

**The Hindu Important News Articles & Editorial For UPSC CSE**

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**Page 01 GS III : Indian Economy / Prelims Exam**

The Union Government has notified a comprehensive restructuring of tobacco taxation effective from 1 February 2026, marking a significant shift in India's indirect tax framework. The reform includes the ending of the GST Compensation Cess, revision of GST slabs on tobacco products, introduction of new excise duty rates, and imposition of a dedicated Health Security-cum-National Security Cess. This move seeks to simultaneously address public health objectives, fiscal sustainability, State compensation concerns, and long-term national security financing.

# Tobacco tax rejig to take effect from Feb. 1

Compensation cess ends; introduced to make up States' losses from implementation of GST

**T.C.A. Sharad Raghavan**  
NEW DELHI

**T**he Union Finance Ministry on Thursday issued a series of notifications that will give effect to the new taxation regime for tobacco products from February 1.

The Central Excise (Amendment) Act, 2025, passed in the recently concluded Winter Session of Parliament, specifies new rates of excise duty on tobacco products.

#### Levy on pan units

The Finance Ministry also notified that provisions of the Health Security & National Security Act, 2025, which intends to levy a cess on pan masala units, will come into force from

February 1. In an accompanying FAQ note, the Ministry explained that under the Goods and Services Tax (GST) regime, the excise duty on cigarettes had so far been rendered a nominal amount of a "fraction of a paisa" per cigarette stick, and the GST compensation cess rate on tobacco products had not been increased since it was implemented in July 2017.

"For India, affordability has either stagnated or increased in the past decade, meaning cigarettes have not become more expensive relative to consumers' purchasing power," the note said.

"This is contrary to global public health guidance, which emphasises annual

#### Tax reset

The Central Excise (Amendment) Act, 2025 specifies new rates of excise duty on tobacco products

- The Finance Ministry has notified that provisions of the Health Security & National Security Act, 2025, which intends to levy a cess on pan masala units, will come into force from February 1
- Beedis have been moved to the 18% GST category from the now-defunct 28% slab
- All other tobacco products have been moved to the 40% slab



increases in specific excise duties to ensure that real cigarette prices rise faster than incomes," the note added.

At the same time, the Ministry notified February 1 as the date from which the GST compensation cess would cease to exist.

The cess was originally

introduced for a period of five years to compensate States for any loss arising out of the implementation of GST.

#### Tax slabs

The Finance Ministry also notified the new GST rates for tobacco products.

Beedis have been

moved to the 18% category from the now-defunct 28% slab. All other tobacco products have been moved to the 40% slab. These new rates will be effective from February 1.

The GST compensation cess was to end in 2022. However, due to the COVID-19 pandemic, the cess collections were not enough to compensate the States and so the Centre borrowed money to compensate them.

Hence, it was extended until 2026, with the proceeds being used to repay the loan.

With the impending end of the loan, the government on September 22, 2025, removed the incidence of the cess on most items except on tobacco

products. From February 1, 2026, the cess will no longer apply on these items either, effectively ending it.

Finally, the Ministry introduced a new valuation mechanism for tobacco products such as chewing tobacco, filter khaini, jarda, scented tobacco, and gutkha, whereby the GST value would be determined based on the retail sale price declared on the package.

**Need for dedicated cess**  
Regarding the Health Security & National Security Act, 2025, the Ministry justified the inclusion of the national security aspect by saying that conventional tax revenues cannot always guarantee funding for

national security functions, and so a dedicated cess is needed for the purpose.

"General tax revenues are subject to competing developmental priorities and cannot always guarantee sustained long-term funding for core national security functions," the FAQ note said.

"A dedicated purpose-specific cess enables the Union to create a non-lapsable, predictable financial stream that supports multi-year security preparedness, technological upgradation, capacity creation, and advanced equipment procurement – without increasing the tax burden on the general population or raising broad-based rates such as GST."

## Key Features of the Tobacco Tax Rejig

### 1. End of GST Compensation Cess

The GST compensation cess, introduced in 2017 to offset States' revenue losses due to GST implementation, will cease from February 1, 2026.

Its extension beyond 2022 was necessitated by COVID-19-induced revenue shortfalls, leading to Centre borrowings to compensate States.

With repayment nearing completion, the cess has now been phased out entirely.

### 2. Revised GST Slabs on Tobacco Products

Beedis have been moved from the earlier 28% slab to 18% GST, reflecting socio-economic considerations linked to informal employment.

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## Daily News Analysis

All other tobacco products, including cigarettes and smokeless tobacco, have been placed in a 40% GST slab, significantly raising their tax incidence.

### 3. Strengthening Excise Duties

Under the Central Excise (Amendment) Act, 2025, specific excise duties on cigarettes have been recalibrated.

This corrects the anomaly under GST where excise duty had become merely a "fraction of a paisa" per cigarette stick.

### 4. Alignment with Global Public Health Guidance

The government explicitly acknowledges that cigarette affordability in India has stagnated or increased over the past decade.

The reform aims to ensure that real cigarette prices rise faster than incomes, in line with WHO-recommended tobacco control strategies, thereby discouraging consumption.

### 5. New Valuation Mechanism for Smokeless Tobacco

GST valuation for products such as chewing tobacco, gutkha, khaini, and jarda will now be based on the declared retail sale price (RSP).

This addresses chronic undervaluation, tax evasion, and revenue leakage in the smokeless tobacco segment.

### 6. Health Security-cum-National Security Cess

A new cess has been introduced on pan masala and tobacco units under the Health Security se National Security Act, 2025.

The rationale is to create a non-lapsable, predictable, and dedicated funding stream for:

National security preparedness

Technological upgradation

Capacity building

Advanced defence equipment procurement

The government argues that this avoids burdening the general population or increasing broad-based taxes like GST.

### Critical Analysis

#### Positives

**Public Health Impact:** Higher and predictable taxation is among the most effective tools to reduce tobacco consumption, especially among youth and low-income groups.

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## Daily News Analysis

**Fiscal Rationalisation:** Ending the compensation cess restores the

original GST design and improves transparency.

**Dedicated Security Financing:** A purpose-specific cess ensures stable long-term funding insulated from competing developmental demands.

**Improved Tax Compliance:** RSP-based valuation reduces scope for evasion in smokeless tobacco markets.

### Concerns and Challenges

**Equity Issues:** Reduction in GST on beedis may dilute public health objectives, given their widespread use among poorer sections.

**Federal Sensitivities:** With the end of compensation cess, States remain vulnerable to future revenue shocks without a statutory guarantee.

**Governance Question:** Linking health-related sin taxes to national security expenditure may raise concerns about transparency and earmarking discipline.

### Conclusion

The tobacco tax rejig represents a multi-dimensional policy intervention, balancing public health priorities, GST reform consolidation, and innovative security financing. By correcting structural distortions in tobacco taxation and aligning with global best practices, the government aims to reduce consumption while ensuring fiscal and strategic resilience. However, sustained success will depend on effective enforcement, clear accountability in cess utilisation, and cooperative federalism to manage post-compensation GST realities. From a UPSC perspective, the reform is a strong example of the intersection between health policy, fiscal federalism, and national security financing.

### UPSC Prelims Exam Practice Question

**Ques:** The Health Security-cum-National Security Cess has been introduced primarily to:

- (a) Replace GST compensation to States
- (b) Fund public health insurance schemes
- (c) Create a non-lapsable, predictable funding stream for security preparedness
- (d) Increase overall GST collections

**Ans: (c)**

### UPSC Mains Exam Practice Question

**Ques:** Critically analyse how indirect taxation can be used as an effective instrument of public health policy. Illustrate your answer with reference to tobacco taxation reforms in India. (250 words)



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## **Page 02 : Prelims Exam**

India welcomed the first sunrise of 2026 at Dong, the country's easternmost village, through a cultural performance titled "Alo Prabhat: Dance of the Dawn". Organised as part of the Sunrise Festival by the Arunachal Pradesh Tourism Department, the event showcased the living cultural traditions of the indigenous Meyor and Mishmi communities, blending geography, culture, and strategic symbolism.

### **Key Dimensions of the Event**

#### **1. Cultural Significance**

Alo Prabhat is an artistic narrative using chants, songs, and indigenous rhythms, reflecting the cosmology, nature worship, and community life of the Meyor and Mishmi tribes.

It highlights intangible cultural heritage, where oral traditions and performative arts play a central role in identity preservation.

Such festivals strengthen inter-generational transmission of tribal knowledge and practices.

#### **2. Geographic and Strategic Importance**

Dong is the first human habitation in India to receive the sunrise, underlining India's eastern extremity.

Located in Anjaw district, a remote and border-sensitive region, the event symbolically reinforces India's territorial presence and cultural sovereignty in frontier areas.

Cultural assertion complements physical infrastructure in strengthening border regions.

#### **3. Tourism and Regional Development**

The Sunrise Festival promotes experiential and eco-cultural tourism, shifting focus from mass tourism to sustainable models.

It provides livelihood opportunities for local communities through homestays, handicrafts, and cultural performances.

Such initiatives align with the broader objective of inclusive development of the North-East under India's Act East Policy.

#### **4. Federalism and Cultural Pluralism**

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## **IN BRIEF**



### **Arunachal welcomes first sunrise with 'Dance of Dawn'**

Dong, India's easternmost village in Anjaw district of Arunachal Pradesh, welcomed the first sunrise of 2026 on Thursday with "Alo Prabhat: Dance of the Dawn", a performance drawn from the cultural traits of indigenous Meyor and Mishmi communities. The performance was part of Sunrise Festival organised by the State's Tourism Department at Dong, the first human habitation to receive the first rays of the sun in India. The festival began on December 29 and concludes on Friday. Organisers said 'Dance of the Dawn' is an artistic narrative presented through chants, songs, and indigenous rhythms.

## Daily News Analysis

State-led promotion of local culture reflects cooperative federalism, where States act as custodians of India's diverse heritage.

Recognition of micro-cultures like those of Meyor and Mishmi communities strengthens India's pluralistic national identity.

### Conclusion

The celebration of India's first sunrise at Dong through "Alo Prabhat: Dance of the Dawn" goes beyond a symbolic event. It represents the convergence of culture, geography, and nation-building, where indigenous traditions become a medium of identity assertion, sustainable development, and strategic visibility. By integrating cultural heritage with tourism and border-area development, such initiatives reaffirm that India's unity is strengthened not only by infrastructure and security, but also by the living traditions of its most remote communities.

### UPSC Prelims Exam Practice Question

**Ques:** "Alo Prabhat: Dance of the Dawn", recently seen in news, is associated with:

- (a) Apatani and Nyishi tribes
- (b) Meyor and Mishmi communities
- (c) Monpa and Sherdukpen tribes
- (d) Adi and Nocte tribes

**Ans: b)**

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## Page 07 : GS II : Social Justice / Prelims Exam

Despite constitutional guarantees of equality and dignity, transgender men and gender-diverse persons assigned female at birth (AFAB) continue to face systemic exclusion in India's healthcare system. Recent accounts from Tamil Nadu — a State otherwise recognised for progressive transgender welfare policies — reveal persistent barriers such as misgendering, denial of care, gatekeeping, and unsafe medical practices. These challenges highlight gaps in the implementation of the Transgender Persons (Protection of Rights) Act, 2019 and expose deeper structural issues in medical education, governance, and social attitudes.

### What transgender men face when they access healthcare

The healthcare system for trans men and gender-diverse people remains constrained by limited research, poor understanding of their identities, and a one-size-fits-all model of care, say experts from judicial stances and misgendering to the outright denial of care based on their identity, the barriers are many

Meenakshi S.

**T**hree years ago, when Marutha, a transgender man, visited a local hospital in the southern Indian state of Tamil Nadu seeking gender-affirming care, he was not supported by the medical staff. "I had to come out to my family at that point, so I had to leave the hospital and go to the church. I had to leave there too. The doctors refused to treat me. They told me, 'If you are not a woman, you cannot be a woman,'" he alleges.

Mr. Marutha, 35, had to seek a certificate of "evection" from the District Magistrate, in line with the Tamil Nadu Transgender Persons (Protection of Rights) Act, 2019, after which the doctors agreed to treat him.

Accessing healthcare is still a Herculean task for transgender and gender-diverse people in India. Even though the Act celebrated for its progressive transgender welfare policies, from judicial stances and misgendering to the outright denial of care based on their identity, the barriers are many.

They say the healthcare system for such individuals is constrained by limited research, poor understanding of their identities, and a one-size-fits-all model of care.

Days in medical understanding, Fred Rogers, transgender rights activist and director of the Umashri Trust, a trans rights advocacy group in Chennai, says that even accessing general healthcare, such as treatment for a fever or cold, often remains a challenge for the transmasculine people. "Many healthcare providers are not comfortable with identities to begin with. People in the community are forced to live in a small number of categories. For example, doctors who will treat you with dignity, who will not judge you, misgender, or use our names," he says.

L. Ramaiah, a public health researcher and founder of SAAFH, a Chennai-based NGO, explains that the trans movement in India was led by the transmasculine people. "Historically and culturally been more comfortable with the binary gender view on gender incongruence, and there is a lack of understanding of who trans men and women are and how to care for them among healthcare professionals," he adds.

According to Sudipti Sharma (red), who heads the Association for Transgender Health of India (ATH), says that gender-affirming medical care is generally given by gynaecologists, but since specialists covering these concerns are transmasculine gender in a binary fashion, patients often experience gender bias.

Gender-based hormonal therapy

For trans men, gender-affirming care may include hormone replacement therapy (HRT), in which individuals administer self-injected雄激素 to reduce female menstruation and suppress female secondary sex characteristics. "It is a two-fold problem with hormones: inadequate information given by medical students, and the fact that they are also not fully aware of the effects of the hormones, and the side effects," says Mr. Rogers.

Hafiz, a 29-year-old trans man who has been on HRT for over two years, says he used to receive his testosterone injections

from a doctor at a government hospital.

However, with the introduction of the Chief Minister's Comprehensive Health Insurance Scheme in TN, he was denied hospital admission. "As I come from a conservative family, I cannot get admitted to hospitals, and my family members do not get the prescriptions and buy the medicine for me. I have to go to the chemist to get the same with other trans men too."

While hormones are generally prescribed at a dose of 100 mg, or 1,000 mg, there is no strict guideline for the same, according to Mr. Hafiz.

Once the available stock determines what is given, and the individual has to wait for a long time to achieve desired masculinisation, such as increased beard growth, because these are gender-specific growths. Hormones are readily available in the market, but the cost of these is high, and often goes beyond the budget of medical professionals.

Mr. Hafiz adds: "These are steroids, and without careful monitoring, they can lead to many side effects, such as hypertension, kidney problems, heart attacks, stroke, and diabetes. For individuals with underlying conditions, such as hypertension, the hormones also have menopausal effects, yet this is rarely addressed by doctors."

They say the healthcare system in the private sector, the unreliability of attributable endocrinologists, who are also

GP

Medical professionals often do not know whether trans men undergoing hormone therapy can safely receive vaccinations, for instance. They simply do not have the knowledge or have not been trained or taught.

GOPAL SHANKAR MAMURAI  
Endocrinologist

trans-affirming, causes many to self-medicate.

Gender-based, unethical practices according to trans activist Caja Shankar Maduram, the fundamental issue that medical professionals do not provide care to people they perceive as incongruous as a disorder. "There is a lack of awareness among the medical fraternity that it is not safe to trans enough. Not everyone can come to their families, and doing so might be dangerous. There is a lack of awareness that is widely understood."

Mr. Maduram adds that providers also tend to gather care. "Only after a psychiatrist gives you a diagnosis of gender incongruence, can you get gender-affirming care. Care, however, should not depend upon whether you have dysphoria or not; it should depend upon whether you are gender incongruent or not."

Dr. Ramaiah, from Umashri, says out

trans men through "pathologised, heteronormative, and reproduction-oriented lens" — because of this, they do not receive care. "There have been instances of gynaecologists performing hysterectomies for trans men who have been brought in for hysterectomy, and also high-risk procedures such as vaginal examination or asking patients to expose their chests, even when they have been told that they have not undergone top surgery."

What needs to change

One of the key issues, says Ganesh Shukla, a medical professional and activist on gender-affirming care, "Medical professionals often do not know whether trans men can receive vaccinations, for instance. They simply do not have the knowledge or have not been trained or taught," he explains. Dr. Suganthi, a transmasculine person, adds that transmasculine progress in transgender healthcare is still in its infancy all over the world.

The training of care providers poses another challenge. "There is a lack of effort by the government to make space for gender-affirming care. There are even some events that are meaningful and symbolic, are not completely inclusive of transmasculine people. It calls for a structured training of medical professionals and the application of standardised protocols, which have been peer-reviewed and accepted," he says.

He also highlights the importance of community-based clinics, people who have been trained and can be brought into the government's healthcare delivery system.

Slight, slow progress

Medical professionals, such as to do with hormones, have been discussing this in the government at the gender clinics now, says Mr. Suganthi, who provides gender-affirming care at Taj's Gaia

Governor General Hospital, Chennai.

Mr. Suganthi adds: "This is an evolving field, and the medical practices will also evolve, according to what we know."

The Tamil Nadu government, too, has conducted periodic gender sensitisation training, with the help of NGOs, not only for just doctors specialising in gender care, but for medical practitioners in general.

Mr. Rogers and others, in 2024, filed a writ petition in the Madras High Court seeking better healthcare protocols for trans individuals.

The court, hearing the petition recently, has also issued the petition to the rejoinder affidavit suggesting improvements to the government's policies, with respect to medical and surgical care for transpersons.

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### Core Issues Highlighted

#### 1. Structural Barriers in Healthcare Access

Trans men often face denial of even basic healthcare, let alone gender-affirming care.

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## Daily News Analysis

Requirements such as district magistrate certificates for "recognition" convert a rights-based framework into a bureaucratic gatekeeping mechanism.

Misgendering, use of deadnames, and moral policing undermine the principle of patient dignity, violating Article 21.

### 2. Knowledge and Training Deficit

Medical curricula remain binary and cisnormative, leading to poor understanding of transmasculine and non-binary identities.

Gender-affirming care is treated as a niche or psychiatric issue rather than an integrated public health concern.

Limited India-specific research forces dependence on Western protocols, which may not always be context-appropriate.

### 3. Unsafe Hormonal Practices and Public Health Risks

Inadequate access to trained, trans-affirming endocrinologists pushes many trans men towards self-medication and unsupervised hormone therapy.

Absence of standardised dosage guidelines and monitoring increases risks of cardiovascular disease, metabolic disorders, and organ damage.

This raises concerns not just of individual health, but also of preventive public health governance.

### 4. Ethical and Rights-Based Concerns

Persistent insistence on psychiatric diagnosis of gender dysphoria reflects a pathologising approach rather than an affirmative one.

Refusal of procedures like hysterectomy on reproductive or moral grounds reflects patriarchal and heteronormative bias in medical decision-making.

Unethical practices such as unnecessary physical examinations violate medical ethics of autonomy, consent, and non-maleficence.

### 5. Legal and Institutional Response

Civil society interventions and petitions before the Madras High Court indicate growing judicial engagement with transgender healthcare rights.

The court's willingness to examine and improve Standard Operating Procedures (SOPs) signals incremental progress, though systemic reform remains slow.

### Conclusion

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## Daily News Analysis

The experiences of transgender men and gender-diverse individuals reveal that legal recognition without institutional preparedness offers only partial justice. India's healthcare system must move beyond token inclusion to adopt a rights-based, evidence-driven, and community-informed model of care. This requires comprehensive medical training reforms, standardised and peer-reviewed protocols, ethical accountability, and meaningful inclusion of lived experiences in policy design. True health equity will be achieved not merely by progressive laws, but by transforming healthcare into a space of dignity, safety, and informed choice for all genders.

### UPSC Prelims Exam Practice Question

**Ques:** With reference to transgender healthcare in India, consider the following statements:

1. The Transgender Persons (Protection of Rights) Act, 2019 mandates compulsory sex reassignment surgery for legal gender recognition.
2. Gender-affirming hormone therapy may have long-term metabolic and cardiovascular implications if not medically supervised.
3. Indian medical education currently has comprehensive and standardised modules on transmasculine healthcare.

**Which of the statements given above is/are correct?**

- (a) 2 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**Ans : a)**

### UPSC Mains Exam Practice Question

**Ques:** Discuss how bureaucratic gatekeeping in gender recognition undermines the spirit of the Transgender Persons (Protection of Rights) Act, 2019. Suggest reforms. (150 Words)

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**Page 10 : GS III : Indian Economy / Prelims Exam**

Climate change has emerged as a structural threat to India's food security, rural livelihoods, and ecological sustainability. Increasing weather unpredictability, declining soil fertility, water stress, and air pollution are directly affecting farm productivity. In this context, Climate-Resilient Agriculture (CRA) has become a strategic necessity rather than a policy choice. The need for a coherent national CRA roadmap lies in aligning technology, institutions, and farmers' realities to safeguard India's agricultural future.

## Why does India need climate-resilient agriculture?

What makes a coherent national climate-resilient agriculture roadmap necessary?

### Shambhavi Naik

#### The story so far:

Climate change is real, and for India to continue meeting domestic food demands, agriculture needs to cope with the increasing unpredictability of the weather, declining soil health, and growing air pollution.

#### What is climate-resilient agriculture?

Climate-resilient agriculture uses a range of biotechnology and complementary technologies to guide farming practices and reduce dependence on chemical inputs, while maintaining or improving productivity. These tools include biofertilizers and biopesticides, and soil-microbiome analyses. Genome-edited crops can be developed to withstand drought, heat, salinity, or pest pressures. In parallel, AI-driven analytics can integrate multiple environmental and agronomic variables to generate locally tailored farming strategies.

#### Why does India need CRA?

India is an agricultural nation with a rapidly growing population, which places increasing pressure on the need for more reliable farm productivity. Yet around 51% of India's net sown area is rainfed, and this land produces nearly 40% of the country's food, making it especially vulnerable to climate variability. Conventional farming methods alone may not withstand the rising stresses of climate change. Climate-resilient agriculture offers a suite of technologies that can enhance productivity while protecting environmental health.

#### Where does India stand today?

In 2011, the Indian Council of Agricultural Research (ICAR) launched a flagship network project 'National Innovations in Climate Resilient Agriculture'. For enhancing the resilience and adaptive capacity of farmers to climate variability, location-specific climate resilient technologies such as system of rice intensification, aerobic rice, direct

seeding of rice, zero till wheat sowing, cultivation of climate resilient varieties tolerant to extreme weather conditions, in-situ incorporation of rice residues, etc., have been demonstrated under the project in 448 climate-resilient villages. The National Mission for Sustainable Agriculture has been formulated to enhance agricultural productivity, especially in rainfed areas, focusing on integrated farming, water use efficiency, soil health management, and synergising resource conservation.

More recently, the BioE3 policy also positioned CRA as a key thematic area for the development of biotechnology-led solutions. Several technologies relevant to CRA are already commercialised.

Leading companies supply bio-inputs that improve soil health and reduce chemical dependence. India also has an expanding digital agriculture sector, with agritech startups offering AI-enabled advisories, precision irrigation, crop-health monitoring, and yield prediction tools.

#### What is the way forward?

India faces several risks in scaling CRA, including low adoption among small and marginal farmers due to limited access, awareness, and affordability, and quality inconsistencies in biofertilizers and biopesticides that undermine trust in biological alternatives. The rollout of climate-resilient seeds remains slow, with the adoption of new tools such as gene editing still emerging and uneven distribution across States. Further, the digital divide limits the reach of precision agriculture and AI-based decision tools. These challenges are compounded by ongoing soil degradation, water scarcity, and accelerating climate volatility, which may outpace current adaptation efforts. Fragmented policy coordination further risks slowing progress.

The way forward requires accelerating the development and deployment of climate-tolerant and genome-edited crops, strengthening quality standards and supply chains for biofertilizers and biopesticides, and provision of digital tools and climate advisories to support adoption by small landholders. Financial incentives, climate insurance, and credit access are essential to support farmers during the transition. Above all, India needs a coherent national CRA roadmap under the BioE3 framework, aligning biotechnology, climate adaptation, and policies to deliver resilience at scale.

Shambhavi Naik is chairperson, Takshashila Institution's Health & Life Sciences Policy

#### THE GIST

Climate-resilient agriculture uses biotechnology, biofertilizers, biopesticides, genome-edited crops, and AI-driven tools to enhance farm productivity while reducing dependence on chemical inputs.

Scaling CRA in India requires a coherent national roadmap under the BioE3 framework, stronger adoption among small and marginal farmers, quality bio-inputs, climate-tolerant seeds, and digital tools to deliver resilience at scale.

## What is Climate-Resilient Agriculture (CRA)?

Climate-resilient agriculture refers to farming systems that anticipate, absorb, and adapt to climate shocks while sustaining or improving productivity and environmental health. It integrates:

Biotechnology tools: biofertilizers, biopesticides, soil microbiome analysis

Advanced breeding techniques: climate-tolerant and genome-edited crops resistant to drought, heat, salinity, and pests

Digital and AI-based solutions: precision irrigation, climate advisories, yield prediction, and decision-support systems

CRA moves agriculture away from excessive chemical dependence towards knowledge-intensive, data-driven, and ecologically balanced farming.

## Why Does India Need Climate-Resilient Agriculture?

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## Daily News Analysis

### 1. Structural Vulnerability of Indian Agriculture

About 51% of India's net sown area is rainfed, contributing nearly 40% of total food production.

Rainfed regions are highly sensitive to monsoon variability, droughts, floods, and heatwaves.

Conventional input-intensive agriculture is increasingly unsustainable under climate stress.

### 2. Food Security for a Growing Population

India must ensure stable food supplies for a large and growing population amid shrinking land and water resources.

Productivity gains must now come from resilience and efficiency, not merely input expansion.

### 3. Environmental and Resource Stress

Soil degradation, groundwater depletion, and chemical overuse threaten long-term agricultural viability.

CRA supports soil health restoration, water efficiency, and reduced ecological footprints.

#### India's Current Position

#### Institutional and Policy Efforts

The Indian Council of Agricultural Research launched the National Innovations in Climate Resilient Agriculture (NICRA) project in 2011.

Climate-resilient practices have been demonstrated in 448 villages, including drought-tolerant varieties, zero tillage, and water-efficient rice systems.

The National Mission for Sustainable Agriculture focuses on:

Rainfed area development

Integrated farming systems

Soil and water conservation

The BioE3 Policy has recently positioned CRA as a priority area for biotechnology-led climate adaptation.

#### Private Sector and Innovation Ecosystem

Growth of bio-input companies supplying microbial fertilizers and biopesticides

Expansion of digital agriculture and agritech startups offering AI-enabled advisories and precision tools

#### Key Challenges in Scaling CRA

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## Daily News Analysis

### Low Adoption Among Small and Marginal Farmers

Limited awareness, affordability constraints, and risk aversion

#### Quality and Trust Deficit

Inconsistent standards in biofertilizers and biopesticides reduce farmer confidence

#### Slow Diffusion of Climate-Resilient Seeds

Uneven access across States; emerging gene-editing tools lack scale

#### Digital Divide

AI-based tools and precision farming remain inaccessible to many farmers

#### Policy Fragmentation

Lack of coordination between biotechnology, climate, agriculture, and State-level policies

#### Why a Coherent National CRA Roadmap is Necessary

To integrate biotechnology, digital agriculture, climate adaptation, and farmer welfare under a unified framework

To ensure standardisation, regulatory clarity, and quality assurance for bio-inputs and seeds

To support farmers through financial incentives, climate insurance, and credit access during transition

To scale innovation equitably across regions and farm sizes

A national roadmap under the BioE3 framework can convert scattered initiatives into a systemic transformation of Indian agriculture.

#### Conclusion

Climate-resilient agriculture is central to India's ability to sustain food security in an era of accelerating climate uncertainty. While India has made meaningful progress through research initiatives, missions, and emerging technologies, the scale and speed of climate risks demand greater policy coherence and institutional integration. A unified national CRA roadmap — combining science, technology, finance, and farmer participation — is essential to move from pilot-based resilience to nationwide agricultural sustainability. In the long run, climate resilience will define not just the productivity of Indian agriculture, but its survival.

### UPSC Prelims Exam Practice Question

**Ques** With reference to Climate-Resilient Agriculture (CRA), consider the following statements:

1. CRA aims to reduce dependence on chemical inputs while maintaining or improving agricultural productivity.
2. Genome-edited crops used under CRA can enhance tolerance to abiotic stresses such as drought and salinity.
3. CRA focuses only on adaptation and not on mitigation of climate change.

**Which of the statements given above is/are correct?**

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**Ans: a)**

### UPSC Mains Exam Practice Question

**Ques** : What is Climate-Resilient Agriculture? Explain why it is particularly important for India's rainfed agricultural regions.  
**(150 Words)**

## Page 11 : GS II : Governance

The renewed controversy over the Aravalli Hills highlights a deeper governance dilemma in India's environmental policymaking — the increasing use of "strategic exemptions" to bypass environmental safeguards. Framed around national security, defence self-reliance, and critical mineral access, the debate reflects how India often resolves conflicts between climate commitments and industrial demand not through transparent rules, but via executive discretion and ad hoc legal carve-outs.

### EXPLAINER

## The Aravalli question faces the brunt of India's fondness for 'strategic exemptions'

India does not resolve clashes between its climate commitments and industrial demand through any clear rules; instead, it often resorts to executive discretion and opaque measures, citing 'national defence' or 'strategic considerations' to bypass scrutiny

**Vasudevan Mukund**

**The story so far:** In December 23, Air Marshal and the Integrated Defence Staff chief Ashish Dixit laid the foundation stone of the establishment's case for critical minerals. Modern defence systems, he said, rely on reliable access to these minerals and import dependence has become a strategic vulnerability because global supply chains are uncertain and exposed to export controls and geopolitics. He also linked self-sufficiency in defence manufacturing and operational readiness to secure mineral value chains and pointed to the National Critical Minerals Policy as the only choice of choice. His words came as the defence establishment's contribution to the charged public debate over how the Aravalli Hills should be protected and whether their mineral wealth should be mined.

**What is the Aravalli Hills issue?** Controversy over the Aravalli Hills flared up after November 20, when the Supreme Court adopted a uniform way to identify the "hills and ranges", froze new mining leases in them. The Environment Ministry had prepared a sustainable mining plan for the landscape, and said mining should be prohibited in "core" or "inviolate" areas, with an exception for critical, strategic and atomic minerals notified under the Wildlife Protection Act (1972) and the Environment (Protection) Act 1986. The Court called this a "strategic exemption".

In the new operational definition vis-à-vis mining, "Aravalli Hills" is any landform in the Aravalli Range that rises at least 300 m above the local terrain (measured from the lowest contour line encircling the landform). Likewise, the "Aravalli Range" is two or more such Aravalli Hills that lie within 500 m of each other, including the landforms in between.

Environmental groups and opposition parties have argued that this definition could still weaken enforcement in large parts of a landscape already stressed by illegal mining, urban expansion, denudation, and a dropping water table. For instance, if one looks at the Aravalli Hills' boundary using the new elevation and distance rules, the new landscape that emerges will still of "Aravalli"-like feature sitting like islands in a sea of non-Arvalli landforms, including valley plains, scrubland, and forests. Yet the latter connect the Aravalli Hills and make the current landscape as good as it currently is.

Last week, then, the Supreme Court placed this definition in abeyance and decided to constitute a new committee to examine the issue afresh.

**What is the issue with a 'strategic exemption'?**

The Environment Ministry that must execute the sustainable mining plan (however it looks) has also weakened the legal environment protection framework to promote ease of doing business, creating gaps that make exemptions easier to use.

Further, right now, India doesn't resolve clashes between its climate commitments and industrial demand through any clear rules. Instead, the Environment Ministry often resorts to



**Under pressure:** A view of Aravalli Hills; the landscape is stressed by illegal mining, urban expansion, denudation, and a dropping water table. GETTY IMAGES

executive discretion and opaque instruments like office memoranda, project-specific exemptions, and ad hoc approaches to environmental and strategic considerations as "sufficient reason to evade scrutiny".

The environmental impact assessment (EIA) framework itself allows exemptions from public consultation for projects that rise at least 300 m above the local terrain (measured from the lowest contour line encircling the landform). Likewise, the "Aravalli Range" is two or more such Aravalli Hills that lie within 500 m of each other, including the landforms in between.

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government to disclose details of risks and cumulative impact. Ministers also defended the move in Parliament on November 20.

**Next, the Forest (Conservation)**

Amendment Act 2023 and subsequent administrative practices have widened the exemptions for certain activities and have introduced new categories of land and projects that are not subject to environmental requirements. The amended Act applies to land notified as "forest" under the Indian Forest Act 1927 (or other laws) and land recorded as forest in government records as on October 25, 1980, yet it exempts 100% of the area that has been shifted to non-forest use on or before December 12, 1996, by a State or UT order. It also exempted land along roads and railway tracks, the international border, and near "security-related infrastructure" and expanded the list of areas not treated as "non-forest" purpose".

As a result, the Centre and States can now collect information by drilling narrow holes during exploration to pull up rock samples and file a mining proposal. And in forest districts with mineral deposits and which overlap with areas notified as harbouring left-wing extremism, it's now easier to establish some connecting infrastructure like roads and power lines, which can also support exploration and other mining work.

The amendments don't exempt mining outright but there's a scope creep that, together with the government's sympathetic attitude towards minerals by exempting them from public consultations as required by the EIA Notification 2006. This move didn't require the notification to be amended because it already had a "strategic clause for national security considerations", and the Ministry used that to accelerate projects while also reducing the formal space where affected communities and independent experts could force the

government to preserve linked to the Sustainable Development Goals, including clean air, water purity, and good living conditions.

The Hills also contain or are believed to have potential for minerals that India's strategic planners can about, including base metals and certain established belts, minerals such as iron, manganese, and those classified as "strategic", and other bulk minerals including stone and rocks. The Court-appointed committee has also emphasized the potential for minerals mining in the Aravalli Hills for a green energy transition, including wind and solar energy elements. This combination, together with the Ministry's weakening of safeguards, makes the Court's "strategic exemption" precarious.

The State has also effectively reduced the information that outsiders can access to hold clearances for mining, including "sustainable mining" and the circular economy of critical minerals that the new National Critical Minerals Mission promises – accountable.

If the law is going to make a "strategic" move to cause other exemptions in sensitive areas, there needs to be more clarity on how India will arbitrate these conflicts, rather than fall back on negotiated exemptions and post-hoc regularization. Specifically, the panel of the court can be asked to set up a binding rule for when "strategic considerations" merit simpler or easier procedures; require landscape-level cumulative-impact and groundwater assessments before all leases; and disclose, in the public record, exemptions of an alternative – including imports, substitution, recycling, and sourcing from less sensitive areas – that were rejected.

Without such a framework, however, climate action and economic growth will keep colliding through ad hoc decisions while environmental law is left to absorb the political pressure.

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### The Aravalli Issue: What Triggered the Debate?

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## Daily News Analysis

In November 2025, the Supreme Court of India adopted a uniform geomorphological definition of the Aravalli Hills for mining regulation, froze new mining leases, and prohibited mining in "core" or "inviolate" areas — while allowing an exception for critical, strategic, and atomic minerals under the MMDR Act, 1957.

However, the definition — based on elevation (100 m local relief) and spatial proximity (500 m) — risked fragmenting the Aravalli landscape into isolated "hills" surrounded by legally non-Arvalli areas. Environmental groups argued that this ignored ecological continuity, hydrology, and landscape-level functions. Recognising these concerns, the Court later placed the definition in abeyance and constituted a fresh expert committee.

### The Problem with "Strategic Exemptions"

#### 1. Absence of Clear Decision Rules

India lacks a codified framework to arbitrate trade-offs between environmental protection and strategic or industrial imperatives. Instead, authorities rely on:

Office memoranda

Project-specific exemptions

Post facto regularisation

This has made the scope of "national interest" opaque and discretionary, weakening environmental rule of law.

#### 2. Dilution of Environmental Impact Assessment (EIA)

The EIA framework allows exemption from public consultation for projects linked to "strategic considerations" as determined by the Centre.

In September 2025, the Ministry of Environment, Forest and Climate Change used this clause to exempt critical mineral mining projects from public hearings, without amending the EIA Notification, 2006.

This reduced transparency and community participation, particularly in ecologically sensitive regions.

#### 3. Judicial Ambiguity and Regulatory Uncertainty

In May 2025, the Supreme Court held ex post facto environmental clearances to be anathema to environmental jurisprudence.

By November, the Court recalled this ruling, reopening the door to post facto regularisation, thereby injecting uncertainty into regulatory enforcement.

#### 4. Forest Law Amendments and Scope Creep

The Forest (Conservation) Amendment Act, 2023:

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## Daily News Analysis

Narrowed the legal definition of forest land

Expanded exemptions near borders, roads, and security infrastructure

Enabled exploratory drilling and infrastructure development with reduced scrutiny

While mining is not directly exempted, these changes cumulatively ease the pathway for mineral exploration and extraction.

### Why the Aravalli Hills Matter

The Aravallis play a critical role in groundwater recharge, desertification control, and climate regulation, especially in north-west India.

They are integral to India's commitments under the Sustainable Development Goals, particularly water security and ecological resilience.

At the same time, the region is believed to host minerals relevant to defence, green energy, and the clean-tech transition — a priority under the National Critical Mineral Mission.

This overlap of ecological fragility and strategic mineral interest makes unchecked exemptions especially risky.

### Governance Implications

Environmental federalism is weakened when States and the Centre rely on discretionary exemptions rather than rule-based planning.

Reduced public access to information undermines accountability for claims of "sustainable mining" and circular economy models.

Long-term climate goals risk erosion through incremental, project-by-project compromises.

### Way Forward: What is Needed?

A binding, transparent test for invoking "strategic considerations"

Mandatory landscape-level cumulative impact and groundwater assessments before granting leases

Disclosure of alternatives considered — imports, recycling, substitution, or sourcing from less sensitive areas

Clear separation between exploration needs and extraction permissions, with safeguards at each stage

### Conclusion

The Aravalli debate exposes a fundamental weakness in India's environmental governance: the tendency to resolve structural conflicts between climate action and economic or strategic priorities through negotiated exemptions rather than principled rules. While critical minerals and defence readiness are legitimate concerns, their pursuit through opaque shortcuts risks undermining ecological security — which is itself a pillar of national security. Without a transparent and rule-based framework,

India's climate commitments and growth ambitions will continue to collide, leaving environmental law to absorb political pressure instead of guiding sustainable development.

### UPSC Mains Exam Practice Question

**Ques :** Critically analyse the role of the National Critical Mineral Mission in balancing India's mineral security needs with environmental sustainability. (150 words)

## Page : 08 : Editorial Analysis

### GS Paper III : Environment

**UPSC Mains Exam Practice Question :** Unsafe drinking water poses a serious threat to public health in India. Analyse the link between urban water infrastructure, environmental governance, and water-borne diseases. (150 words)

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### Context :

The recent tragedy in Indore, where several people lost their lives and thousands fell ill after consuming contaminated municipal water, exposes a critical fault line in India's urban governance — the gap between access to water and assurance of water quality. Ironically, this crisis unfolded in a city repeatedly ranked as India's cleanest, underlining that sanitation achievements do not automatically translate into safe drinking water. The episode highlights a deeper "water divide" in India's development trajectory.

### The Core Issue: Access Without Quality Assurance

India's water policy discourse has largely focused on coverage and infrastructure expansion, often overlooking last-mile quality monitoring.

According to the National Family Health Survey, about 96% of households use an improved source of drinking water.

Municipal piped water is categorised as an "improved source", yet the Indore incident shows that improvement in source does not guarantee safety at the point of delivery.

### The water divide

The quality of piped water supply must be checked at delivery point

**A**n indicator of public health is the well-being of the poorer sections of the people. Health, education, infrastructure, clean air and clean water all fall under basic needs, and various institutions should be busy working round the clock to improve lives. On most of these counts, however, India appears to be falling short, with the latest being the tragedy unfolding in Indore, Madhya Pradesh. At least four people, including a baby (official toll; unofficial is 14), have lost their lives after drinking municipality-supplied water, with more than 2,000 people falling ill. Over 200 people are in hospital and 32 are in the ICU. It is a development steeped in irony because Indore has been voted India's cleanest city for several years in a row for its exemplary waste segregation and management practice among other cleanliness measures it undertook. As has become the unfortunate norm after every mishap, the blame game began swiftly with authorities pinning it on tardy progress on installing a fresh supply line. A committee is to investigate the issue, but things should not have been allowed to precipitate such a deadly crisis in the first place. This is the second instance of a water issue in the State in the past two months. In November, students at the Vellore Institute of Technology campus near Bhopal vehemently protested against contaminated water supply after many of them began contracting jaundice.

It is a shame that despite progress under the Swachh Bharat Mission and Jal Jeevan Mission, water woes continue. The National Family Health Survey data show that despite a rural-urban divide, 96% of households use an improved source of drinking water. A municipal supply is always considered to be a safe and "improved source", and if checks and balances were in place, the authorities at Indore would have spotted the contamination and let people know of the dangers. Giving access to water is meaningless unless the quality of the supply is assured. There needs to be better enforcement of water guidelines and other environmental laws at all levels. Air pollution is already wreaking havoc on citizens' health; unsafe drinking water should not be added to the list. The incidents in Madhya Pradesh should be taken as a wake-up call for India's water management. With a population that is close to 147 crore, India's water-borne disease burden is also high. All States should immediately check water supply sources for chemical and sewage contaminants. Old infrastructure including pipes must be repaired or replaced. There should be strict enforcement of policy and monitoring of practice along with awareness campaigns. Indore and many more cities in India have to clean up their act, or risk more deaths.

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Contamination due to sewage ingress, old pipelines, or poor monitoring can convert a public utility into a public health hazard.

### Public Health and Governance Implications

#### 1. Water-Borne Disease Burden

India, with a population nearing 147 crore, already carries a high burden of water-borne diseases such as jaundice, diarrhoea, and cholera.

The Indore tragedy and the earlier contamination incident near Bhopal indicate systemic vulnerability, not isolated failures.

#### 2. Infrastructure Deficit

Ageing and leaking pipelines, intermittent water supply, and proximity of water lines to sewage networks increase contamination risks.

Delays in infrastructure upgrades and temporary arrangements during pipeline work often lack adequate safeguards.

#### 3. Weak Regulatory Enforcement

Water quality standards exist, but monitoring at the consumer end remains sporadic.

Accountability is diluted due to overlapping responsibilities among municipal bodies, State agencies, and contractors.

#### 4. Urban Bias in Perception

Urban areas are assumed to have safer water than rural regions, but recent incidents challenge this assumption and reveal urban governance complacency.

*Aim, Think & Achieve*

### Disconnect with National Missions

India has made notable progress under flagship programmes such as:

Swachh Bharat Mission – improving sanitation and waste management

#### Jal Jeevan Mission – expanding household tap connections

However, these missions have prioritised coverage and infrastructure, while water quality surveillance, real-time testing, and public disclosure have not received commensurate attention. Access without safety undermines the very objective of these initiatives.

### What Needs to Be Done

#### Quality Monitoring at Delivery Point

Mandatory and frequent testing of water at household and community taps, not just at treatment plants.

Infrastructure Modernisation

Replacement of old pipelines, separation of water and sewage lines, and time-bound repairs during pipeline upgrades.

#### Regulatory and Institutional Accountability

Clear responsibility frameworks for municipal bodies with penalties for negligence.

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## Daily News Analysis

### Transparency and Early Warning Systems

Public disclosure of water quality data and prompt advisories during contamination risks.

#### **Awareness and Community Participation**

Educating citizens on reporting contamination and adopting interim safety measures.

#### **Conclusion**

The Indore water tragedy is a stark reminder that safe drinking water is not merely an infrastructure issue but a governance and public health imperative. India cannot afford to measure success only by access statistics while ignoring quality at the point of consumption. As climate stress, urbanisation, and ageing infrastructure intensify water risks, the country must move from a coverage-centric to a quality-centric water governance model. Ensuring clean water is not just a development goal — it is a basic condition for dignity, health, and social justice.



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