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CABINET DECISION

06-08-2026

GOBARDhan

**India's National Unified Scheme
for Compressed Biogas**

GENERATED IMAGE





GOBARdhan

Total Financial Outlay

₹ 23,731 crore

Implementation Period

FY 2026-27 to FY 2035-36

06-08-2026

CABINET DECISION

AI-GENERATED IMAGE

Govt. okays ₹23,371 cr. GOBARdhan scheme

The National Circular Bioenergy Scheme aspires to raise local production of CBG by tenfold, mobilise private investments on a large scale

Saptaparno Ghosh
NEW DELHI

The Union cabinet approved the National Circular Bioenergy Scheme – GOBARdhan, provisioning ₹23,731-crore to catalyse the growth of compressed biogas (CBG).

The GOBARdhan (Galvanising Organic Bio-Agro Resources Dhan) outlay, to be in place until FY2035-36 seeks to raise local compressed biogas production almost tenfold via assured offtake, administered pricing, capital subsidies, boosting pipeline infrastructure and easier access to finance, the Centre said.

The government emphasised the scheme would seek to impart a “strong and predictable framework” to fuel the up-tick of the CBG ecosystem.



Energy security: The compressed biogas plant at Brahmapuram currently processes about 50 tonne of biodegradable waste a day.

The programme would involve the use of agricultural residue, cattle dung, sugar industry waste such as press mud, municipal organic waste and other biomass to produce compressed biogas, which can be blended into CNG used in automobiles and also piped natural gas (PNG).

Three imperatives

Welcoming the government initiative, A.R. Shuk-

la, President of the Indian Biogas Association said the scheme addresses three imperatives – remunerative price, assured offtake and capital support – sought by the industry.

“This scheme delivers all three,” he said, adding, “moving from 300 operating plants towards 5,000 [plants] will create lakhs of rural jobs. Industry must respond with speed, quality and discipline.”

Consider the following statements about 'PM Surya Ghar Muft Bijli Yojana' :

- I. It targets installation of one crore solar rooftop panels in the residential sector.
- II. The Ministry of New and Renewable Energy aims to impart training on installation, operation, maintenance and repairs of solar rooftop systems at grassroot levels.
- III. It aims to create more than three lakhs skilled manpower through fresh skilling, and upskilling, under scheme component of capacity building.

Which of the statements given above are correct?

- (a) I and II only
- (b) I and III only
- (c) II and III only
- (d) I, II and III

Consider the following statements about the **Rashtriya Gokul Mission** :

- I. It is important for the upliftment of rural poor as majority of low producing indigenous animals are with small and marginal farmers and landless labourers.
- II. It was initiated to promote indigenous cattle and buffalo rearing and conservation in a scientific and holistic manner.

Which of the statements given above is/are correct?

- (a) I only
- (b) II only
- (c) Both I and II
- (d) Neither I nor II

Context (GS III: Environment | Energy Security | Agriculture | Waste Management)

The Union Cabinet approved **the National Circular Bioenergy Scheme (GOBARdhan – Galvanising Organic Bio-Agro Resources Dhan)** with an outlay of ₹23,731 crore (FY 2026–27 to FY 2035–36) to expand Compressed Biogas (CBG) production and promote a circular bioeconomy.

1. **GOBARdhan Scheme**

I. **Ministry:** Ministry of Petroleum & Natural Gas (MoPNG)

II. **Key Features**

- **Umbrella scheme:** Integrates all Central Government support for the CBG ecosystem under a single framework.
- **Feedstock diversification:** Utilises cattle dung, crop residue, press mud, sewage and other biodegradable waste for CBG production.
- **Assured offtake mechanism:** Ensures market access for CBG producers through guaranteed procurement.
- **Administered pricing mechanism:** Provides price certainty to improve project viability.
- **Viability Gap Funding (VGF):** Financial support for commercially less viable CBG projects.
- **Private sector participation:** Encourages PPPs and investment across the CBG value chain.

III. **Objectives**

- Increase domestic CBG production nearly tenfold and reduce dependence on imported natural gas.
- Convert organic waste into clean fuel and bio-manure through the Waste-to-Wealth approach.
- Generate rural employment and provide additional income to farmers.

IV. **Significance**

- Strengthens the Circular Economy and scientific waste management.
- Reduces stubble burning, landfill waste and greenhouse gas emissions.
- Supports India's Net Zero 2070 target and long-term energy security.



The Asan Wetland Conservation Reserve lies at the confluence of the Asan and Yamuna rivers in Uttarakhand and was designated a Ramsar site in 2020. B. JOTHI RAMALINGAM

How will the Supreme Court order impact mining around Ramsar wetland sites?

What did the Supreme Court clarify on mining near wetlands? What is the significance of the Asan Wetland Conservation Reserve? Do Ramsar sites have a statutory buffer zone for mining? How do mining restrictions near protected areas differ?

Jacob P Koshy

The story so far:

The Supreme Court has clarified that its February 2024 direction, requiring prior approval before mining can take place within a 10-km radius of the Asan Wetland Conservation Reserve, would, for the sake of parity, apply to wetland conservation reserves across the country. The clarification potentially extends a judicial safeguard that was earlier confined to the Asan Ramsar site in Uttarakhand to similarly notified wetland conservation reserves elsewhere.

What prompted the Supreme Court to dwell on this question?

The clarification arose while the Supreme Court was hearing an application from the Himachal Pradesh government. The State argued that the February 14, 2024 interim order concerning the Asan Wetland Conservation Reserve in Uttarakhand should not automatically apply to it because the Asan reserve was not located within Himachal Pradesh and, unlike national parks and wildlife sanctuaries, wetland conservation reserves do not have a statutory buffer zone.

The Bench, headed by Chief Justice of India Surya Kant, orally clarified that the principle laid down in the Asan case was not confined to Uttarakhand. Justice Jyotsna Singh observed that wherever there is a community reserve or wetland conservation reserve, the directions issued in the Asan case would apply for the sake of parity. At the same time, the court directed the Standing Committee of the National Board for Wildlife (NBWL) or the Ministry of Environment, Forest and

Climate Change (MoEFCC) to determine whether the Asan wetland extends into Himachal Pradesh. If it does, the 2024 directions would apply there as well. If not, mining proposals would be governed by the applicable statutory framework.

What is the background to the Asan wetland case?

The Asan Wetland Conservation Reserve lies at the confluence of the Asan and Yamuna rivers in Uttarakhand and was designated a Ramsar site in 2020. It is an important habitat for migratory waterbirds and supports rich aquatic biodiversity.

In an interim order dated February 14, 2024, the Supreme Court directed that no mining activity should be carried out within a 10-km radius of the reserve unless the project proponent first obtained permission from the Standing Committee of the NBWL and/or the MoEFCC. The Bench said the wetland's designation as a Ramsar site warranted heightened scrutiny of activities that could affect its ecological character. The latest clarification indicates that the same principle would apply to other wetland conservation reserves across India.

What are Ramsar sites?

Ramsar sites are wetlands designated under the Ramsar Convention on Wetlands, an international treaty adopted in Ramsar, Iran, in 1971 to promote the conservation and wise use of wetlands of international importance. India became a Contracting Party to the Convention in 1982. India currently has 101 Ramsar sites, the maximum among Asian countries. On August 3, 2026, Glav Lake in Arunachal Pradesh became the country's 101st Ramsar site and the State's first, taking

India's tally from 98 earlier this year to 101.

A Ramsar designation does not itself create a separate statutory protection regime under Indian law. Rather, it recognises the international ecological importance of a wetland and commits India to maintaining its ecological character through domestic environmental laws.

What does the law say about mining in Ramsar wetlands?

Neither the Ramsar Convention nor the Wetlands (Conservation and Management) Rules, 2017 prescribe a statutory buffer around Ramsar sites or expressly prohibit mining within a specified distance of them.

The earlier Wetlands (Conservation and Management) Rules, 2010 contained a detailed list of prohibited activities within wetlands, including reclamation, establishment of new industries, dumping of solid waste and any activity likely to adversely affect the wetland ecosystem. They also required prior approval for activities within a wetland's zone of influence and mandated environmental impact assessments for specified projects.

The 2017 Rules replaced this framework with a decentralised system under State Wetland Authorities. They removed the explicit list of prohibited activities contained in the 2010 Rules and shifted responsibility for identifying and regulating wetlands largely to the States. The constitutional validity of these rules is currently under challenge before the Supreme Court.

Petitioners argue that the framework excludes many artificial wetlands recognised under the Ramsar Convention

and weakens protections that existed under the 2010 Rules.

Against this backdrop, the Supreme Court's Asan directions assume significance because they create an additional judicial safeguard by requiring wildlife clearances before mining can proceed within 10 km of wetland conservation reserves.

How does this compare with mining around national parks, wildlife sanctuaries and forests?

Mining around protected forests and wildlife habitats is governed by a combination of statutes and Supreme Court directions.

Within national parks and wildlife sanctuaries, mining is prohibited under the Wildlife (Protection) Act, 1972. In addition, the Supreme Court has held that mining is impermissible within one kilometre of the boundary of every national park and wildlife sanctuary across India, unless a larger Eco-Sensitive Zone (ESZ) has already been notified, in which case the larger notified buffer prevails. The court extended this prohibition nationwide after observing that mining within one kilometre of protected areas is hazardous for wildlife. Projects located within protected areas or likely to affect wildlife habitats also require scrutiny by the Standing Committee of the National Board for Wildlife.

In forest areas, diversion of forest land for mining requires prior approval of the Union government under the Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980. Mining projects are also generally subject to environmental clearance under the Environmental Impact Assessment Notification, 2006.

"If rainforests and tropical forests are the lungs of the Earth, then surely wetlands function as its kidneys." Which one of the following functions of wetlands best reflects the above statement ?

- (a) The water cycle in wetlands involves surface runoff, subsoil percolation and evaporation.
- (b) Algae form the nutrient base upon which fish, crustaceans, molluscs, birds, reptiles and mammals thrive.
- (c) Wetlands play a vital role in maintaining sedimentation balance and soil stabilization.
- (d) Aquatic plants absorb heavy metals and excess nutrients.

Context (GS III: Environment | Biodiversity | Environmental Governance | Judiciary)

The Supreme Court, in **T.N. Godavarman Thirumulpad v. Union of India**, clarified that its 10-km mining restriction around the **Asan Wetland Conservation Reserve** should, on the principle of parity, extend to **Wetland Conservation Reserves** across India, despite the absence of a statutory buffer under the **Wetlands Rules, 2017**.

1. Supreme Court Judgment

I. Key Highlights

- Mining within 10 km of the Asan Wetland Conservation Reserve requires prior approval of the Standing Committee of the National Board for Wildlife (NBWL) and/or MoEFCC.
- The Court held that the same judicial safeguard should apply to Wetland Conservation Reserves across India, subject to verification of wetland boundaries where they extend across States.
- Unlike Eco-Sensitive Zones (ESZs) around National Parks and Wildlife Sanctuaries, which are protected under the Wildlife (Protection) Act, 1972, Ramsar wetlands have no statutory 10-km buffer under the Wetlands (Conservation and Management) Rules, 2017.
- The judgment therefore creates an additional judicial safeguard based on the Precautionary Principle.

2. Asan Wetland Conservation Reserve

- **Location:** Confluence of the Asan and Yamuna rivers, Uttarakhand.
- **Status:** Conservation Reserve under the Wildlife (Protection) Act, 1972; Ramsar Site (2020).
- **Importance:** Critical habitat for migratory birds along the Central Asian Flyway.
- **Why in News:** First Ramsar Site in India to receive a 10-km judicial safeguard against mining, setting a precedent for other Wetland Conservation Reserves.

Stop the scam

The digital arrest scam persists from overseas actors

The Supreme Court of India's order of August 4 on the "digital arrest" menace is notable for not being lured into complacency. After all, the Indian Cybercrime Coordination Centre's status report showed that complaints on the National Cyber Crime Reporting Portal fell from 1,23,672 in 2024 to 58,249 in 2025, and stood at 16,377 in the first six months of 2026. The Court called the figures "certainly encouraging" and directed the Reserve Bank of India to circulate a standard operating procedure for temporary debit holds on mule accounts, States to notify cybercrime coordination centres and operationalise e-Zero FIRs, and an inter-departmental committee to examine a victim compensation framework. Thanks to advisories from banks, telecom operators and the police, fewer senior citizens and others are getting victimised by these scams, which have succeeded due to older victims' deference to authority and fear of legal trouble. Yet, scammers find it easy to target youth and professionals, and senior citizens the advisories have not reached. And there have been very few convictions despite scrutiny and investigation, which suggests that law enforcement must move faster in tackling these scams.

The digital scammers have proved nimble in their *modus operandi*. They route calls through SIM boxes to mask their origin, making them appear as Indian numbers, and use multiple mule accounts across many States to move funds swiftly. They are now known to deploy deepfakes on video calls to dupe victims and remain untraceable by investigators. In effect, the fraudsters always seem to be a step ahead of those pursuing them. The Court's insistence on restoring money – completed in 36,290 cases involving ₹18.05 crore – and on the swift disposing of account-freeze cases, alongside detection systems such as MuleHunter.AI, used in over 20 banks, will help limit the damage even when perpetrators are not caught or convicted. But convictions are rare as many of these fraud and extortion schemes are run from overseas "scam compounds" in Myanmar, the wider Golden Triangle, and Cambodia. In Myanmar, scam centres proliferated through direct and indirect official patronage, even as recent scrutiny produced raids that were largely for show with these centres shifting to new areas in the conflict-ridden country. After Beijing's crack-down, in 2023, on scam centres targeting Chinese victims, scammers shifted focus to other countries, with Indians also being trafficked and tortured to commit digital crimes against fellow citizens. New Delhi must use diplomatic pressure in coordination with China, the U.S. and ASEAN to compel Naypyidaw and Phnom Penh to act against the networks that host these compounds.

Context (GS III: Cyber Security | Internal Security | Governance)

In *In Re: Victims of Digital Arrest Related to Forged Documents (Suo Motu Writ Petition (Criminal) No. 3 of 2025)*, the Supreme Court directed the Union and States to establish a coordinated institutional framework to tackle digital arrest scams through preventive regulation, faster fund recovery and enhanced victim protection.

1. Supreme Court Directions

I. Financial Safeguards

- Directed the Reserve Bank of India (RBI) to formulate a Standard Operating Procedure (SOP) for immediate freezing of suspected mule accounts.
- Called for a mechanism to facilitate speedy recovery and restitution of money lost by victims.

II. Institutional Coordination

- Directed States to operationalise **electronic Zero First Information Reports (e-Zero FIRs)** for prompt registration of cyber fraud cases.
- Strengthen coordination among the Ministry of Home Affairs (MHA), Indian Cyber Crime Coordination Centre (I4C), Department of Telecommunications (DoT), Reserve Bank of India (RBI), banks and law-enforcement agencies through a common response framework.

2. Significance of the Judgment

I. Preventive Governance

- Marks a shift from a reactive investigation model to a preventive cyber fraud management framework, enabling early intervention before funds are siphoned off.

II. Victim-Centric Justice

- Gives equal importance to recovery of victims' money and compensation, instead of limiting the response to criminal prosecution.

III. Institutional Accountability

- Clearly assigns responsibilities to regulators, financial institutions and telecom operators, recognising cyber fraud as a whole-of-government challenge rather than merely a law-and-order issue.

3. Way Forward

I. Technology

- Deploy Artificial Intelligence (AI)-based fraud detection, real-time transaction monitoring and stronger KYC verification.

II. Governance

- Strengthen cross-border cooperation, improve conviction rates and expand cyber awareness to counter evolving fraud techniques.

Why SC expanded scope of domestic cruelty law to women in live-in relationships

Vineet Bhatta

New Delhi, August 4

EXPANDING THE protection against domestic cruelty under criminal law, the Supreme Court has ruled that such protection, ordinarily given to married women under Section 498A of the erstwhile Indian Penal Code (IPC), extends to women in live-in relationships as well, provided the couple shares an "intent to marry".

Since the IPC has now been replaced by the Bharatiya Nyaya Sanhita (BNS), the judgment will likely apply to the corresponding BNS provision: Section 85. The judgment, delivered on Monday by a bench of Justices Sanjay Karol and N Kotiswar Singh, recognises that women facing cruelty in domestic settings cannot be denied the protection of criminal law merely because they have not undergone a formal marriage.

The legal position until now

Section 498A of the IPC penalises a hus-

band or his relatives for subjecting a woman to cruelty. Because the provision explicitly uses the word "husband", its application was traditionally restricted to legally valid marriages.

Over the years, the Supreme Court expanded this definition to cover such men who induced a woman into a marriage that is legally void or voidable — for instance, by hiding a previous subsisting marriage — holding that such men cannot claim that they were not a "husband" to escape prosecution for cruelty.

This was what had transpired in the present case as well. The accused man approached the courts to quash a Section 498A case filed by his partner, arguing that since he was already married to someone else, his relationship with the complainant was not a valid marriage. The Karnataka High Court rejected this argument, ruling that when "a man induces a woman to believe that she is lawfully married to him, and thereafter subjects her to cruelty, [he]

cannot be permitted to evade criminal responsibility on the plea that no valid marriage existed in law." This led him to appeal to the Supreme Court.

Beyond void marriages

The Supreme Court could have dismissed the appeal by relying on the established precedent regarding void marriages, but the bench took up the broader question of whether a man in a live-in relationship can be prosecuted under Section 498A.

The judgment, written by Justice Karol, adopted a "purposive interpretation" of the law, noting that since the original objective of Section 498A was to deter domestic cruelty, the law must adapt to changing social realities, observing that "cruelty, any which way, does not check at the door, whether the house it enters is that of a married woman or not". The court reasoned that if a woman faces cruelty from her partner, it makes no logical sense to offer her the protection of criminal law if she is

married, but deny it if she is cohabiting before marriage. This distinction, it said, "has no rational nexus with the object of preventing domestic violence and is as such offensive to Article 14 of the Constitution of India", which guarantees the fundamental right to equality.

Why the DV Act is not enough

During the hearings, both the petitioner and the Union government argued against expanding Section 498A, pointing out that unmarried women are already protected under the Protection of Women from Domestic Violence (DV) Act, 2005, since the Act expressly covers not just married persons but also those "related...through a relationship in the nature of marriage".

The Supreme Court rejected this argument on the basis of the fundamental difference between the two laws. The DV Act, it pointed out, is primarily a piece of civil legislation providing remedies like maintenance and protection orders. The court

said that equating it with Section 498A would be a "misstatement of law" because "the import of civil and criminal law is different" since "[o]ne has almost singularly civil and monetary consequences, whereas the other is backed by the force of criminal deterrence".

'Intent to marry' is crucial

To determine which live-in couples get this protection of criminal law, the Supreme Court borrowed the concept of a "relationship in the nature of marriage" from the DV Act. The court clarified that a "relationship in the nature of marriage" is a narrower legal subset of a general "live-in relationship". Relying on a 2013 judgment by it, the court reiterated the features of such a relationship, which include pooling financial resources, sharing domestic arrangements, having a sexual relationship, and holding themselves out to society as being akin to spouses.

Monday's judgment, however, added a caveat for the application of Section 498A:

The couple must, in addition to the above, also have the "intent to marry".

This is because, according to the court, while many relationships "may meet all the requirements to be a 'relationship in the nature of marriage'", the partners might choose never to enter matrimony. When this intent is absent, the court held, the relationship should not be equated with marriage for the purpose of invoking a penal provision and its "long list of adverse consequences".

"Those relationships that are in the nature of marriage and also have the requisite intent to marry are the closest to marriage itself, and it is those relationships that shall be entitled to the protection of [Section 498A]," the court ruled.

The judgment noted that the initial burden of proof to establish this intent will lie on the female partner seeking the law's protection. But it did not lay down specific parameters for how this internal "intent" is to be legally recognised.

Context (GS II: Judiciary | Women | Social Justice)

In *X v. State of Karnataka* (2026), the Supreme Court held that the offence of cruelty by husband or his relatives under Section 85 of the Bharatiya Nyaya Sanhita (BNS), 2023 extends to women in live-in relationships in the nature of marriage, provided the relationship satisfies the judicial tests laid down by the Court.

1. Supreme Court Judgment

I. Earlier Legal Position

- **Section 85, Bharatiya Nyaya Sanhita (BNS), 2023 (earlier Section 498A, IPC)** was generally invoked in legally recognised marriages.
- Women in live-in relationships largely relied on the Protection of Women from Domestic Violence Act, 2005, which provides civil remedies.

II. What did the Supreme Court hold?

- Section 85, BNS must receive a purposive interpretation, as its object is to punish domestic cruelty rather than merely protect formally valid marriages.
- A person cannot escape criminal liability by pleading that the marriage was void, voidable or never legally solemnised after inducing a woman into a marriage-like relationship.
- Criminal protection is available only to relationships in the nature of marriage, not to all live-in relationships.

III. Conditions for Protection

- Relationship in the nature of marriage.
- Intent to marry.
- Long-term cohabitation and shared domestic life.

2. Protection of Women from Domestic Violence Act, 2005

I. Key Features

- A civil legislation protecting women from domestic violence in both marital and marriage-like relationships.
- Provides protection orders, residence rights, monetary relief, custody and compensation.

II. What is new in this Judgment?

- Clarifies that relief under the Domestic Violence Act cannot replace criminal prosecution under Section 85, BNS.
- Extends criminal-law protection against domestic cruelty to eligible live-in relationships, thereby bridging the gap between civil remedies and criminal liability.
- Aligns criminal law with evolving family structures while preventing misuse by restricting protection to genuine marriage-like relationships.

The challenge for school consolidation: Balancing access and quality education



EXPERT EXPLAINS RAJEEV KUMAR

FORMER PROFESSOR AT IIT KHARAGPUR, IIT KANPUR, BITS PILANI AND JNU

THE CONGRESS recently posted on social media platform X that 94,000 government schools had been shut down over the past decade, a number first flagged in a NITI Aayog report from May.

For decades, India's school education policy focused on expanding neighborhood schools so that every child could access education closer to home. Today, however, the narrative is changing. Education being in the Concurrent List, several states have adopted policies to close, merge or consolidate schools, raising concerns about access to education. Government data,

however, reveals a more nuanced story, which can be understood through three broad trends between 2014-15 and 2024-25:

ONE, the total number of schools saw a modest decline of around 45,000. This, however, was driven entirely by a fall in the number of government schools (94,000, as mentioned above) while the number of private unaided schools increased.

TWO, overall student enrolment declined in a manner similar to the trend seen in school numbers — government enrolment fell while private enrolment increased in recent years.

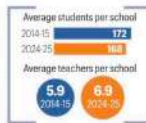
THREE, the number of teachers increased, pointing to improved teacher availability amid declining enrolment and fewer schools.

Is the closure and consolidation of government schools a crisis that is depriving children of neighbourhood educational access, or is it a consequence of demographic factors and changing preferences? More importantly, should the success of school education be measured by the number of schools, or by whether every child has access to a well-resourced school — even if it means traveling a little farther?

• HOW SCHOOL EDUCATION LANDSCAPE HAS SHIFTED

Indicator	2014-15	2024-25	Change
Schools	15.38 lakh	14.71 lakh	(-) 45,000
Govt schools	11.07 lakh	10.13 lakh	(-) 94,000
Teachers	19.84 lakh	1.01 crore	(+) 11.2 lakh
Student enrolment	25.95 crore	24.69 crore	(-) 2.26 crore

(SOURCE: UDISE/UDISE+ REPORTS)



What the data reveals

India is experiencing a demographic transition. The country's total fertility rate — the average number of children born to a woman — has plunged from more than 3 in the early 1990s to about 2.0 today, below the replacement level of 2.1.

The transition is reflected in data from the Centre's Unified District Information System for Education Plus (UDISE+), an education management information system.

ENROLMENT: With fewer children entering school each year, enrolment has

steadily declined. Between 2014-15 and 2024-25, overall student enrolment fell by 2.26 crore to 24.69 crore. Enrolment in government schools declined from 13.62 crore to 12.16 crore between 2022-23 and 2024-25, while enrolment in private schools increased from 8.42 crore to 9.59 crore, according to a Rajya Sabha reply in March.

SCHOOLS: The total number of schools saw a decline from about 15.16 lakh in 2014-15 to 14.71 lakh in 2024-25. During this period, the number of government schools declined from about 11.07 lakh to 10.13 lakh

even as private unaided schools expanded.

TEACHERS: The number of school teachers increased from about 90 lakh in 2014-15 to over one crore in 2024-25, improving teacher availability amid lower enrolment and fewer schools.

The national averages mask stark disparities: While many rural schools operate with very low enrolment or a single teacher, many urban schools are overcrowded.

Overall, the data points not merely to school closures, but to a transformation of the school education system. This is being driven by demographic change, shifting enrolment patterns, evolving parental preferences and efforts to provide students with better-resourced learning environments.

Why school size matters

Thousands of government schools operate with a single teacher or only a handful of students, making it difficult to provide grade-wise, subject-specific instruction, co-curricular activities, sports, laboratories and meaningful peer learning. Teachers often handle multiple classes alongside administrative tasks, limiting the holistic development that schools are expected to foster.

School consolidation seeks to address these limitations by merging under-enrolled schools into better-equipped composite schools with qualified teachers, improved infrastructure, and richer learning opportunities. The aim should be to improve educational quality rather than merely reducing costs. As seen earlier, the data also indicates improved teacher availability despite fewer schools.

Yet, consolidation is not an end in itself. Its success depends on balancing quality, efficiency, and equitable access. While larger schools may offer better learning opportunities, increased travel distances can disadvantage young children, girls and students in remote or tribal areas.

India's school education system must balance access, equity, quality and efficiency. Wherever schools are merged, governments must ensure safe transport and uninterrupted access. While demographic transition and declining enrolment make some degree of school consolidation inevitable, decisions should be data-driven — not merely administrative or financial considerations.

FULL REPORT ON

WWW.INDIANEXPRESS.COM

Syllabus (GS II): Education | Human Resource Development | Governance | Social Justice

Context: With declining fertility, changing demographics and falling student enrolment, several States are consolidating under-enrolled government schools into better-equipped institutions to improve educational quality and optimise public resources. The challenge is to ensure that quality and efficiency do not compromise equitable access, particularly for rural, tribal and disadvantaged children.

1. What is School Consolidation?

- School consolidation is the merger or rationalisation of under-enrolled schools into larger, better-equipped schools to improve the utilisation of teachers, infrastructure and financial resources, while enhancing the quality of education.

2. Need for School Consolidation

- **Declining enrolment:** Student enrolment declined from 26.95 crore (2014–15) to 24.69 crore (2024–25).
- **Under-utilised government schools:** Government schools declined from 11.07 lakh to 10.13 lakh, while the average students per school fell from 172 to 168.
- **Resource optimisation:** Teachers increased from 89.84 lakh to 1.01 crore, requiring better teacher deployment and infrastructure utilisation.

Source: Unified District Information System for Education Plus (UDISE+) 2024–25, Department of School Education & Literacy, Ministry of Education.

3. Benefits

- **Improves learning outcomes:** Better access to subject teachers, laboratories, libraries and Information and Communication Technology (ICT) facilities (Article 21A).
- **Efficient governance:** Optimises public expenditure and reduces duplication of infrastructure.
- **Supports National Education Policy (NEP), 2020:** Facilitates multidisciplinary and holistic education.

4. Challenges

- **Accessibility:** Longer travel distances may affect girls, tribal children and students in remote areas (Articles 14 & 21A).
- **Dropout risk:** Poor transport may increase absenteeism, affecting Sustainable Development Goal (SDG) 4 – Quality Education.
- **Regional disparities:** Uniform consolidation may not suit geographically difficult or sparsely populated regions.

The Beijing model of innovation

Beijing's innovation model brings together universities, start-ups, industry and the state to turn research into commercially viable technologies by bridging the valley of death; the ecosystem is driving China's push in AI and humanoid robotics through state-backed funding, talent and industrial clusters

WORLD INSIGHT

Ananth Krishnan

If the conventional wisdom about innovation is that it is best left to individuals and private enterprise – and the best thing a government can do is get out of the way – that is certainly not the thinking in Beijing.

How innovation happens in Beijing offers a snapshot into China's model in which research universities, start-ups, the market and the state all have a role to play.

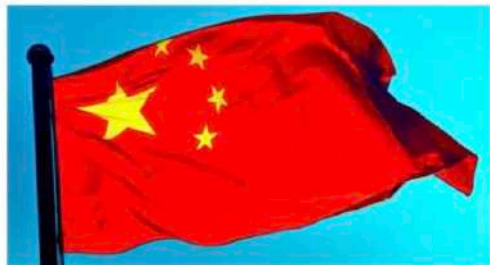
The Chinese capital has always had the country's most important cluster of research universities, with Peking University and Tsinghua leading the list. It is also home to several cutting-edge robotics and AI companies, including Moonshot, which was started by graduates of Tsinghua and made waves over its latest KIMI G3 open source model.

"A closed loop from project discovery to incubation" is how Yang Xiuling, who as the Director General of the Beijing Municipal Commission of Development and Reform leads the city's top economic planning body, describes the ecosystem. "Our greatest strength," she says, "is talent and the concentration of top research universities."

The challenge that then follows is how to leverage that talent, or, as she puts it, "how to move results out of the lab". The gap between translating early research into commercially sustainable ventures is known as the "valley of death" for innovation. To cross that valley in Beijing, the state steps in.

Beijing's Zhongguancun research cluster is at the forefront of tech innovation in China, along with clusters in Shenzhen, Shanghai and Hangzhou. A strong undercurrent of competition underpins the national innovation ecosystem, especially when it comes to attracting and keeping talent.

To deal with the "valley of death", Beijing set up what it calls "an intelligent



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platform for results commercialisation" led by a group of tech managers, who, Ms. Yang says, "are a bridge because they understand both the tech and the market". In 2025, the city's platform executed 1.04 lakh tech contracts.

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The universities provide the foundation from which the rest follows, says Zhang Jihong, who is a Director at the state-run Zhongguancun Science Park. "It's the universities that have helped incubate a number of high-tech enterprises," he says. "We have formed a virtuous cycle where the universities produce talent, the talent provides intellectual support for innovation, and innovation again reinforces the growth of universities."

The state as investor

The state's role here is twofold. It provides the hard infrastructure, as seen in the science park and a number of incubators littered around Zhongguancun.

More importantly, it also provides

capital, not only linking start-ups to private venture capital (VC) but also stepping in with state-backed capital to help bear some of the risk.

The state taking a direct stake in companies is a unique feature of this ecosystem. The upside is it helps bear losses and allows for the longer-term, patient kind of support that VC might not afford. This has played a key role in enabling the speed and scale of innovation in China.

The downside is wasteful spending, if state funds do not do their due diligence, which is often the case. So much so that this has emerged as a growing concern for Chinese regulators, who in June issued new rules to tighten how local governments spend these funds.

The intense competition among different clusters, coupled with the collapse in land sales as a source of revenue for local governments, has led to a surge in spending at the local level, with each province putting in funds with the hope of finding its national champions, even if they lack the capacity to do the needed due diligence. The new rules have now called for stricter control over how these funds are spent and for more approvals from the Central government.

Humanoids on the factory floor

AI and robotics are the twin peaks of Beijing's current innovation drive. If Zhongguancun in the north is the home of tech talent, the Yizhuang industrial cluster in the city's southern suburbs offers a snapshot of how innovation is playing out on the factory floor. Here, a hub-and-spokes model has the state's Humanoid Robot Innovation Centre at its centre, which funnels talent to a number of robotics companies around its periphery. "The idea," explains Che Zhengping, who is Head of Embodied AI at the Beijing Humanoid Robot Innovation Centre, "is to build a full supply chain that is ready for mass production". The current focus in humanoids is "to shift from industrial use scenarios to daily use scenarios", including healthcare, which is expected to be a major source of demand in an ageing society.

Among the companies in Yizhuang is Lingyi Tech, which in April started production on humanoid robots and is already planning to scale up. "Advancements in technology are making it more affordable" to scale, says Vice President Philip Yang. "As we move from semi automation to full automation," he estimates, "costs in 2030 will be half of what they are today."

Lingyi already has production capacity "for the next 5 to 6 years". By the end of 2027, it will be making 20,000 robots annually. The plan is to scale up to 1 lakh units by 2028 and 5 lakh by 2030 from this Yizhuang facility (the company has four others), by when it hopes to be "one of the world's top three".

At the state-run innovation centre next door, researchers pore over unfinished humanoid robots, getting them to perform a range of delicate movements before the latest model is given the green light.

State subsidies of land, policy and tax support are among the more well-known elements of China's industrial policy. The state's enabling of talent and intellectual support are perhaps less well-known, but arguably just as important when it comes to getting innovation right.

THE GIST

Beijing's Zhongguancun and other innovation clusters are using research universities, technology managers and incubators to help move scientific results from laboratories into the market.

The city's push for AI and humanoid robots is being supported by industrial hubs, state-backed capital and policies aimed at building a full supply chain for mass production.

Context (GS III: Science & Technology | Innovation | Industrial Policy)

China's Beijing Model of Innovation integrates universities, industry, start-ups and the State to bridge the “Valley of Death” (the gap between research and commercialisation), enabling rapid advances in Artificial Intelligence (AI), robotics and other frontier technologies.

1. Beijing Model of Innovation

- **Innovation Clusters:** Research universities, incubators, industries and technology parks (e.g., Zhongguancun, Yizhuang) function as an integrated ecosystem.
- **Technology Commercialisation:** Dedicated technology managers and incubators convert laboratory research into market-ready products.
- **State-backed Patient Capital:** Government provides long-term funding, industrial infrastructure, tax incentives and complements Venture Capital (VC).
- **Mission-oriented Strategy:** Focus on strategic sectors such as Artificial Intelligence (AI), semiconductors and humanoid robotics.

2. Outcomes

- 1.04 lakh technology contracts executed by Beijing's technology transfer platform in 2025.
- China has entered the Top 10 of the Global Innovation Index (GII) 2025, ranking 10th globally.
- Rapid scaling of Artificial Intelligence (AI) and humanoid robotics through integrated domestic supply chains.

3. Lessons for India

- Strengthen industry-academia collaboration through Technology Transfer Offices (TTOs) and research parks.
- Increase public investment in Research and Development (R&D) and provide patient capital for deep-tech sectors.
- Develop innovation clusters around premier institutions such as the Indian Institutes of Technology (IITs), Indian Institute of Science (IISc) and startup ecosystems.
- Shift policy focus from research publications to commercialisation, patents and deep-tech manufacturing.

Key Data

- Global Innovation Index (GII) 2025: China – 10th | India – 38th.
- China: 24 of the world's top innovation clusters. India: 4 top innovation clusters.

The Beijing model of innovation

Beijing's innovation model brings together universities, start-ups, industry and the state to turn research into commercially viable technologies by bridging the valley of death; the ecosystem is driving China's push in AI and humanoid robotics through state-backed funding, talent and industrial clusters

WORLD INSIGHT

Ananth Krishnan

If the conventional wisdom about innovation is that it is best left to individuals and private enterprise – and the best thing a government can do is get out of the way – that is certainly not the thinking in Beijing.

How innovation happens in Beijing offers a snapshot into China's model in which research universities, start-ups, the market and the state all have a role to play.

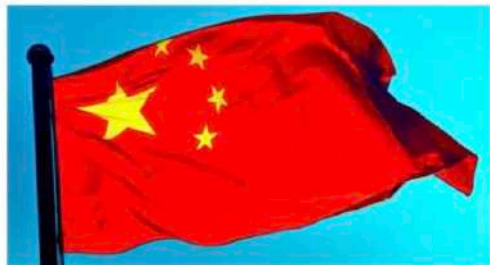
The Chinese capital has always had the country's most important cluster of research universities, with Peking University and Tsinghua leading the list. It is also home to several cutting-edge robotics and AI companies, including Moonshot, which was started by graduates of Tsinghua and made waves over its latest KIMI G3 open source model.

"A closed loop from project discovery to incubation" is how Yang Xiuling, who as the Director General of the Beijing Municipal Commission of Development and Reform leads the city's top economic planning body, describes the ecosystem. "Our greatest strength," she says, "is talent and the concentration of top research universities."

The challenge that then follows is how to leverage that talent, or, as she puts it, "how to move results out of the lab". The gap between translating early research into commercially sustainable ventures is known as the "valley of death" for innovation. To cross that valley in Beijing, the state steps in.

Beijing's Zhongguancun research cluster is at the forefront of tech innovation in China, along with clusters in Shenzhen, Shanghai and Hangzhou. A strong undercurrent of competition underpins the national innovation ecosystem, especially when it comes to attracting and keeping talent.

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The intense competition among different clusters, coupled with the collapse in land sales as a source of revenue for local governments, has led to a surge in spending at the local level, with each province putting in funds with the hope of finding its national champions, even if they lack the capacity to do the needed due diligence. The new rules have now called for stricter control over how these funds are spent and for more approvals from the Central government.

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