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THE HINDU
INDIA'S NATIONAL NEWSPAPER SINCE 1878

Daily News Analysis

The Hindu Important News Articles & Editorial For UPSC CSE

Thursday, 15 Jan, 2026

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Iran is witnessing one of its most intense waves of anti-government protests in recent years, marked by widespread public unrest and a forceful state response. The situation escalated after Iran's judiciary signalled swift trials and possible executions of detained protesters, openly defying warnings from the United States. The crisis has significant implications not only for Iran's internal stability but also for West Asian geopolitics, human rights discourse, and India's strategic interests in the region.

Swift executions of protesters likely: Iran

If we have something to do, we have to do it quickly, declares head of Iran's judiciary

2,571 people have been killed in crackdown on protesters by Tehran: U.S.-based rights group

Trump warns of consequences to executions by Iran; we will take very strong action, he says

Associated Press
DUBAI

The head of Iran's judiciary defied a warning from U.S. President Donald Trump and signalled on Wednesday that there would be swift trials and executions ahead for those detained in nationwide protests.

The comments from Iran's judiciary chief Gholamhossein Mohseni-Ejei come as activists had warned hangings of those detained could come soon. A bloody security force crackdown on one of the biggest anti-government protests Iran has seen in years has already killed at least 2,571 people, the U.S.-based Human Rights Activists News Agency reported.

"If we want to do a job, we should do it now. If we want to do something, we have to do it quickly," Mr. Mohseni-Ejei said in a video shared by Iranian state television. "If it becomes late, two months, three months later, it doesn't have the same effect."

His comments stand as a direct challenge to Mr. Trump, who warned Iran about executions in an interview with CBS aired on Tuesday. "We will take very strong action," Mr. Trump said. "If they do such a thing, we will take very strong action." "We don't want to see what's happening in Iran happen. And you know, if they want to have protests, that's one thing, when they start killing thousands of people, and now you're telling me about hanging – we'll see how that works out for them. It's not going to work out good," he said.

Mr. Trump has repeatedly warned that the U.S. may take military action over the killing of peaceful protesters, just months after it bombed Iranian nuclear sites during a 12-day war launched by Israel in June 2025.

A funeral was held for security personnel killed during protests, in Tehran on Wednesday. REUTERS

The Islamic Republic on Wednesday held a mass funeral of some 100 security force members killed in the demonstrations after authorities earlier said it would be 300. Tens of thousands of mourners attended, holding Iranian flags and photos of Supreme Leader Ayatollah Ali Khamenei. The caskets, covered in Iranian flags, stood stacked at least three high. Red and white roses and framed photographs of people who were killed covered them.

People elsewhere in Iran remained fearful in the streets. Plainclothes security forces still milled around some neighbourhoods, though anti-riot police and members of the paramilitary Revolutionary Guard's all-volunteer Basij force appeared to have been sent back to their barracks.

One Arab Gulf diplomat said that governments in the region had been discouraging the Trump administration from launching a war now with Iran, fearing "unprecedented consequences" for the region that could explode into a "full-blown war".

Meanwhile, activists said on Wednesday that Starlink was offering free service in Iran. The satellite internet service has been key in getting around an internet shutdown launched by the government on January 8. Iran began allowing people to call out internationally on Tuesday via their mobile phones, but calls from people outside the country into Iran remain blocked.

"We can confirm that the free subscription for Starlink terminals is fully functional," said Mehdi Yahyanejad, a Los Angeles-based activist who has helped get the units into Iran. "We tested it using a newly activated Starlink terminal inside Iran."

Security service personnel also apparently were searching for Starlink dishes, as people in northern Tehran reported authorities raiding buildings with satellite dishes. While satellite television dishes are illegal, many in the capital have them in homes, and officials broadly had given up on enforcing the law in recent years.

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Jaishankar speaks to Iranian Foreign Minister

Kallol Bhattacherjee
NEW DELHI

External Affairs Minister S. Jaishankar on Wednesday spoke to Iranian Foreign Minister Seyed Abbas Araghchi and discussed the current unrest in Iran. The conversation took place hours after the Ministry of External Affairs "advised" Indian citizens to avoid travelling to Iran. The Embassy of India in Tehran also urged Indian nationals to leave the country by any available means of transport.

FULL REPORT ON
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Key Developments

The head of Iran's judiciary, Gholamhossein Mohseni-Ejei, indicated that punishments, including executions, must be carried out quickly to deter dissent.

A U.S.-based rights group has reported over 2,500 deaths in the security crackdown, highlighting allegations of large-scale human rights violations.

U.S. President Donald Trump warned of "very strong action" if executions proceed, raising fears of renewed confrontation.

Iran held mass funerals for security personnel killed during protests, projecting a narrative of state victimhood and legitimacy.

Internet shutdowns were imposed, though Starlink satellite services reportedly enabled limited connectivity, prompting security raids to locate satellite equipment.

Regional actors, particularly Gulf states, are reportedly discouraging U.S. military action due to fears of a broader regional war.

International and Regional Dimensions

Iran–U.S. Tensions

Trump's warning revives coercive diplomacy, including threats of military action, following earlier strikes on Iranian nuclear sites in 2025.

Iran's defiance signals resistance to external pressure and reinforces its sovereignty-based narrative.

Human Rights vs. Sovereignty Debate

Western states frame the crackdown as a human rights crisis, while Iran treats the protests as an internal security threat backed by foreign interference.

This reflects a broader global divide on humanitarian intervention and regime accountability.

West Asia Stability

Any escalation could disrupt energy markets, shipping routes (Strait of Hormuz), and regional security balances.

Gulf states fear "unprecedented consequences," including proxy conflicts and economic instability.

India's Position and Strategic Concerns

India has issued a strong travel advisory and urged Indian nationals and PIOs to leave Iran, prioritising citizen safety.

External Affairs Minister S. Jaishankar held discussions with Iranian Foreign Minister Seyed Abbas Araghchi, reflecting diplomatic engagement amid crisis.

India balances:

Strategic autonomy and long-standing ties with Iran (connectivity projects, regional security)

Relations with the United States, especially amid tariff threats linked to Iran trade.

The unrest may delay bilateral engagements planned for the 75th anniversary of India–Iran diplomatic relations (2026).

Conclusion

Jaishankar speaks to Iranian Foreign Minister amid unrest

India reiterates advisory against travel to Iran in near future; Embassy in Tehran urges Indians and persons of Indian origin to leave amid continuing protests or reach out to the mission for help

Kallol Bhattacherjee
NEW DELHI

External Affairs Minister S. Jaishankar on Wednesday spoke to Iranian Foreign Minister Seyed Abbas Araghchi and discussed the current unrest in Iran as well as the growing regional tensions in West Asia. The conversation took place hours after the Ministry of External Affairs "strongly advised" Indian citizens to avoid travelling to Iran "until further notice". The Embassy of India in Tehran also urged Indian nationals and persons of Indian origin to leave the country by any available means of transport, including commercial airlines, and asked their India-based family members to register them on the embassy helpline page.

"Received a call from Iranian Foreign Minister Seyed Abbas Araghchi. We discussed the evolving situation in and around Iran," Mr. Jaishankar said. He had, a day earlier, spoken to U.S. Secretary of State Marco Rubio after U.S. President Donald Trump threatened Iran's government and announced a 25% tariff for any country that wishes to trade with the U.S. while maintaining trade ties with Iran. As strategic partners, India and Iran have important connectivity and security interests, which have also come under pressure following Mr. Trump's latest tariff announcement.

Mr. Araghchi was expected to travel to India this month as the two countries had been contemplating events in the coming months, with 2026 marking the 75th anniversary of the establishment of India-Iran diplomatic ties. Diplomatic sources had earlier told *The Hindu* that Mr. Araghchi's visit was confirmed for this week, though a final announcement from the Indian side did not take place as the internal situation escalated in Iran. India has been in talks to ensure the safety of its citizens amid the confrontation between the regime in Tehran and anti-government protesters.

"It is reiterated that all Indian citizens and PIOs should exercise due caution, avoid areas of protests or demonstrations, stay in contact with the Indian Embassy in Iran and monitor local media for any developments," the Embassy of India in Tehran said, urging all Indian nationals carrying passports and other identification documents to contact the embassy for assistance.

People attend the funeral of the security personnel killed in the recent protests, in Tehran.

When in need

Indian nationals were also advised to register with the Indian Embassy at meaers.com/request/home. In view of the Internet shutdown in Iran, families of Indian nationals based in India were advised to reach out to the Indian Embassy and complete the required registration on behalf of their relatives who may be unable to access the Embassy of India website.

The emergency contact helpline numbers of the Indian Embassy, shared through a public notification, are +98-91281 09115, +98-91281 09109, +98-91281 09102 and +98-99321 79359. The embassy can also be contacted by mail at cons.tehran@mea.gov.in.

The Iran unrest represents a complex intersection of domestic legitimacy, human rights concerns, and great-power rivalry. While Iran's hardline response may temporarily suppress dissent, it risks long-term instability and international isolation. For India, the situation underscores the importance of pragmatic diplomacy, safeguarding nationals abroad, and maintaining strategic balance in an increasingly volatile West Asian region. How global and regional actors respond will shape not only Iran's internal trajectory but also the broader geopolitical order in West Asia.

UPSC Mains Exam Practice Question

Ques: "India's response to political instability in partner countries reflects its principle of strategic autonomy." Evaluate this statement with reference to India's diplomatic engagement and travel advisory related to Iran. (150 words)

Page 06 : GS II : Indian Polity / Prelims Exam

The University Grants Commission (UGC) has notified the University Grants Commission (Promotion of Equity in Higher Education Institutions) Regulations, 2026, strengthening the regulatory framework to address caste-based discrimination in higher education institutions (HEIs). These rules mark a significant policy shift by expanding the scope of protection, institutionalising equity mechanisms on campuses, and linking compliance with institutional recognition.

Background and Context

India has long grappled with social exclusion and discrimination in higher education, despite constitutional guarantees under Articles 14, 15, and 46.

The UGC had earlier notified anti-discrimination regulations in 2012, but concerns remained regarding weak enforcement and lack of clarity.

The draft regulations (2025) attracted criticism because:

OBCs were excluded from the ambit of caste-based discrimination.

The definition of discrimination was vague.

A controversial clause proposed penalties for "false complaints", potentially deterring genuine grievances.

The final regulations respond to these concerns.

UGC brings out new rules against caste discrimination

Higher education institutions may lose recognition if they violate the regulations; UGC brings OBCs within the ambit of new rules after their exclusion in the draft version evoked criticism

The Hindu Bureau
NEW DELHI

The University Grants Commission (UGC) has notified new regulations to address caste-based discrimination in higher education institutions across the country. The new rules mandate the setting up of equity committees on campuses and specify punishments, which can range from being debarred from offering degrees or programmes, for non-compliance.

The University Grants Commission (Promotion of Equity in Higher Education Institutions) Regulations, 2026, notified on Tuesday, are an update on the anti-discrimination regulations in place since 2012. A draft version of the updated rules was put out by the UGC for public suggestions in February last year, inviting widespread criticism for the way it kept the Other Backward Classes (OBCs) outside the ambit of caste-based discrimination and the lack of specificity in the way it defined discrimination.

Further, the draft version of the regulations proposed a provision to "discourage" false complaints of discrimination, suggesting fines for such complaints.

In the final notified version of the rules, the UGC has included OBCs within the ambit of "caste-based discrimination" and dropped the provision on false complaints. Further, its definition of "discrimination" has been expanded slightly to include some of the language contained in the 2012 regulations.

In the new regulations, the UGC has said that "caste-based discrimination" means "discrimination only on the basis of caste or tribe against the members of the Scheduled Castes (SCs), Scheduled Tribes (STs), and Other Backward Classes". Further, it defines "discrimination" as "any unfair, differential, or biased treatment or any such act against any stakeholder, whether explicit or implicit, on the grounds only of religion, race, caste, gender, place of birth, disability, or any of them".

In borrowing from the definition in the 2012 regulations, the UGC added that "discrimination" would include "any distinction, exclusion, limitation, or preference, which has the purpose or effect of nullifying or impairing equality of treatment in education and, in particular, of imposing conditions on any stakeholder or group of stakeholders that are incompatible with human dignity".

Equity committees

In the new regulations, the UGC mandates the setting up of equal opportunity centres (EOC) in each institution, to promote "equity and equal opportunity to the community at large in the higher education institutions (HEIs) and to bring about social inclusion". Under these, an equity committee is to be formed. These equity committees, chaired by the head of the institution, must have the representation of OBCs, persons with disabilities, SCs, STs, and women, the regulations said.

While the EOC will be expected to submit a bi-annual report of its functioning, the equity committees have been mandated to meet at least twice a year.

The UGC will put in place a monitoring mechanism to review the progress of the implementation of these regulations. It will set up a national-level monitoring committee with representatives of statutory professional councils and commissions, the regulations said.

Strong measures

The UGC (Promotion of Equity in Higher Education Institutions) Regulations, 2026, were notified on Tuesday

- Discrimination has been defined as "any unfair, differential, or biased treatment or any such act against any stakeholder, whether explicit or implicit, on the grounds only of religion, race, caste, gender, place of birth, disability, or any of them"
- Caste-based discrimination means "discrimination only on the basis of caste or tribe against the members of the Scheduled Castes, Scheduled Tribes, and Other Backward Classes"
- The new rules specify punishments, which can range from being debarred from offering degrees or programmes, for non-compliance

Key Features of the 2026 Regulations

1. Expanded Definition of Caste-Based Discrimination

Now explicitly covers SCs, STs, and OBCs, correcting a major omission in the draft.

Discrimination is defined broadly to include explicit and implicit acts, as well as practices that impair equality and human dignity.

2. Institutional Mechanisms for Equity

Mandatory establishment of Equal Opportunity Centres (EOCs) in all HEIs.

Formation of Equity Committees under EOCs with:

Representation from SCs, STs, OBCs, women, and persons with disabilities.

Chairperson: Head of the institution.

Committees must meet at least twice a year, ensuring regular oversight.

3. Accountability and Enforcement

Non-compliance can lead to serious penalties, including:

Debarment from offering degrees or academic programmes.

Loss of UGC recognition.

Introduction of monitoring mechanisms, including a national-level monitoring committee with representatives from statutory councils and commissions.

4. Removal of Deterrent Provisions

The clause discouraging "false complaints" and proposing fines has been dropped, strengthening confidence among vulnerable groups to report discrimination.

Significance and Implications

Social Justice and Constitutional Values

Aligns higher education governance with constitutional morality, particularly the principles of equality, dignity, and social inclusion.

Reinforces India's commitment to substantive equality, not merely formal equality.

Governance of Higher Education

Moves beyond advisory guidelines to a regulatory and punitive framework, improving enforceability.

Encourages institutions to adopt preventive and corrective approaches rather than reactive compliance.

Challenges in Implementation

Risk of tokenism in committee representation.

Effectiveness depends on:

Independence of equity committees.

Capacity-building and sensitisation within institutions.

Transparent grievance redressal processes.

Conclusion

The UGC's 2026 regulations represent a progressive and corrective reform in higher education governance by explicitly recognising OBCs within the framework of caste-based discrimination and strengthening institutional accountability. While the rules have the potential to create more inclusive and equitable campuses, their success will ultimately depend on robust implementation, continuous monitoring, and a genuine commitment by institutions to uphold the spirit of social justice rather than merely complying with regulatory formalities.

UPSC Prelims Exam Practice Question

Ques: Which of the following is/are the functions associated with the Equal Opportunity Centres (EOCs) under the new UGC regulations?

1. Promoting equity and social inclusion in higher education institutions

2. Submitting bi-annual reports on their functioning

3. Conducting disciplinary proceedings against faculty members

Select the correct answer using the code below:

A. 1 and 2 only

B. 2 and 3 only

C. 1 only

D. 1, 2 and 3

Ans: A)

UPSC Mians Exam Practice Question

Ques : Caste-based discrimination in higher education undermines constitutional values of equality and dignity. Examine how the new UGC regulations seek to operationalise constitutional guarantees under Articles 14, 15 and 46. **(250 words)**

Page 07 : GS III : Disaster Management

According to the annual disaster report of Munich Re, global economic losses from natural disasters declined sharply to $224 billion in 2025, nearly 40% lower than the previous year. However, despite this numerical decline, the reinsurer has cautioned that the overall picture remains "alarming", as extreme weather events linked to climate change continue to intensify in frequency and severity.

Shaky ground: Monks rest next to a damaged building following a strong earthquake in Sagaing, Myanmar on April 2, 2025. REUTERS

'Losses due to disasters drop in 2025, picture still alarming'

Agence France-Presse

Natural disaster losses worldwide dropped sharply to $224 billion in 2025, reinsurer Munich Re said on Tuesday, but warned of a still "alarming" picture of extreme weather events likely driven by climate change.

The figure was down nearly 40% from a year earlier, in part because no hurricanes struck the U.S. mainland for the first time in several years.

Nevertheless, "the big picture was alarming with regard to floods, severe... storms and wildfires in 2025", said Munich Re, a Germany-based provider of insurance for the insurance industry.

The costliest disaster of 2025 came in the form of Los Angeles wildfires in January, with total losses of $53 billion and insured losses of around $40 billion, Munich Re said in its annual disaster report. It was followed by the devastating earthquake that hit Myanmar in March, which is estimated to have caused $12 billion in losses, only a small share of which was insured.

It was striking how many extreme events were likely influenced by climate change in 2025 and it was just chance that the world was spared potentially higher losses, according to the group.

"The planet has a fever, and as a result we are seeing a cluster of severe and intense weather events," Tobias Grimm, Munich Re's chief climate scientist, said.

According to Munich Re's report, insured losses for 2025 came in at $108 billion, also sharply down on last year.

Around 17,200 lives were lost in natural disasters worldwide, significantly higher than about 11,000 in 2024, but below the

Munich Re's, a Germany-based provider of insurance for the insurance industry, puts insured losses for 2025 at $108 billion

10-year average of of 17,800, it said.

Mr. Grimm said 2025 was a year with "two faces". "The first half of the year was the costliest loss period the insurance industry has ever experienced," he said, but the second half saw the lowest losses in a decade.

It is now the cumulative costs of smaller-scale disasters – like local floods and forest fires – that are having the greatest impact. Losses from these events amounted to $166 billion last year, according to Munich Re.

Tropical cyclones caused around $37 billion in losses. Jamaica was battered by Hurricane Melissa, one of the strongest hurricanes ever to make landfall, generating losses of around $9.8 billion.

By region, total losses in the United States amounted to $118 billion, $88 billion of which was insured – around the same as an estimate of $115 billion total losses from U.S. nonprofit Climate Central. The Asia-Pacific region had losses of about $73 billion – but only $9 billion was insured, according to the report.

Australia had its second most expensive year in terms of overall losses from natural disasters since 1980 due to a series of severe storms and flooding.

The report comes at a time when scepticism towards green policies is growing, particularly since the return to power of U.S. President Donald Trump, who derides climate science as a "hoax".

"More heat means more humidity, stronger rainfall, and higher wind speeds – climate change is already contributing to extreme weather," Mr. Grimm said.

Key Findings of the Report

1. Economic and Insured Losses

Total global losses: $224 billion (2025)

Insured losses: $108 billion, indicating a persistent protection gap, especially in developing regions.

Decline largely attributed to the absence of a major U.S. hurricane landfall, highlighting the role of chance rather than structural risk reduction.

2. Major Disasters of 2025

Los Angeles wildfires (January 2025):

Costliest disaster, with losses of **$53 billion**, most of it insured.

Myanmar earthquake (March 2025):

Losses of around **$12 billion**, but only a small fraction insured, underlining vulnerability in poorer regions.

Hurricane Melissa in Jamaica:

One of the strongest hurricanes to make landfall, causing losses of **$9.8 billion**.

3. Human Cost

Around **17,200 deaths** globally due to natural disasters in 2025.

Higher than 2024 figures, and close to the **10-year average**, underscoring that lower economic losses do not necessarily translate into reduced human suffering.

Climate Change Linkages

Munich Re's chief climate scientist **Tobias Grimm** described 2025 as a year with "two faces":

The **first half** witnessed the costliest loss period ever for the insurance industry.

The **second half** saw unusually low losses, masking underlying systemic risk.

Key observations:

Smaller-scale but frequent disasters (local floods, forest fires, severe storms) accounted for **$166 billion** in losses, now exceeding the impact of rare mega-events.

Rising global temperatures are increasing **humidity, rainfall intensity, and wind speeds**, directly linking climate change to extreme weather.

Regional Patterns and Inequality

United States:

Losses of **$118 billion**, with high insurance coverage (~$88 billion insured).

Asia-Pacific:

Losses of **$73 billion**, but only **$9 billion insured**, reflecting weak insurance penetration.

Australia:

Second costliest disaster year since 1980 due to storms and flooding.

This highlights a **global climate injustice** where developing regions bear disproportionate human and uninsured economic losses.

Political Context

The report comes amid growing scepticism towards climate policies, particularly after the return to power of Donald Trump, who has publicly dismissed climate science. This raises concerns about weakening global climate action at a time when scientific evidence increasingly links climate change to disaster risks.

UPSC Mains Exam Practice Question

Ques: Examine how climate change is altering the nature, frequency, and economic impact of natural disasters, with special reference to the growing significance of small-scale but frequent extreme events. **(150 words)**

Page 08 : GS III : Indian Economy / Prelims Exam

India is set to transition from an outdated inflation dataset with the release of a new Consumer Price Index (CPI) series. The retail inflation figure for December 2025 (1.33%) marks the final data point of the CPI series with 2012 as the base year. While headline inflation appears historically low, a growing gap between official inflation data and household experience has exposed serious limitations of relying on an index that has not been updated for over a decade.

Why the Current CPI Series is Problematic

Outdated Consumption Weights

The CPI weights are based on **2012 consumption patterns**, which no longer reflect present-day realities.

Since then, consumption behaviour has changed due to:

Expansion of **food, fuel, and welfare subsidies**,

Rising expenditure on services such as health, education, transport, and communication,

Urbanisation and lifestyle changes.

Disconnect Between Data and Lived Experience

Official CPI inflation averaged **1.7% (April–December 2025)**, far below **4.9% in the same period of 2024**.

However, household perception sharply diverges:

According to the **Reserve Bank of India**'s Inflation Expectations Survey (December 2025), households perceived inflation at **6.6%**, expecting it to rise further.

This divergence undermines the credibility of official inflation as a guide for policymaking.

Macroeconomic Signals Contradict CPI Trends

Government's **GDP first advance estimates** show **slower private consumption growth**.

If inflation had genuinely eased as much as CPI suggests, consumption demand should have strengthened.

This inconsistency indicates **underestimation of price pressures** faced by households.

Moving on

India is getting rid of an outdated dataset for measuring inflation

The retail inflation figure for December 2025 is the final instalment of the current series of the Consumer Price Index (CPI), with a base year of 2012, before it is updated to a new base year and with new weightages. The CPI data this year have been particularly useful in highlighting the problems with relying on a dataset that has not been updated in more than a decade. The inflation figure for December 2025 stood at 1.33%. The fact that it was a three-month high is merely a statistical curiosity since it was also the third lowest since the current series began. Overall, in the April-December 2025 period, inflation has averaged 1.7%, substantially lower than the 4.9% average in the same period of 2024. But it does not feel that way. Anecdotal evidence and hard data show that the inflation that people are really experiencing is far higher than what the official data show. For example, the government's own first advance estimates for GDP growth this year show that it expects private consumption to grow slower than it did last year. If inflation had indeed eased to the degree that the official data suggest, surely consumption should have picked up. According to its latest edition of the Reserve Bank of India's inflation expectations survey from December, households perceived inflation to be 6.6% – a far cry from the official 1.33% – and felt that it would accelerate to 7.6% in three months and to 8% in a year. The feeling clearly is that not only are prices rising, but they are rising at a faster rate. Failing to capture this is where the official data let policymakers down.

The most basic issue with any inflation data is that a single figure is expected to capture the variety of price changes that take place across the country. The national inflation number aggregates price levels and movements from districts in Kashmir to villages in Kerala and everywhere in between, for both urban and rural. Naturally it will lose nuances in the process. Further, while this is the natural peril of computing national statistics for a diverse country such as India, the outdated nature of the CPI makes matters significantly worse. The weightages of the various sub-sectors in the index were based on consumption patterns in 2012. People consume very differently now, especially because of various central and State subsidies being offered. Thankfully, on February 12, the government will release the January inflation data based on the new series of the CPI. This series will see the base year updated to 2024, and will incorporate new weights based on the Household Consumption Expenditure Survey 2023-24. It is an update sorely needed.

Structural Limitations of a National Inflation Number

India's CPI aggregates prices across:

- Vast geographical diversity (Kashmir to Kerala),
- Rural and urban markets,
- Different income groups.

While some loss of nuance is inevitable in national statistics, an **obsolete base year amplifies distortions**, especially in a rapidly changing economy.

The New CPI Series: What Changes

Base Year Update: From **2012 to 2024**.

Revised Weights: Based on the **Household Consumption Expenditure Survey (HCES) 2023–24**.

First Release: January inflation data to be released on **February 12**.

Expected Benefits

More accurate reflection of **current consumption patterns**.

Better alignment between **headline inflation and household experience**.

Improved inputs for:

- Monetary policy decisions,
- Fiscal planning,
- Welfare indexation and real income assessment.

Policy Relevance

For Monetary Policy

CPI is the **nominal anchor** for inflation targeting by the RBI.

Underestimated inflation can lead to:

- Premature monetary easing,
- Misjudgement of real interest rates.

For Governance and Welfare

Inflation data guide:

Indexation of social security benefits,

Minimum wage and dearness allowance decisions.

Faulty data can distort **distributional outcomes**.

Conclusion

The shift to a new CPI series with a 2024 base year is a long-overdue reform that addresses a critical weakness in India's macroeconomic framework. While no single inflation number can perfectly capture price realities in a diverse country, an updated CPI will significantly reduce the gap between statistical inflation and lived inflation. For policymakers, this transition is essential to restore credibility, ensure effective monetary management, and design welfare policies grounded in economic reality rather than outdated data.

UPSC Prelims Exam Practice Question

Ques : Which one of the following best explains why low CPI inflation may coexist with weak private consumption growth?

(a) CPI excludes services inflation

(b) CPI does not capture rural prices

(c) CPI weights are based on outdated consumption patterns

(d) CPI is calculated only at the national level.

Ans: c)

UPSC Mains Exam Practice Question

Ques : Despite record-low headline CPI inflation in 2025, households perceived inflation to be significantly higher. Examine the reasons for this divergence and discuss how updating the CPI base year can improve economic policymaking. **(150 Words)**

Page 10 : GS III : Science & Technology/ Prelims Exam

Futuristic marine and space biotechnology represent next-generation scientific frontiers that leverage extreme and underexplored environments—deep oceans and outer space—to develop new biological knowledge, materials, and manufacturing processes. As countries shift toward bio-based, sustainable, and high-value manufacturing, these domains offer India a strategic opportunity to emerge as a global biomanufacturing leader aligned with its Blue Economy and space ambitions.

What is futuristic marine and space biotechnology?

How can India position itself as a leader in biomanufacturing?

Shambhavi Naik

The story so far:

Futuristic space and marine biotechnology research focuses on using underexplored environments, such as the deep oceans and outer space, to develop new biological knowledge, materials, and manufacturing processes. Marine biotechnology involves studying microorganisms, algae, and other marine life to discover bioactive compounds, enzymes, biomaterials, food ingredients, and biostimulants. These organisms have evolved to survive high pressure, salinity, low light, and nutrient-poor conditions. Space biotechnology, meanwhile, studies how microbes, plants, and human biological systems behave under microgravity and radiation.

Why does India need them?

India's long coastline of over 11,000 km and a vast Exclusive Economic Zone of over 2 million sq. km give it access to rich marine biodiversity and biomass. Yet its share of global marine outputs remains low, indicating significant untapped potential. Investing in marine biomanufacturing can unlock new sources of food, energy, chemicals, and biomaterials, while reducing pressure on land, freshwater, and agricultural systems. Similarly, space biotechnology is critical for India's long-term ambitions in space exploration, enabling safe food production, human health management, and biological manufacturing in extreme environments. Together, futuristic marine and space biotechnology can position India as a leader in biomanufacturing.

Where does India stand today?

India's domestic production of marine biomass such as seaweed remains modest, with an annual cultivated output of around 70,000 tonnes. As a result, India continues to import seaweed-derived components such as agar, carrageenan, and alginates for use in food, pharmaceuticals, cosmetics, and medical applications. Targeted initiatives under the Blue Economy agenda, the Deep Ocean Mission, and, more recently, the BioE3 are pushing the sector toward integrated marine biomanufacturing, linking cultivation, extraction, and downstream applications. A small number of private players, such as Sea6 Energy and ClimaCrew, along with ICAR-Central Marine Fisheries Research Institute and state-led initiatives such as the Vibrant Gujarat Regional Conference, are exploring pathways to scale marine biomass into high-value ingredients, and bio-based products. In space biotechnology, ISRO's microgravity biology programme is conducting experiments on microbes, algae, and biological systems to study food production, life-support regeneration, and human health in space. However, private-sector participation is limited as these technologies are still nascent.

What are other countries doing?

The European Union funds large-scale programmes on marine bioprospecting, algae-based biomaterials, and bioactive compounds, supported by shared research infrastructure such as the European Marine Biological Resource Centre. China has rapidly expanded seaweed aquaculture and marine bioprocessing. In space biotechnology, the U.S. leads through NASA and the International Space Station, where research on microbial behaviour, protein crystallisation, stem cells, and closed-loop life-support systems informs drug discovery, regenerative medicine, and long-duration human missions.

What next?

Marine and space biotechnology remain relatively unexplored frontiers, where early movers are likely to gain lasting strategic and technological advantages. The primary risk lies in slow and fragmented progress in research and development. A dedicated roadmap that defines timelines and outcomes for marine and space biotechnology would help channel resources more effectively.

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

THE GIST

- Futuristic space and marine biotechnology research focuses on using underexplored environments, such as the deep oceans and outer space, to develop new biological knowledge, materials, and manufacturing processes.
- In space biotechnology, ISRO's microgravity biology programme is conducting experiments on microbes, algae, and biological systems to study food production, life-support regeneration, and human health in space.
- Marine and space biotechnology remain relatively unexplored frontiers, where early movers are likely to gain lasting strategic and technological advantages.

What is Futuristic Marine and Space Biotechnology?

1. Marine Biotechnology

Marine biotechnology involves the study and use of marine organisms—such as microorganisms, algae, corals, and invertebrates—to produce:

- Bioactive compounds (pharmaceuticals, nutraceuticals)
- Industrial enzymes
- Biomaterials (bioplastics, wound dressings)
- Food ingredients (agar, alginates, carrageenan)
- Biostimulants and biofertilisers

These organisms have evolved under high pressure, salinity, low light, and nutrient-scarce conditions, making them uniquely valuable for industrial and medical applications.

2. Space Biotechnology

Space biotechnology studies how microbes, plants, and human biological systems behave in microgravity and high-radiation environments. It enables:

- Closed-loop food and life-support systems
- Human health management in long-duration missions
- Microgravity-enabled biomanufacturing
- Drug discovery and protein crystallisation

India's efforts are led by ISRO through microgravity biology experiments.

Why Does India Need These Technologies?

Natural Endowments

- Coastline: ~11,000 km
- Exclusive Economic Zone: ~2 million sq. km
- Rich but underutilised marine biodiversity

Resource Sustainability

- Reduces dependence on land, freshwater, and agriculture
- Supports climate-resilient and circular bioeconomy models

Strategic Space Ambitions

- Long-term human spaceflight
- In-space manufacturing and life-support systems

Economic Value

- High-value exports (pharma, biomaterials, specialty chemicals)
- Import substitution in seaweed-derived products

Where Does India Stand Today?

Marine Biotechnology

- Seaweed cultivation: ~70,000 tonnes annually (modest scale)

Heavy dependence on imports for agar, alginates, carrageenan

Policy push through:

Blue Economy framework

Deep Ocean Mission

BioE3 (Biotechnology for Economy, Environment & Employment)

Key actors:

Private: Sea6 Energy, ClimaCrew

Public research: ICAR–Central Marine Fisheries Research Institute

State initiatives (e.g., Vibrant Gujarat)

Space Biotechnology

ISRO's microgravity research on microbes, algae, and biological systems

Focus areas: food production, health, regenerative life-support

Limited private-sector participation due to high costs and early-stage technology

What Are Other Countries Doing?

European Union

Large-scale marine bioprospecting programmes

Shared infrastructure via the European Marine Biological Resource Centre

China

Massive expansion of seaweed aquaculture

Industrial-scale marine bioprocessing

United States

Leadership in space biotechnology through NASA and the ISS

Research on stem cells, protein crystallisation, microbes, and closed-loop life systems

How Can India Position Itself as a Leader in Biomanufacturing?

Dedicated National Roadmap

Clear timelines, targets, and mission-mode approach for marine & space biotech

Integrated Value Chains

From biomass cultivation → bioprocessing → high-value end products

Public–Private Partnerships

De-risk early-stage research to crowd in private capital

Shared Infrastructure

Marine biofoundries, deep-sea labs, microgravity test platforms

Regulatory & Skill Ecosystem

Faster approvals, biosafety clarity, interdisciplinary talent development

Strategic Convergence

Align Blue Economy, space policy, climate goals, and Make in India

Conclusion

Marine and space biotechnology are strategic technologies of the future, where early movers gain durable economic, scientific, and geopolitical advantages. India possesses the natural resources, scientific base, and policy momentum to lead but risks falling behind due to fragmented efforts and slow scale-up. A coherent national roadmap, coupled with strong public–private collaboration, can transform India into a global hub for sustainable biomanufacturing, reinforcing both economic growth and strategic autonomy.

UPSC Prelims Exam Practice Question

Ques : Space biotechnology differs from terrestrial biotechnology primarily because it studies biological systems under:

A) High temperature and high pressure conditions

B) Microgravity and high radiation environments

C) Deep ocean and polar conditions

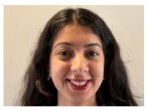
D) Artificial intelligence-controlled ecosystems

Ans: B)

UPSC Mains Exam Practice Question

Ques : What is futuristic marine biotechnology? Discuss its significance for India's biomanufacturing and Blue Economy ambitions. **(150 Words)**

An exploration of India's minerals diplomacy



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Today, India's clean energy transitions are impossible without imported critical minerals and rare earths. The country needs these minerals now, and China's tightening export controls only heighten the urgency. Just like other countries around the world, India is also committing to diversify mineral trade linkages, promote responsible production and build standards-based markets.

India needs a two-pronged strategy to build long-term capability at home while securing immediate access abroad. Realising this, over the past five years, New Delhi has pursued close to a dozen bilateral and multilateral partnerships across continents while bolstering domestic mineral policies. The question is about what these engagements have delivered to India and whether there is a need for recalibration.

The two sides to partnerships

Some partnerships have advanced more meaningfully than others. Australia emerges as reliable, offering political stability, large reserves and a strategic vision. Cooperation here is active with long-term supply discussions, joint research and targeted investments. In 2022 under the India-Australia Critical Minerals Investment Partnership, the two countries identified five target projects for potential investment in lithium and cobalt.

Japan provides a template for resilience, exemplifying an institutional model for long-term planning rather than reactive deals. When China restricted rare earth exports to Tokyo a decade ago, Japan responded with diversification, stockpiling, recycling and sustained research and development. Beyond its long-standing cooperation with Indian Rare Earths Limited, the partnership has now extended into potential joint extraction processing and stockpiling minerals, both bilaterally and in third countries, under a cooperation agreement last year.

African nations, given their long-standing trade linkages with India, offer similar opportunities, with mineral abundance paired with rising demands for local value creation. India's recent agreements with Namibia for lithium, rare earths and uranium as well as asset-acquisition talks in Zambia for copper and cobalt reflect a growing push to turn towards Africa. India must approach Africa with a long-term industrial mindset or risk losing ground to more coordinated competitors.

India must use its country-by-country approach to build resilience across the value chain

Despite previous political enthusiasm around "friend-shoring", cooperation on critical minerals has struggled to move beyond dialogue with the United States. Recent American tariffs on Indian goods, shifting trade rules and restrictive Inflation Reduction Act incentives complicate stable engagement. The volatility of the U.S.'s trade policy makes it hard for New Delhi to rely on Washington, even though the U.S. could be a significant technology and downstream innovation partner. The Transforming the Relationship Utilizing Strategic Technology (TRUST) Initiative and the Strategic Minerals Recovery Initiative propose frameworks for joint work on rare-earth processing, battery recycling and clean separation technologies.

The European Union (EU)'s Critical Raw Materials Act, the European Battery Alliance and its circular economy agenda show how regulation, sustainability and industrial strategy can reinforce each other. Progress requires India to align with the EU's requirements on transparency, lifecycle standards and environmental norms.

West Asia holds potential but lacks institutional depth and long-term frameworks. The United Arab Emirates and Saudi Arabia are investing heavily in battery materials, refining capacity and green hydrogen, with sovereign wealth funds acquiring mining stakes across Africa and Latin America. For India, West Asia could become an important midstream partner, processing minerals sourced elsewhere.

Russia's reserves of rare earths, cobalt and lithium are substantial, and scientific ties with India are longstanding. Yet, sanctions, financing challenges and logistical unpredictability constrain reliability. Russia could be an important hedge, not a foundation.

New frontiers

Latin America presents India's new frontiers with expanded engagement in Argentina, Chile, Peru and, increasingly, Brazil. These countries are becoming central to global copper, nickel and rare-earth strategies. There have been substantial investments by public and private sector companies from India into projects in these regions. Khanij Bidesh India Limited (KABIL) has signed a ₹200 crore exploration and development agreement with Argentina. However, competition for Indian companies is intense, and engagement remains at an early stage. A lasting presence will require value-chain partnerships and local processing, not extraction-only agreements.

With the restoration of diplomatic ties with Canada recently, Ottawa emerges as an important player. With reserves of nickel, cobalt, copper and rare earths, and a recently signed trilateral agreement with Australia and India, Canada has potential to become a strong minerals partner. Yet, political stability between the two countries will be key.

Develop integrated partnerships

Across all regions, lessons converge. Securing ore is not enough. The choke point is processing. Without domestic refining and midstream capability, India remains exposed to supply chain vulnerabilities. Technology, innovation and on-ground project implementation matters far more than announcements. India must use its country-by-country approach to build resilience across the value-chain. Africa, Australia, Canada and Latin America for upstream ore extraction; West Asia (the Gulf) and Japan for midstream processing of the mineral ores; the EU and the U.S. for downstream technology creation such as batteries and recycling, and Russia for diversification.

While it is important for India to be also open to cooperation with additional partners, such as South Korea and Indonesia, it first needs to have a clear strategic vision for existing partnerships. None of this will deliver results unless India strengthens its domestic framework for responsible mining with issues such as Environmental, Social and Governance (ESG) and transparency increasingly becoming a key issue in international partnerships.

India has built an impressive web of critical minerals partnerships. The next step is to deepen what works, rethink what does not, and ensure technology, processing and long-term certainty.

GS Paper II : International Relations

UPSC Mians Practice Question: Critically examine the challenges India faces in securing critical minerals in an increasingly protectionist and geopolitically fragmented global order. (250 Words)

Context :

India's clean energy transition—covering electric mobility, renewable energy, grid storage, and advanced manufacturing—is critically dependent on imported critical minerals and rare earth elements. With China tightening export controls and dominating global processing capacities, mineral security has emerged as a core pillar of India's strategic and economic diplomacy. Over the last five years, India has actively pursued bilateral and multilateral partnerships across continents while reforming domestic mineral policies. The key policy question now is whether these engagements are delivering real supply-chain resilience or require recalibration.

Why Minerals Diplomacy Matters for India

Critical minerals such as lithium, cobalt, nickel, copper, and rare earths are essential for:

- EV batteries
- Solar and wind technologies
- Semiconductors and defence systems

India lacks sufficient domestic reserves and processing capacity.

Global supply chains are geopolitically concentrated, especially in China.

Therefore, India needs a two-pronged strategy:

- Short term: Secure overseas access and diversify suppliers
- Long term: Build domestic refining, processing, and recycling capacity

Assessment of India's Key Partnerships

1. Australia – The Most Reliable Partner

Offers political stability, large reserves, and policy alignment.

Under the India–Australia Critical Minerals Investment Partnership (2022), five lithium and cobalt projects were identified.

Cooperation spans extraction, joint R&D, and targeted investments.

Represents a model partnership with tangible progress.

2. Japan – A Template for Resilience

Japan's response to China's rare earth embargo a decade ago—diversification, stockpiling, recycling, and R&D—offers lessons.

Cooperation extends beyond Indian Rare Earths Limited to joint processing and stockpiling, including in third countries.

Focus is on institutional depth, not ad hoc deals.

3. Africa – High Potential, High Competition

Countries like Namibia, Zambia, and others offer lithium, cobalt, copper, and rare earths.

India's agreements signal a shift toward Africa, but success depends on:

- Local value addition
- Long-term industrial partnerships

Risk: losing ground to more coordinated players like China if engagement remains extractive.

4. United States – Strategic but Unreliable

Despite initiatives like TRUST and the Strategic Minerals Recovery Initiative, cooperation remains largely declaratory.

Trade volatility, tariffs, and the Inflation Reduction Act complicate trust.

The U.S. is better positioned as a technology and downstream innovation partner rather than a stable supplier.

5. European Union – Regulation-Driven Partnership

The EU's Critical Raw Materials Act and circular economy agenda integrate sustainability with industrial policy.

Partnership potential exists, but India must align with EU standards on:

- ESG
- Transparency
- Lifecycle environmental norms

6. West Asia – Emerging Midstream Hub

UAE and Saudi Arabia are investing heavily in refining, battery materials, and green hydrogen.

Though resource-poor, the Gulf can become a midstream processing partner using minerals sourced from Africa or Latin America.

Institutional depth remains limited but promising.

7. Russia – A Strategic Hedge

Holds substantial reserves and has longstanding scientific ties with India.

However, sanctions, financing hurdles, and logistics reduce reliability.

Best viewed as a supplementary partner, not a foundation.

8. Latin America – New Frontiers

Argentina, Chile, Peru, and Brazil are central to lithium, copper, and nickel strategies.

Khanij Bidesh India Limited (KABIL) has signed a ₹200 crore agreement with Argentina.

Competition is intense; success requires value-chain integration, not extraction-only contracts.

9. Canada – Opportunity with Caveats

Rich in nickel, cobalt, copper, and rare earths.

A trilateral agreement with Australia and India enhances potential.

Political stability in bilateral relations will be decisive.

Key Strategic Lessons

Securing ore alone is insufficient; processing is the real choke point.

Without domestic refining and midstream capacity, India remains vulnerable.

Announcements must translate into:

- Technology transfer
- Project execution
- Long-term supply certainty

ESG, transparency, and responsible mining are now central to global mineral partnerships.

Way Forward: An Integrated Minerals Strategy

Upstream (Extraction): Africa, Australia, Canada, Latin America

Midstream (Processing & Refining): Japan, West Asia

Downstream (Technology & Recycling): EU, U.S.

Diversification Hedge: Russia

Simultaneously, India must strengthen its domestic framework for:

Responsible mining

ESG compliance

Recycling and urban mining

Policy certainty for private investment

Conclusion

India has successfully built a broad web of critical minerals partnerships, reflecting strategic awareness and diplomatic agility. However, the next phase must shift from breadth to depth. Mineral security will not be achieved through MoUs alone, but through processing capacity, technology absorption, and long-term institutional commitments. By deepening effective partnerships, rethinking underperforming ones, and strengthening domestic capabilities, India can transform minerals diplomacy into a pillar of energy security, economic resilience, and strategic autonomy.