social harms driven by AI-generated misinformation.
- Cybersecurity and Privacy Threats:
 - AI models using sensitive data raise concerns about data privacy and national security.
 - Though India enacted the Digital Personal Data Protection (DPDP) Act, 2023, it doesn't specifically address AI-driven algorithmic decision-making.

Global Comparison and Lessons for India:

- European Union (EU): Introduced the AI Act, emphasizing ethics, transparency, and human rights.
- China: Enacted sector-specific AI laws, such as those for generative AI and deep synthesis content.
- United States: Follows a decentralized, sector-specific approach to AI and data regulation.

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- India: Follows a mission- and advisory-based model without formal regulatory architecture.

India could consider a hybrid model, using the DPDP Act as a foundation while gradually introducing specific AI governance mechanisms.

Way Forward:

- Draft and Adopt a National AI Policy:
 - Define India's vision for AI, ethical standards, and sectors of priority (healthcare, education, agriculture, etc.).
 - Identify the nodal agency responsible for AI governance.
- Public Awareness and Stakeholder Engagement:
 - Promote civic discourse on algorithmic use, biases, and AI's impact on rights and society.
 - Include academia, industry, and civil society in the policy-making process.
- Pilot Enforcement Tools:
 - Before enacting binding legislation, test governance mechanisms, including algorithm audits and accountability frameworks.
- Capacity and Infrastructure Building:
 - Invest in R&D, digital infrastructure, skilling, and regulatory training for effective enforcement and oversight.

Conclusion:

- India stands at a crossroads where it must balance AI-driven innovation with regulation that safeguards public interest, privacy, and ethics. While flexibility has served India's digital policy-making in the short term, the lack of formal strategy and oversight can no longer be ignored. A comprehensive national AI policy, followed by appropriate legislation, is crucial for responsible AI governance aligned with India's democratic and developmental goals.

UPSC Mains Practice Question

Ques :India must strike a balance between promoting innovation in Artificial Intelligence and protecting citizen rights. Discuss the need for a comprehensive national policy on AI in the context of rising privacy concerns, cybersecurity threats, and socio-ethical implications.(250 words)

In News : Cheetah Relocation from Kuno to Gandhi Sagar

Recently, the Cheetah Project Steering Committee officially approved the relocation of some cheetahs from Kuno National Park to Gandhi Sagar Wildlife Sanctuary in Madhya Pradesh.

About Cheetah Relocation from Kuno to Gandhi Sagar

- The Cheetah Project Steering Committee was set up in May 2023 by the National Tiger Conservation Authority (NTCA) to review, monitor, and advise on the cheetah reintroduction program.
- Project Cheetah began in 2022 with the translocation of 8 cheetahs from Namibia and 12 from South Africa to Kuno National Park. Still, the project has faced setbacks, with 8 adult cheetahs and 5 cubs dying so far.
- Gandhi Sagar Wildlife Sanctuary has been identified as a key part of establishing a cheetah meta-population of 60–70 individuals across the Kuno–Gandhi Sagar landscape, which stretches across Madhya Pradesh and Rajasthan.
- As of now, there are 26 cheetahs at Kuno, of which 17 are in the wild and 9 are still inside large enclosures. It is yet to be decided whether the relocated cheetahs will come from the wild or enclosures.
- According to forest officials, prey species at Gandhi Sagar currently include chinkara, chousingha, nilgai, and chital.

About Cheetahs

- Cheetahs breed year-round, with peak breeding during the rainy season. Females reach sexual maturity between 20–24 months, while males mature later, at 24–30 months.
- The gestation period of a cheetah is approximately 90–95 days, and they typically give birth to 3–5 cubs.
- Cheetahs do not roar like other big cats; instead, they communicate using high-pitched chirps, barks, and stutter barks to establish presence or territory.
- They are solitary animals and use urine sprays, cheek rubbing, and scratch marks on trees to mark territory.
- Cheetahs are the fastest land animals, capable of reaching speeds up to 120 km/h and can accelerate from 0 to 100 km/h in just 3 seconds.
- During hunting, they employ a unique tripping technique using their semi-retractable claws to destabilise prey, though their hunting success rate is only 40–50%.

Protection Status of Cheetahs

- Cheetahs are listed as Vulnerable on the IUCN Red List.

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- They are protected under Schedule II of the Wild Life (Protection) Act, 1972.
- They are also included in Appendix I of the Convention on International Trade in Endangered Species (CITES), offering the highest level of protection from international trade.

UPSC Prelims Practice Question

Ques :With reference to the Cheetah Reintroduction Project in India, consider the following statements:

1. Project Cheetah was launched in 2022 with cheetahs relocated from Kenya and South Africa.
2. The Gandhi Sagar Wildlife Sanctuary is being developed as part of a landscape to support a meta-population of cheetahs.
3. The Cheetah Project Steering Committee was constituted under the Wildlife Institute of India (WII).

Which of the statements given above is/are correct?

- (A) 1 only
- (B) 2 only
- (C) 2 and 3 only
- (D) 1 and 3 only

Ans : b)

India, rising power demand and the 'hydrogen factor'

The goal of achieving a net-zero economy can be realised only by massive electrification of end uses of energy. Besides their use in generating electricity, fossil fuels are used to provide heat and molecules for industrial processes. The use of fossil fuels for providing heat is ubiquitous and well understood. Examples of providing molecules include the use of carbon (from coal) in steel making to reduce iron ore, and the use of hydrogen from natural gas to make ammonia, which is a feedstock for the fertilizer industry. In the steel industry, hydrogen can be substituted for carbon. Thus, a net-zero economy would mean electrification of end uses and the use of hydrogen for many industrial processes.

Power demand and nuclear power plans
Forecasts made by several academics, including this writer and his colleagues, predict a steep increase in electricity demand to meet the goal of economy-wide net-zero emissions for a developed India. Solar, wind and hydro cannot provide all the electricity that India needs, and nuclear has to be part of the energy mix in India. Considering this, the Government of India has set an aspirational target to reach 100 GW of installed capacity based on nuclear power by 2047.

The Nuclear Power Corporation of India Limited (NPCIL) has announced an ambitious programme to set up several 700 MW Pressurized Heavy Water Reactors (PHWRs). Two units are working at Kakrapar in Gujarat. One unit in Rajasthan was synchronised to the grid in March 2025 and another is under commissioning. Two units are coming up in Haryana. In 2017, the NPCIL announced the construction of a fleet of 10 reactors, and on March 11 this year, the Chairman and Managing Director of NPCIL announced plans to construct an additional 10 units. When completed, the total will amount to 26 units of 700 MW rating.

Many public sector undertakings and departments such as the Indian Railways are looking to deploy nuclear power plants.



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With a goal of a net-zero economy meaning greater use of hydrogen, hydrogen generation and electricity storage would need to be synergised

The NPCIL has invited proposals from the industry for setting up 220 MW PHWRs, christened as Bharat Small Reactors (BSRs) for its captive use. The NPCIL has several 220 MW PHWRs in its portfolio, and the BSR is its evolutionary version. Thus, the NPCIL is marching ahead to set up PHWRs, a technology that it has mastered. Indian industry is capable of manufacturing all equipment and components for PHWRs.

Low carbon sources and solutions

Therefore, in the years ahead, the share of electricity provided by low-carbon sources, that is, hydro, nuclear, solar and wind, will increase. Solar and wind are intermittent sources, and nuclear is best operated as base load. At present, to balance supply and demand during solar hours, coal-fired power plants are flexed. Flexing coal-fired plants and letting solar and wind continue to operate lowers carbon emissions from electricity generation. In the emerging scenario, when all sources are low-carbon, balancing supply and demand will need innovative solutions.

Suggestions to explore the possibility of flexing nuclear power plants have been made. It is not desirable to flex power plants set up with a high capital cost. It is worth recalling that the capital cost of a nuclear plant is higher than a coal-fired power plant, but the variable cost is lower.

Also, flexing nuclear power plants is technically challenging. Though adopted to a limited extent in some countries for certain reactor designs, it is also not cost-competitive for two reasons: when operated at low power, the variable cost might remain the same as for operating at full power or only marginally come down. This does not make any environmental or economic sense. Many advanced reactors are being designed to be load-following, but this is a technology for the future.

Producing hydrogen by electrolyzers when there is surplus electricity in the system is a solution based on mature technologies. One can

connect electrolyzers and electricity storage devices to the grid and operate them to shape demand so that there is no need to flex nuclear power plants or curtail solar and wind. Following this approach, one can reduce electricity storage requirements. Considering that the cost of electricity storage is an issue for large-scale integration of solar and wind, this approach provides a win-win solution.

Electrolyzers are low-cost equipment and can be operated at different power levels. The scheme proposed for hydrogen production using surplus electricity in the system is not for the reconversion of hydrogen to electricity but for its use in the industry.

The government has defined hydrogen produced by electrolyzers using electricity from solar and wind as green and has provided incentives. A certification scheme has also been drafted for green hydrogen, where electrolytic and biomass-based hydrogen with CO₂ emissions not exceeding 2 kg CO₂/kg H₂ on average is called green. Life-cycle greenhouse gas emissions (expressed in terms of a kg of greenhouse gas per kg of hydrogen) for hydrogen production from renewable sources and nuclear power plants are comparable. It is suggested that the taxonomy be changed from green hydrogen to low-carbon hydrogen based on a threshold for carbon emissions. This will enable nuclear to be included in the definition of low-carbon hydrogen

Need for synergy

At present, electricity storage and hydrogen production are considered distinct activities. This needs to change. Hydrogen generation and electricity storage need to be synergised to improve economics. Our case studies demonstrate that by synergising hydrogen generation and battery storage, one can improve overall economics.

We recommend two policy changes: changing the taxonomy by replacing green hydrogen with low-carbon hydrogen, and synergising electricity storage and hydrogen production.

Paper 03: Indian Economy

UPSC Mains Practice Question: "The pathway to net-zero emissions for India demands synergy between electrification, hydrogen, and low-carbon technologies."

Discuss the role of nuclear energy and hydrogen in meeting India's rising power demand and industrial decarbonisation goals. (250 words)

Context :

- India's journey towards achieving net-zero emissions by 2070 involves massive electrification of energy use and the deployment of low-carbon technologies. A significant focus is now placed on nuclear energy expansion and green/low-carbon hydrogen production as alternatives to fossil fuels in both power generation and industrial applications.

Key Highlights:

- Net-Zero and Electrification:**
 - Moving toward a net-zero economy requires electrification of industries currently dependent on fossil fuels — especially steel, fertilizer, and chemical industries.
 - Hydrogen (particularly green/low-carbon hydrogen) is a key substitute molecule in industrial processes.
- India's Rising Power Demand:**
 - To meet projected electricity demand in a developed, net-zero India, solar, wind, hydro, and nuclear must all play vital roles.
 - Nuclear energy has been identified as a reliable baseload power source to complement intermittent renewables.
- India's Nuclear Ambitions:**
 - Target of 100 GW nuclear installed capacity by 2047.
 - Expansion of 700 MW Pressurized Heavy Water Reactors (PHWRs) and 220 MW Bharat Small Reactors (BSRs) for industrial and captive use.
 - Public Sector Undertakings (PSUs) like Indian Railways exploring deployment of nuclear-powered infrastructure.

Hydrogen Production and Grid Stability:

- Flexibility Challenge:**
 - Nuclear plants are not cost-effective to flex due to high capital costs and near-constant variable costs.
 - Flexing solar and wind with current technology involves curtailment or expensive battery storage.
- Hydrogen as a Grid Balancer:**
 - Surplus electricity during solar/wind peaks can be used to run electrolyzers, generating hydrogen for industrial use rather than storage for electricity reconversion.
 - Electrolyzers are mature, cost-effective and can operate at varied loads, acting as demand shapers.
- Policy Need: Low-Carbon Hydrogen:**
 - Current definition of green hydrogen excludes nuclear-based production.
 - Proposal: Broaden definition to low-carbon hydrogen (with $<2\text{kg CO}_2/\text{kg H}_2$) to include nuclear-based hydrogen and enable better integration and incentives.

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Policy Implications:

- Synergy Between Hydrogen and Storage:
 - Hydrogen production and electricity storage should not be seen in silos.
 - Integrated planning of hydrogen and battery storage can improve grid economics and reliability.
- Need for Taxonomy Change:
 - From "green hydrogen" to "low-carbon hydrogen", enabling inclusion of nuclear-based hydrogen, recognizing its life-cycle emissions parity with renewables.
- Industrial Decarbonisation:
 - Hydrogen can decarbonise hard-to-abate sectors like steel and fertilizer.
 - Electrification and hydrogen use can reduce fossil fuel dependency and align with energy security goals.

Challenges and Way Forward:

- **Economic Viability:** Scaling up nuclear and hydrogen infrastructure requires massive investment and financing models.
- **Policy Integration:** Hydrogen and storage policy must be integrated under a unified clean energy roadmap.
- **Public Acceptance and Safety:** Especially in nuclear, issues of safety, waste management, and public perception need addressing.
- **Technology and Skill Development:** Indigenous manufacturing and R&D in electrolyser and reactor tech must be prioritized.

Conclusion:

- The convergence of rising power demand, nuclear energy expansion, and hydrogen production offers India a strategic pathway to a low-carbon economy. The integration of electrolysers with nuclear and renewable sources, coupled with appropriate policy reforms, can make India's energy transition not just green but also economically viable and technologically resilient. A low-carbon hydrogen taxonomy and synergy between storage and hydrogen are critical to realizing this vision.