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URBAN NOISE POLLUTION

Urban noise pollution has emerged as one of the most neglected public health and ecological challenges in India.

Despite legal frameworks like the Noise Pollution (Regulation and Control) Rules, 2000 and monitoring systems, decibel levels in Indian cities remain consistently above permissible limits, especially near sensitive institutions, eroding the constitutional promise of peace and dignity.

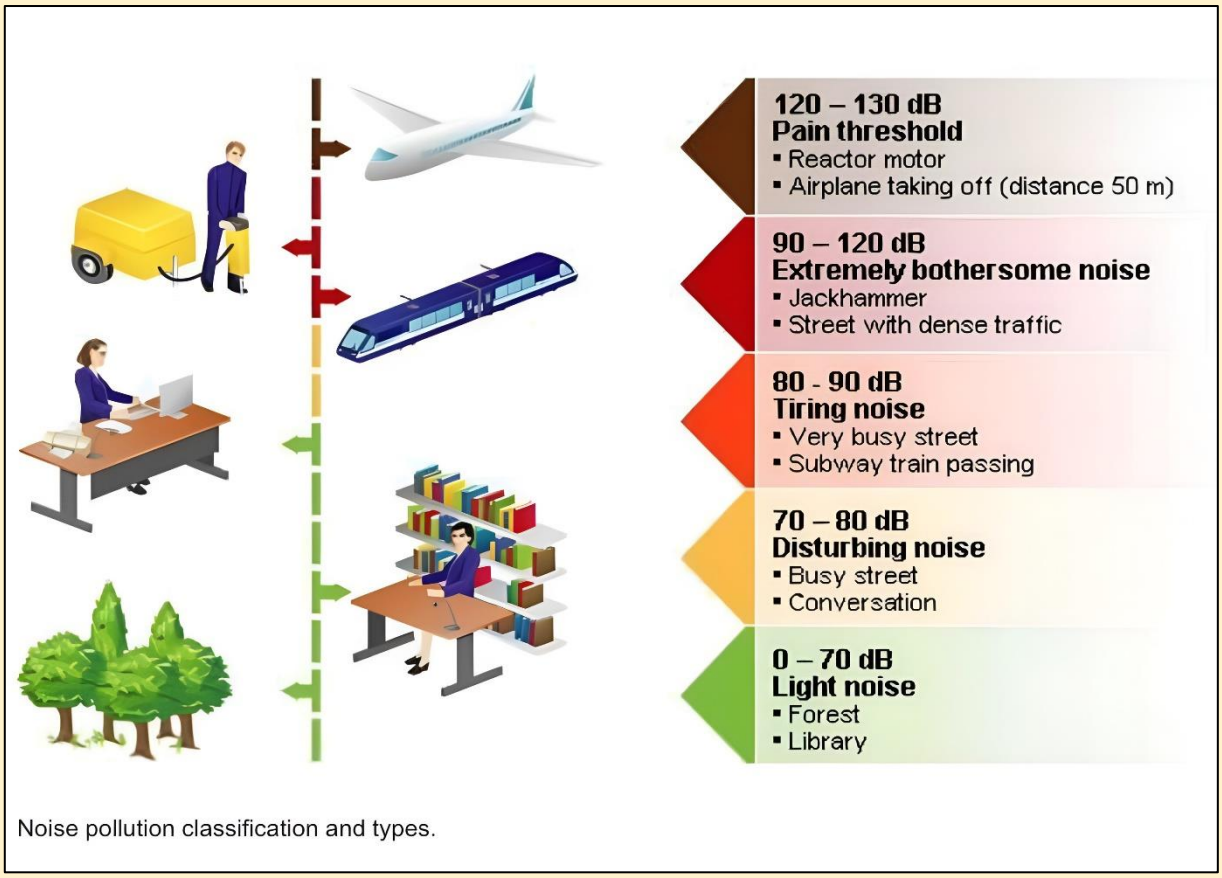
What is noise pollution?

Noise pollution refers to unwanted or excessive sound that can have harmful effects on human health, wildlife, and environmental quality.

- **Traffic:** Road traffic, railways, and air traffic are significant contributors to noise pollution in urban areas. The constant honking, engine noise, and tire friction create a chaotic sound environment.

- **Industrial Activities:** Factories and construction sites generate high levels of noise from machinery, drilling, and other operations, affecting workers and nearby residents.

- **Social and Recreational Activities:** Loud music, events, and recreational activities can also contribute to noise pollution, particularly in residential areas.



Noise pollution classification and types.

Impacts of Urban Noise Pollution

- Causes stress, sleep disturbance, hypertension, cardiovascular diseases, impaired cognitive performance, and mental health issues.
- Reduces productivity, disturbs peace in residential areas, and affects learning environments in schools and recovery in hospitals.

- Creates civic fatigue; constant honking and drilling normalise "sonic aggression," eroding dignity and mental well-being.
- Alters animal behaviour, migration, and communication.
- 2025 University of Auckland Study found that urban noise and artificial light disrupted the sleep and song patterns of common mynas after just one night. The birds sang less and with reduced complexity, impairing their social signalling. This indicates a broader breakdown of ecological communication systems.

Laws related to noise pollution

Constitution provisions

- Article 21 guarantees the right to life with dignity, encompassing mental and environmental well-being.
- Article 48A mandates proactive environmental protection.

Judgement

- In 2024, the Supreme Court of India reaffirmed that environmental disruptions — including excessive noise — can infringe upon the fundamental right to life and dignity under Article 21. In Noise Pollution (V), In Re, the Court recognised that unchecked urban noise poses a serious threat to mental well-being and civic freedom.

Laws

- The **Noise Pollution (Regulation and Control) Rules, 2000** empower authorities to regulate and control noise levels in different zones (industrial, commercial, residential, and silence zones).
- They prescribe permissible decibel limits, restrict loudspeaker use, and provide for creation of "silence zones" around sensitive areas like hospitals, schools, and courts.

World Health Organisation

- According to the World Health Organization, safe limits in silent zones are 50 dB(A) by day and 40 dB(A) by night.
- Yet, in cities such as Delhi and Bengaluru, readings near sensitive institutions often reach 65 dB(A)-70 dB(A).

Issues in implementation of schemes (examples)

- **Failure of National Ambient Noise Monitoring Network**
  - In 2011, the Central Pollution Control Board (CPCB) launched the National Ambient Noise Monitoring Network (NANMN), which was envisioned as a real-time data platform.
  - A major technical issue has been the flawed placement of sensors, many of which are installed 25–30 feet above ground level, in violation of CPCB's 2015 guidelines, thereby producing distorted readings that fail to capture ground-level reality.
  - India faces regulatory fragmentation, poor transparency, and institutional silence, with States like Uttar Pradesh failing to release updated noise data even in 2025.
- **Civil fatigue**
  - Noise normalised as part of urban living (honking, drilling, loudspeakers).
  - Unlike smog or garbage, noise leaves no visible trace hence lack of outrage against the issue.
- **Failure of implementation of Noise Pollution Rules, 2000**
  - The Noise Pollution Rules, 2000 are rarely updated to reflect urban realities.
  - There is little coordination between municipal bodies, traffic police and pollution control boards.

Way Forward

- A **National Acoustic Policy** should be formulated on the lines of the National Ambient Air Quality Standards, setting clear benchmarks for permissible noise levels across zones. Such a policy can provide uniformity, define accountability, and integrate health and ecological considerations into planning.
- The **Noise Pollution (Regulation and Control) Rules, 2000** need urgent revision to reflect present urban realities such as rapid infrastructure expansion, 24×7 construction, and mixed-use zoning. Updated rules must introduce stricter limits, dynamic monitoring, and new categories of "high-risk areas."
- The **National Ambient Noise Monitoring Network (NANMN)** should be decentralised. Local bodies and urban municipalities must be given access to real-time data with both responsibility and authority to act. This will ensure quicker response and reduce bureaucratic delays.
- **Data collection** must be directly linked to penalties, zoning compliance, and restrictions on construction and traffic violations. Without deterrence, rules remain ineffective.
- **Night-time construction and logistics-related activities** such as drilling, crane operations, and heavy vehicular movement must be strictly regulated, with exceptions allowed only for essential services.
- Effective enforcement requires inter-agency coordination. **State Pollution Control Boards (SPCBs), municipal corporations, and traffic police** should operate through a shared platform to avoid duplication, inefficiency, and institutional silence.
- **The Smart Cities Mission** must incorporate acoustic resilience as a design parameter. Urban planning should not only focus on mobility and expansion but also on creating healthier and quieter spaces.
- **Quiet zones** must be established and actively enforced around sensitive areas such as schools, hospitals, and courts.
- Structural interventions like **green buffers, tree belts, and noise barriers along**highways, metro lines, and airports should be prioritised to mitigate constant noise exposure in dense traffic zones.
- **Educational interventions** can play a critical role. Noise awareness should be included in school curricula, and driver training institutes should make it a core component of traffic education.

Noise pollution is no longer just an environmental issue but a constitutional, ecological and cultural challenge. Unless India adopts a rights-based, holistic approach, its smart cities may remain unliveable in terms of soundscape. Silence must not be imposed it must be enabled through governance, design and collective civic responsibility.

HIMALAYAN BROWN BEAR

The Himalayan brown bear (Ursus arctos isabellinus) has recently gained attention following an attack on Pakistani singer Quratulain Balouch in Deosai National Park, Gilgit-Baltistan. This incident marks growing human-bear conflicts in the region.

Scientific studies indicate that these conflicts are increasing due to habitat loss, climate change, and human food waste. The bear, a top predator and ecological indicator, faces threats from rapid warming and expanding human settlements in the Himalayas.

Ecology and Distribution

- The Himalayan brown bear is less studied compared to its North American and European cousins.
- It inhabits alpine and sub-alpine regions in the north-western and western Himalayas.
- Its population is declining due to habitat fragmentation caused by deforestation and human land use.
- The bear prefers areas with low human density and minimal disturbance but is increasingly forced into contact with humans due to shrinking habitats.

Impact of Climate Change

The Himalayas are warming faster than many global regions, with temperatures expected to rise by up to 3°C by 2100. This warming affects the bear's habitat by shrinking suitable ranges and altering food availability.

Changes in snowfall and winter duration extend the bear's foraging season, sometimes causing it to seek food within human settlements. Climate change thus intensifies habitat pressure and human-bear encounters.

Human-Bear Conflict Dynamics

Conflicts have surged in areas like the Zanskar region of Ladakh and Lahaul valley in Himachal Pradesh. Bears raid livestock and enter villages searching for food, often conditioned by human waste and crops.

Conflicts peak in autumn during hyperphagia, when bears fatten for hibernation and reproduction. Despite economic losses, no human fatalities have been reported in recent years in these zones.

Community Responses

Local communities report increased bear sightings and damage to livestock and crops. Poor understanding of bear behaviour and unregulated grazing worsen conflicts.

Studies recommend improved waste management, controlled grazing, and community watch groups. Ecotourism and protected areas could support coexistence but require integration with climate change mitigation strategies.

Conservation Challenges

Conservation efforts face challenges due to limited ecological data and increasing human pressures. Protecting habitats alone is insufficient. Experts urge incorporating climate adaptation into conservation plans.

- **Status:**
  - **IUCN Red List- Critically Endangered**
    - Brown bear **(Ursus arctos)** is listed as **Least Concern.**
  - **CITES - Appendix I.**
    - Only the populations of Bhutan, China, Mexico and Mongolia; all other populations are included in Appendix II.
  - **Indian Wildlife (Protection) Act of 1972 - Schedule 1.**

Establishing protected zones in bear-abundant areas and promoting sustainable land use are vital. Community involvement and awareness are key to reducing conflicts and preserving this vulnerable species.

NEW VICE-PRESIDENT ELECTED

India's Vice-President is being elected today. NDA candidate C.P. Radhakrishnan is strongly favored over Opposition nominee Justice B. Sudershan Reddy due to NDA's numerical strength and YSRCP's support.

The abstention of BJD and BRS has further reduced the effective majority needed.

- Numbers Game: NDA commands 425 of 781 eligible votes, while the Opposition has 324. The winning majority is 391, giving the NDA a clear edge.

- Candidates:
  - C.P. Radhakrishnan (68): Veteran BJP leader, former governor, seen as a loyal party figure.
  - Justice B. Sudershan Reddy (79): Former Supreme Court judge, known for civil rights judgments.
- Other Factors: Enhanced CRPF security for VP's residence and mock poll training to ensure valid voting.

Vice-President election in India:

Constitutional Basis

- Provided under Article 63–71 of the Constitution.
- The Vice-President is the ex-officio Chairman of the Rajya Sabha.

Electoral College

- Composed of members of both Houses of Parliament (Lok Sabha + Rajya Sabha).
- Consist both Elected and nominated MPs (in the case of president, only elected members).
- This is different from the President's election, where State Legislatures also participate.

Election Process

- Conducted by the Election Commission of India.
- Held through proportional representation by means of a single transferable vote (STV), and voting is by secret ballot.
- A candidate must secure a quota of votes (more than 50% of valid votes cast).

Eligibility Criteria (Article 66, 67)

- Citizen of India.
- At least 35 years of age.

- Qualified to be elected as a Rajya Sabha member.
- Cannot hold an office of profit.

Term and Removal

- Term: 5 years, but eligible for re-election.
- Can resign to the President.
- Removal: By a resolution of Rajya Sabha, passed by an effective majority, and agreed to by Lok Sabha.

Key Points

- In case of a vacancy in the President's office, the Vice-President acts as President until a new one is elected.
- The office ensures continuity in governance and parliamentary functioning.

STABLE COINS

Stablecoins, digital assets pegged to the US dollar, are expanding rapidly with a market capitalization above $280 billion, projected to reach $2 trillion within three years.

Why They Matter

- Enable instant, low-cost, dollar-pegged settlements.
- 99% are dollar-backed, mainly by Tether and Circle.
- Boost global demand for US Treasury bonds as reserves are held in such assets.

Global & Policy Implications

- Reinforce the US dollar's global "exorbitant privilege."
- Risks include financial instability, regulatory arbitrage, and shadow banking.
- Vulnerabilities may arise if reserves lose value or confidence falters.
- New regulations are under discussion, especially in the US and Europe.

Different types of cryptocurrencies:

Payment Cryptocurrencies

- Designed as digital money for peer-to-peer transactions.
- Focus on being a medium of exchange and store of value.
- Examples: Bitcoin (BTC), Litecoin (LTC).

Stablecoins

- Cryptocurrencies pegged to stable assets like the US dollar, gold, or government bonds.
- Aim to reduce price volatility and enable fast, low-cost settlements.
- Examples: Tether (USDT), USD Coin (USDC), DAI.

Utility Tokens

- Provide access to specific products or services within a blockchain ecosystem.
- Often used to pay for transaction fees, storage, or smart contract execution.
- Examples: Ethereum (ETH), Binance Coin (BNB).

Security Tokens

- Represent ownership of real-world assets (like shares, bonds, or property).
- Regulated under securities laws, providing dividends or profit-sharing rights.
- Example: Tokenized stocks or real estate platforms.

Central Bank Digital Currencies (CBDCs) ***(state-backed)***

- Issued and regulated by central banks, unlike decentralized cryptos.
- Aim to provide digital versions of national currencies.
- Example: Digital Yuan (e-CNY), Digital Rupee (pilot in India).

Privacy Coins

- Focus on enhanced anonymity and untraceable transactions.
- Use advanced cryptography to hide sender, receiver, and amount.
- Examples: Monero (XMR), Zcash (ZEC).

Governance Tokens

- Allow holders to vote on blockchain protocol changes, upgrades, or treasury decisions.
- Enable decentralized governance of networks.
- Examples: Uniswap (UNI), Maker (MKR).

GEOTAGGING OF BUILDING IN 2027 CENSUS

For the first time, the 2027 Census will include geotagging of all buildings, marking their precise latitude–longitude using GIS technology

- A Census House will be geotagged during the House Listing Operations (April–September 2026).

How it Works

- Enumerators will use smartphones to map each building in its House Listing Block through Digital Layout Mapping.
- All buildings—residential, vacant, or non-residential—will be classified and digitally mapped.

Benefits

- Ensures accurate counts of houses and households.
- Improves field management and data integrity.
- Supports better resource planning and policy-making.
- Builds on geotagging experience from earlier housing schemes but will be India's largest digital mapping exercise.

Geotagging

- Definition: Geotagging is the process of attaching the geographical coordinates (latitude and longitude) to physical objects, locations, or digital content such as photographs, buildings, and infrastructure.

How it Works

- Uses GPS (Global Positioning System) and GIS (Geographic Information System) technology.
- Smartphones or digital devices capture the exact position of an object on Earth and tag it with coordinates.

Applications

1. Governance & Planning – Used in Census operations, government housing schemes, and urban planning.
2. Disaster Management – Helps track affected areas, resources, and relief distribution.
3. Environmental Monitoring – Mapping forests, wetlands, and wildlife habitats.
4. Security & Law Enforcement – Tracking assets, monitoring borders, and crime mapping.
5. Everyday Use – Social media check-ins, tagged photographs, and navigation apps.

Benefits

- Improves accuracy, transparency, and accountability.
- Facilitates better planning, monitoring, and decision-making.

MULTIDIMENSIONAL POVERTY INDEX

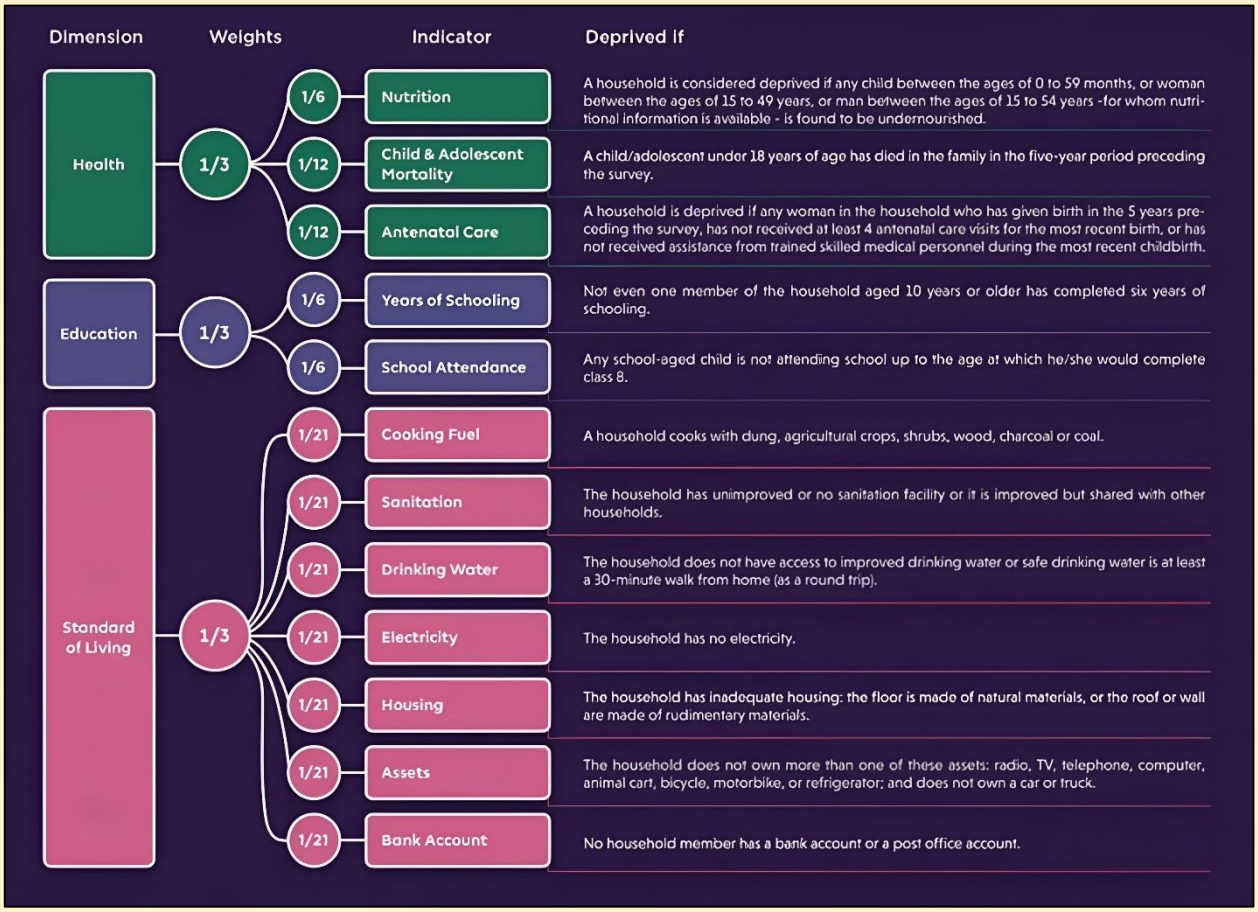
Recent discussion on MPI

Key Highlights

- Inaugural addresses by NITI leadership, EAC-PM, UN representatives, and policy experts.
- Focused on MPI as a tool for poverty reduction, governance improvement, and advancing SDGs.
- Discussions on data-driven policymaking, reducing survey periodicity, and improving targeting of welfare schemes.
- States shared innovations like Tamil Nadu's Breakfast Scheme, UP's Sambhav Abhiyan, Andhra's Zero Poverty-P4, and Odisha's Social Protection Platform.
- Technical sessions explained MPI methodology with hands-on exercises.

Significance

The workshop aimed to strengthen national and state capacity to apply MPI data for policymaking, program delivery, and monitoring—ensuring more precise poverty alleviation and leaving no one behind.



Multidimensional Poverty Index (MPI)

- The MPI is a global measure developed by the UNDP and Oxford Poverty & Human Development Initiative (OPHI) to capture poverty beyond income levels.
- It reflects deprivations in multiple dimensions of human development that directly affect well-being.

Dimensions & Indicators

MPI is based on three broad dimensions, subdivided into indicators:

1. Health – Nutrition, Child mortality.
2. Education – Years of schooling, School attendance.
3. Standard of Living – Cooking fuel, Sanitation, Drinking water, Electricity, Housing, Assets.

- A household is considered multidimensionally poor if it is deprived in at least one-third (33%) of the weighted indicators.

Calculation

- MPI = **Incidence of poverty (H) × Intensity of poverty (A)**
  - *H*: Proportion of people who are multidimensionally poor.
  - *A*: Average proportion of deprivations experienced by poor households.

Significance

- Provides a holistic measure of poverty, not just monetary poverty.
- Helps governments identify target groups, allocate resources, and monitor progress toward SDG 1 (No Poverty).
- India publishes its own National MPI through NITI Aayog, adapted to local conditions.

PROPERTY RIGHTS TO TRIBAL WOMEN

The Supreme Court of India delivered a landmark judgment on July 17, 2025, affirming the property rights of tribal women. The ruling in Ram Charan and Ors. vs Sukhram and Ors. declared that excluding daughters from ancestral property violates their fundamental right to equality.

This decision marks step towards gender justice in tribal communities where customary laws often deny women inheritance rights.

Background of the Case

The case involved the legal heirs of Dhaiya, a Scheduled Tribe woman from Sarguja district, Chhattisgarh. They sought partition of ancestral property inherited from their maternal grandfather.

The defendant refused, citing tribal customs that exclude female heirs. Lower courts initially dismissed the plea, stating no such custom existed to grant daughters inheritance rights. The High Court later granted equal shares to the female heirs, recognising gender discrimination in customary practices.

Customary Laws and Gender Discrimination

Tribal customary laws in Scheduled Areas govern marriage, succession, and adoption. Most deny women rights to ancestral land despite their contribution to agriculture. For example, only 16.7% of Scheduled Tribe women own land compared to 83.3% of men.

These customs often exclude women to prevent land alienation through marriage to non-tribal men. However, land sales rarely benefit the whole community, questioning the validity of such customs.

Legal Precedents and Challenges

Earlier, the Supreme Court in Madhu Kishwar vs State of Bihar (1996) upheld customary laws denying women inheritance, fearing legal chaos. However, recent rulings like Prabha Minz vs Martha Ekka (2022) and Kamala Neti vs Special Land Acquisition Officer (2022) show a shift.

Courts are increasingly scrutinising customs for antiquity, certainty, reasonableness, and conformity with public policy before upholding them.

Need for Legislative Reform

Current laws like the Hindu Succession Act exclude tribal women explicitly. This exclusion marks the need for a separate Tribal Succession Act.

Codifying tribal laws similar to Hindu and Christian succession laws could ensure gender equality and legal clarity. Such reform would protect tribal women's rights and promote social justice without disrupting tribal customs.

Impact on Tribal Society

Recognising women's property rights challenges patriarchal norms in tribal communities. It empowers women economically and socially. Equal inheritance rights can improve women's status and reduce gender-based discrimination.

The Supreme Court's judgment encourages re-examination of customs that perpetuate inequality and supports inclusive development in tribal areas.

INDIA'S FIRST INDIGENOUS MULTI-STAGE MALARIA VACCINE

AdFalciVax – India's Indigenous Malaria Vaccine

Overview:

AdFalciVax is India's first indigenous recombinant chimeric malaria vaccine, developed by the Indian Council of Medical Research (ICMR) in collaboration with its research institutes. It targets *Plasmodium falciparum*, the deadliest malaria parasite, and is designed to prevent both individual infections and transmission in the community.

Key Features:

- Dual-Stage Protection:
  - Pre-erythrocytic stage: Prevents liver infection using the circumsporozoite protein.
  - Transmission-blocking stage: Inhibits parasite development in mosquitoes using a fusion protein.
- Production Platform: Uses *Lactococcus lactis*, a safe, food-grade bacterium, ensuring scalable and cost-effective vaccine production.
- Thermal Stability: Maintains efficacy for over nine months at room temperature, making it suitable for distribution in tropical regions with limited cold-chain infrastructure.
- Immunogenicity: Induces robust and long-lasting immunity, with protection lasting several months post-booster dose.

INTERNATIONAL LITERACY DAY

The Ministry of Education celebrated ILD 2025 on September8.
Theme: "*Promoting Literacy in the Digital Era*" at Dr. Ambedkar International Centre, New Delhi.
Key Highlights:

- Attended by Union Minister Dharmendra Pradhan (virtually), Minister of State Jayant Chaudhary (Chief Guest), and other stakeholders.
- Focused on digital, civic, and financial literacy alongside traditional literacy.
- Himachal Pradesh was declared the 5th fully literate state/UT after Tripura, Mizoram, Goa, and Ladakh.

Initiatives:

- ULLAS–Nav Bharat Saaksharta Karyakram drives literacy via community participation and hybrid learning.
- ULLAS Literacy Week (Sept 1–8) registered non-literates and volunteers nationwide.
- Learning material is now available in 26 Indian languages for inclusivity.

Vision:
ILD 2025 highlighted how digital tools aid literacy, numeracy, and lifelong learning, particularly in underserved regions. The government reiterated its goal of universal literacy aligned with the vision of *Viksit Bharat*.

Definition of Literacy in India
In India, a person is considered **literate** if they are aged **7 years or above** and can **read and write with understanding** in any language. This definition is consistent with international standards and is used in official surveys.

Literacy Rate in India (2023–24)

- **Overall literacy rate**: 80.9% for individuals aged 7 and above.
- **Male literacy rate**: 87.2%
- **Female literacy rate**: 74.6%

The figures highlight a **gender gap of 12.6 percentage points** in literacy rates.
Top-Performing States
The states with the highest literacy rates are:

1. **Mizoram** – 98.2%
2. **Lakshadweep** – 97.3%
3. **Kerala** – 95.3%

These states have implemented effective educational policies and community engagement programs to achieve high literacy.

NATIONAL POLICY ON GEOTHERMAL ENERGY UNVEILED.

Key Highlights

- First-ever national framework for geothermal exploration, development, and utilization.
- Grants renewables-like incentives: must-run status, open access charge waivers, and grid access.
- Identifies 10 geothermal provinces and 381 hot springs with ~10 GW potential (Himalayas, Cambay, Aravalli, Godavari, Mahanadi etc.).
- Covers high-enthalpy (electricity), low/medium enthalpy (heating, cooling, agriculture, aquaculture, GSHPs), hybrid systems, and reuse of abandoned oil/gas wells.
- Streamlined regulatory setup: single-window clearances, long-term leases, centralized geothermal data.

Incentives & Financial Support

- 100% FDI permitted; concessional loans, risk-sharing for drilling, tax/GST relief, accelerated depreciation, viability gap funding.
- Participation in Indian Carbon Credit Trading Program encouraged.

Pilot Projects & Collaborations

- Five pilot projects sanctioned, incl. 450 kW plant in Rajasthan using abandoned oil wells.
- Partnerships with Iceland, Norway, and the U.S. for technology transfer.
- Push for local innovation, PPPs, and oil-gas repurposing.

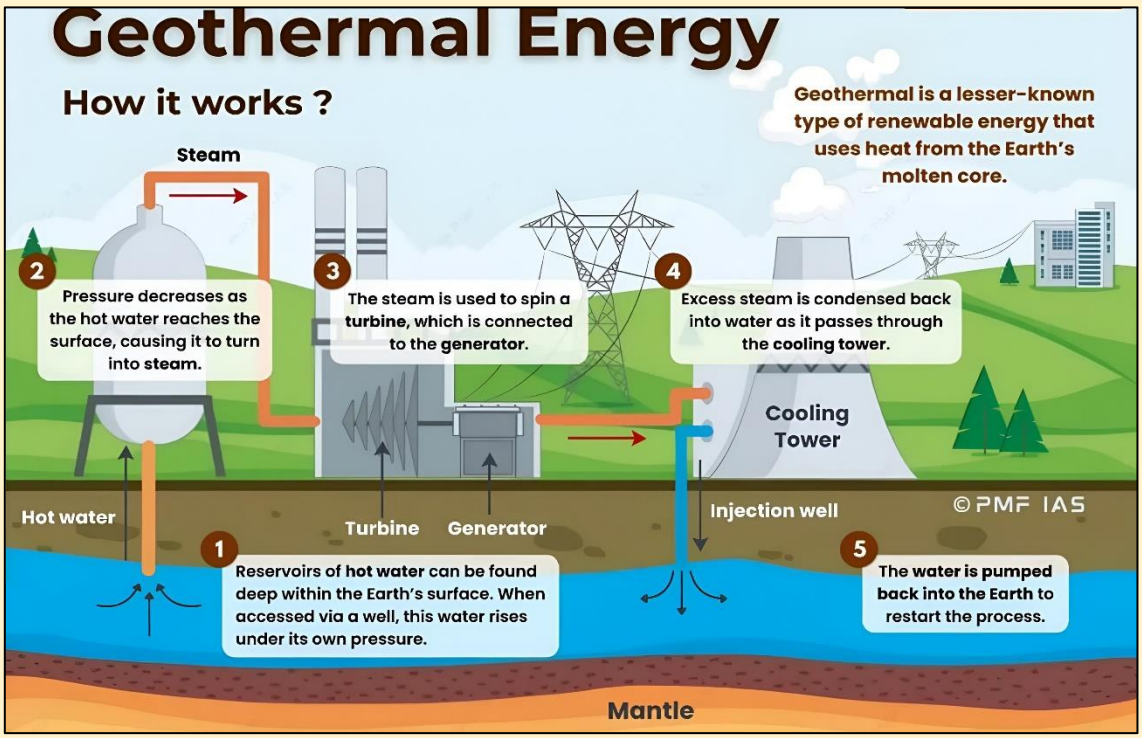
Relevance to Net Zero 2070

- Reliable 24×7 clean power, critical for diversified renewable mix.
- Supports decarbonization in buildings, agriculture, tourism, and rural development.

Implementation

- Led by MNRE; states act as nodal agencies for clearances, project facilitation, and capacity building.

Significance: Positions geothermal as a mainstream renewable, boosting energy security, jobs, and climate goals.



Geothermal Energy

- Definition: Renewable energy derived from the natural heat of the Earth's interior, stored in rocks, magma, hot water, and steam.
- Sources: Heat is tapped from geothermal reservoirs, hot springs, geysers, and deep wells.
- Applications:
  - Electricity generation (high-enthalpy resources).
  - Direct use in heating, cooling, aquaculture, greenhouses, and industry.
  - Geothermal Heat Pumps (GSHPs) for space heating/cooling.
- Advantages:
  - Clean, renewable, and sustainable.
  - Available 24×7 (baseload power, unlike solar/wind).
  - Low greenhouse gas emissions and land footprint.
- Challenges:
  - High upfront drilling cost and geological risks.
  - Location-specific potential (limited to tectonically active/hotspot areas).
  - Risk of induced seismicity and water contamination if not managed well.
- Global Leaders: Iceland, USA, Philippines, Indonesia, and Kenya.
- India's Potential: ~10 GW identified; major provinces include Himalayas, Cambay Basin, Aravalli, Godavari, and Mahanadi regions.
- Significance: Geothermal energy is a stable, round-the-clock renewable source crucial for clean energy transition and achieving climate goals.

UN GENOCIDE CONVENTION

UN commission has concluded that Israel is committing genocide in Gaza

Accusing leaders including Prime Minister Benjamin Netanyahu of incitement. The panel, led by Navi Pillay, found Israeli forces guilty of four of the five genocidal acts under the 1948 Genocide Convention—killing, causing serious harm, creating destructive living conditions, and preventing births—citing explicit statements by officials as proof of intent.

Israel rejected the findings as "distorted and false," demanding the commission's abolition. Meanwhile, the Israeli military launched a new ground offensive in Gaza City, advancing on the territory's largest urban center.

1948 Genocide Convention

- Full name: Convention on the Prevention and Punishment of the Crime of Genocide (CPPCG).
- Adoption: Adopted by the UN General Assembly on 9 December 1948 (Resolution 260 A (III)); entered into force on 12 January 1951.

- Objective: First human rights treaty of the UN era, aimed at preventing and punishing genocide in times of peace or war.
- Definition of Genocide (Article II): Certain acts committed with intent to destroy, in whole or in part, a national, ethnic, racial, or religious group, including:
    1. Killing members of the group.
    2. Causing serious bodily or mental harm.
    3. Inflicting living conditions to bring about destruction.
    4. Preventing births within the group.
    5. Forcibly transferring children of the group.

- Obligations: States must prevent and punish genocide, whether committed by state actors or individuals.
- Punishment (Article IV): Applies to constitutionally responsible rulers, officials, and private individuals.
- Court jurisdiction: Cases may be tried in national courts or before an international tribunal (like the International Court of Justice, as seen in Bosnia v. Serbia, The Gambia v. Myanmar).

TYPHOON MISSILE

China has urged the U.S. and Japan to withdraw the U.S.-developed Typhon missile system
Unveiled for the first time in Japan during the *Resolute Dragon* joint exercises at Iwakuni air station. Japan confirmed the system would not be fired but said its deployment strengthens deterrence amid a worsening security environment.

Beijing expressed strong opposition, accusing the two countries of ignoring its concerns. The Typhon system, part of U.S. Army modernization, is a truck-based launcher using modified SM-6 and Tomahawk missiles.

Typhon Missile System

- **Developer:** United States Army, as part of its *Mid-Range Capability (MRC)*program under Army modernization.
- **First Deployment:** Publicly showcased in Japan in 2025 during the *Resolute Dragon* joint exercises.

- **Platform:** Truck-based, trailer-mounted ground launch system.
- **Missile Types:** Launches modified versions of:
  - SM-6 (Standard Missile-6): Surface-to-air missile with extended range, capable of ballistic and cruise missile defense, as well as anti-ship roles.
  - Tomahawk cruise missile: Long-range, precision strike, land-attack missile.
- **Range Category:** Falls into the mid-range missile class (roughly 500–1,800 km).
- **Purpose:** Designed to fill the gap between shorter-range systems (like HIMARS) and long-range hypersonic weapons, giving the U.S. Army the ability to strike ships and land targets.
- **Strategic Significance:** Enhances U.S. and allied deterrence capabilities in the Indo-Pacific, but seen by China as destabilizing to regional security.

INTERNATIONAL SEABED AUTHORITY (ISA)

India has received a landmark licence from the International Seabed Authority (ISA) to explore polymetallic sulphide deposits in the Carlsberg Ridge.

It is a 300,000 sq km area of the northwest Indian Ocean and Arabian Sea. This is the world's first licence of its kind, granting India exclusive rights to survey and potentially exploit minerals like manganese, cobalt, nickel, and copper—critical for batteries, electronics, and renewable energy.
India already holds ISA licences in the Central Indian Ocean Basin (till 2027) and the Indian Ocean Ridge (till 2031). The Carlsberg Ridge licence strengthens India's role in securing critical mineral supply chains and counters competition from countries such as China.
However, deep-sea mining raises environmental concerns. India has committed to ecological assessments while pursuing its deep-ocean mineral strategy. The initiative is backed by the global framework of UNCLOS and regulated by the International Seabed Authority, which oversees seabed resources in areas beyond national jurisdiction.

International Seabed Authority (ISA)

- **Establishment:** Created in 1994 under the United Nations Convention on the Law of the Sea (UNCLOS), following the 1994 Agreement on Part XI of UNCLOS.
- **Headquarters:** Kingston, Jamaica.
- **Mandate:** Regulates exploration and potential exploitation of mineral resources in the international seabed area (the "Area") which lies beyond national jurisdiction, considered the "common heritage of mankind."

- **Functions:**
  - Granting exploration and mining licences for deep-sea minerals such as polymetallic nodules, sulphides, and cobalt-rich crusts.
  - Ensuring equitable sharing of benefits from seabed resources among all member states.
  - Protecting the marine environment through regulations and mandatory environmental impact assessments.

- **Membership:** 167 countries + European Union.
- **Council & Assembly:** Key decision-making bodies; the Legal and Technical Commission provides expert recommendations.

- **Significance for India:**
  - India was among the first countries to receive exploration licences from the ISA.
  - Currently holds contracts for the Central Indian Ocean Basin, Indian Ocean Ridge, and now the Carlsberg Ridge.
  - Supports India's Deep Ocean Mission for critical mineral security.

MANKI-MUNDA SYSTEM

The Manki-Munda system is a centuries-old self-governance framework of the Ho adivasi community in Jharkhand's Kolhan region.

Structure and Function

- Each village is led by a hereditary Munda, who resolves disputes and maintains order.
- A Manki oversees a cluster of 8–15 villages, handling unresolved issues.
- The system is decentralized, hereditary, and non-revenue-based, traditionally functioning without external taxation or state intervention.

British Influence

- In 1833, the British codified it under "Wilkinson's Rules", marking the first formal recognition of an adivasi self-governance system. This preserved some autonomy but enabled outsider entry and land changes.

HINDI DIWAS CELEBRATED

On Hindi Diwas 2025, Union Home Minister Amit Shah greeted the nation, calling India a "language-centric country."

He described Hindi and all Indian languages as carriers of culture, history, knowledge, and traditions, and highlighted Hindi as a bridge of national unity across regions.

Key Points of His Message

- Diversity and Unity: Indian languages have historically given voice to all sections and united people during the freedom struggle.
- Role of Hindi: Evolving from a language of expression into one of technology, science, and research.
- Cultural Recognition: Literary and spiritual works from all regions enrich the nation's heritage.

- Vision for the Future: Under PM Modi's leadership, Indian languages are experiencing a revival through initiatives like 'Bharatiya Bhasha Anubhav' for easy translation and promotion in law, education, administration, and technology.
- Digital Era: Emphasis on preparing Indian languages, especially Hindi, for e-governance, AI, and global competition.

Shah's core appeal was to respect all Indian languages and move towards a self-reliant and united India, with the message: *"Let us move together, think together, and speak together."*

Official Languages Act, 1963:

- **Background**:
  - Article 343 of the Constitution made Hindi in Devanagari script the official language of the Union.
  - English was to continue for 15 years (till 1965) as an associate official language.
  - Widespread protests (especially in southern states) against the exclusive adoption of Hindi led to the enactment of this Act.

- **Key Provisions**:

1. Continued Use of English: English shall continue, along with Hindi, for official purposes of the Union and for communication between the Union and non-Hindi-speaking states, even after 1965.
2. Parliamentary Proceedings: Members may address the House in Hindi or English.
3. Authoritative Texts: Laws enacted in Hindi and English are considered equally authoritative.
4. States' Communication: Communication between the Union and states using Hindi as official language is in Hindi; with other states, it is in English.
5. Rules and Orders: The Act empowers the President to issue rules for progressive use of Hindi and regulate official communication.

- **Subsequent Amendment (1967)**:
    1. Made the use of English indefinite, ensuring it would not be discontinued without approval from states not using Hindi.
- **Significance**:
    1. Balanced national integration with linguistic diversity.
    2. Prevented the imposition of Hindi as the sole official language.
    3. Enabled smooth functioning of central administration and interstate communication.

ZAPAD

Russia has conducted "Zapad" joint military drills with Belarus, featuring a successful Zircon hypersonic cruise missile launch in the Barents Sea and strikes by Su-34 fighter-bombers.
The exercises, described as defensive, aim to enhance coordination. The Zircon, claimed to fly at nine times the speedboat of sound with a range over 1,000 km, hit its target directly. The drills follow recent Russian drone incursions into Poland and NATO's "Eastern Sentry" response.

Zircon Hypersonic Cruise Missile

- Type: Hypersonic cruise missile developed by Russia.
- Speed: Claimed to reach Mach 8–9 (8–9 times the speed of sound).
- Range: Estimated 1,000–1,500 km.
- Launch platforms: Can be launched from surface ships, submarines, and coastal launchers.
- Propulsion: Uses a scramjet engine after booster separation, allowing sustained hypersonic flight.

- Warhead: Can carry conventional or nuclear payloads.
- First tests: Reportedly conducted in 2016, with more frequent trials since 2020.
- Deployment: Russia has started integrating Zircon into its naval fleet, particularly on Admiral Gorshkov-class frigates and Yasen-class submarines.
- Strategic significance: Its speed and maneuverability make it difficult for existing air defense and missile defense systems to intercept, giving Russia a potential edge in anti-ship and land-attack roles.

PRODUCTION-LINKED INCENTIVE (PLI) SCHEME

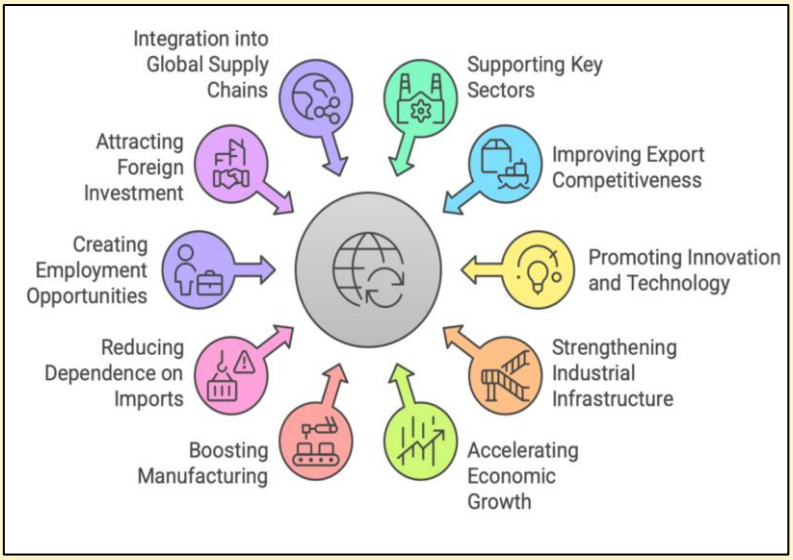
The government has reopened applications for the Production-Linked Incentive (PLI) scheme for white goods—air conditioners and LED lights—from September 15 to October 14.

The move aims to boost domestic manufacturing of components not adequately produced in India. Both new and existing investors can apply. So far, 83 applicants have committed ₹10,406 crore. Launched in April 2021, the scheme runs for seven years (2021-22 to 2028-29) with a total budget of ₹6,238 crore.

Production-Linked Incentive (PLI) Scheme

Introduction

- Launched by the Government of India in March 2020, initially for large-scale electronics manufacturing (mobile phones & components).
- Later expanded to 14 key sectors to promote *Atmanirbhar Bharat* (self-reliant India).
- Objective: Make India a global manufacturing hub, reduce import dependency, create jobs, strengthen supply chains, and boost exports.



Coverage

The scheme now covers 14 sectors:

1. Large-scale electronics (mobiles, components)
2. Pharmaceuticals & drug intermediaries
3. Medical devices
4. Telecom & networking products
5. Food processing
6. White goods (air conditioners, LED lights)
7. High efficiency solar PV modules

8. Advanced chemistry cell (ACC) batteries
9. Automobiles & auto components
10. Specialty steel
11. Textile & man-made fibers
12. IT hardware (laptops, tablets, servers)
13. Drones & drone components
14. Semiconductors & display manufacturing

Budget & Duration

- Total Outlay: ~₹1.97 lakh crore (over 7 years).
- Duration: Generally from 2020-21 to 2028-29, depending on the sector.
- Each sector has separate guidelines on eligibility, base year, and incentive slabs.

How It Works

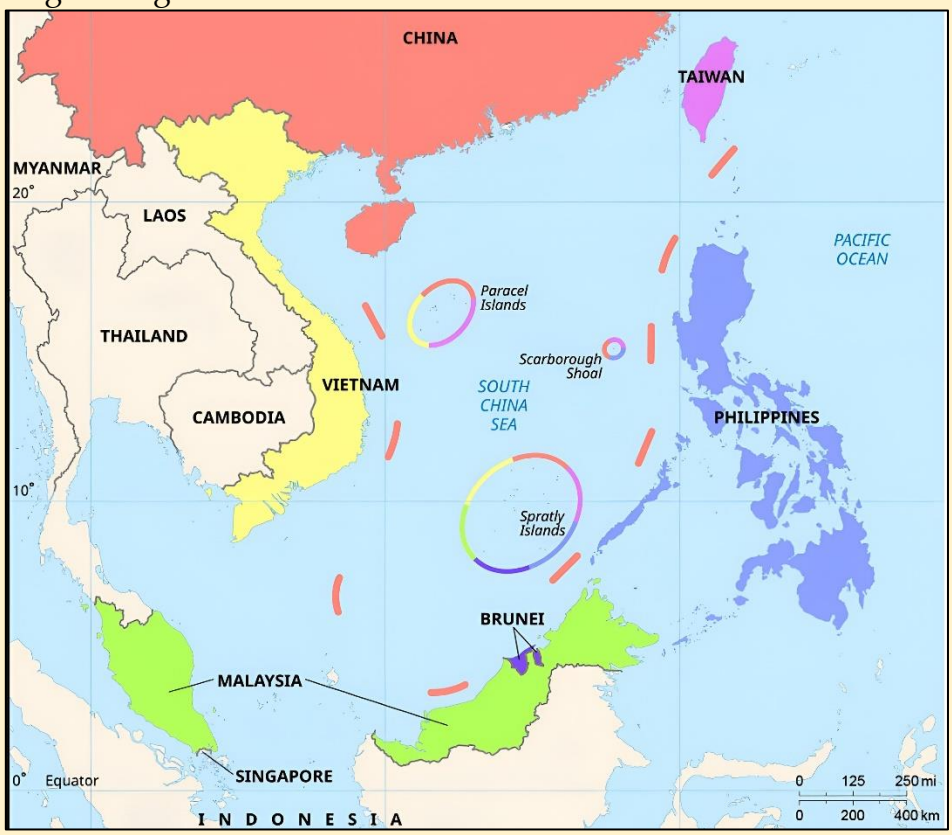
- Incentives (usually 4%–6%) are given on incremental sales of goods manufactured in India, compared to a base year.
- Incentives decrease gradually over the years.
- Both domestic and foreign companies are eligible if they commit to minimum investment and sales targets.

SCARBOROUGH SHOAL

The Scarborough Shoal is a contested reef chain in the South China Sea, about 200 km off the Philippines' coast and near major shipping lanes.

Claimed by both the Philippines and China, it has been under China's effective control since 2012 despite a 2016 ruling that invalidated Beijing's broader claims.

Recently, China announced a nature reserve there, fueling fears it may build a militarized island. Tensions are rising as Philippine leaders take a tougher stance, with the U.S.–Philippines Mutual Defence Treaty heightening the risk of wider conflict.



Nine-Dash Line

The Nine-Dash Line is a demarcation used by China to claim a large part of the South China Sea. It appears on Chinese maps as nine dashes or lines that extend far south and east from the Chinese mainland, covering about 90% of the South China Sea.

Origin:

- First appeared in 1947 on a map published by the then Republic of China.
- The People's Republic of China inherited the claim in 1949.

Features:

- The line is not internationally recognized.
- It overlaps with the exclusive economic zones (EEZs) and territorial waters of several countries:
    - Vietnam
    - Philippines
    - Malaysia
    - Brunei
    - Taiwan (also claims the line)

Legal Status:

- In 2016, the Permanent Court of Arbitration (PCA) in The Hague ruled that China's claims based on the Nine-Dash Line have no legal basis under the United Nations Convention on the Law of the Sea (UNCLOS).
- China rejected the ruling.

Strategic Importance:

- South China Sea is a major maritime trade route.
- Rich in fisheries and potential oil and gas reserves.
- Crucial for naval and geopolitical influence in the Indo-Pacific region.

India's Perspective:

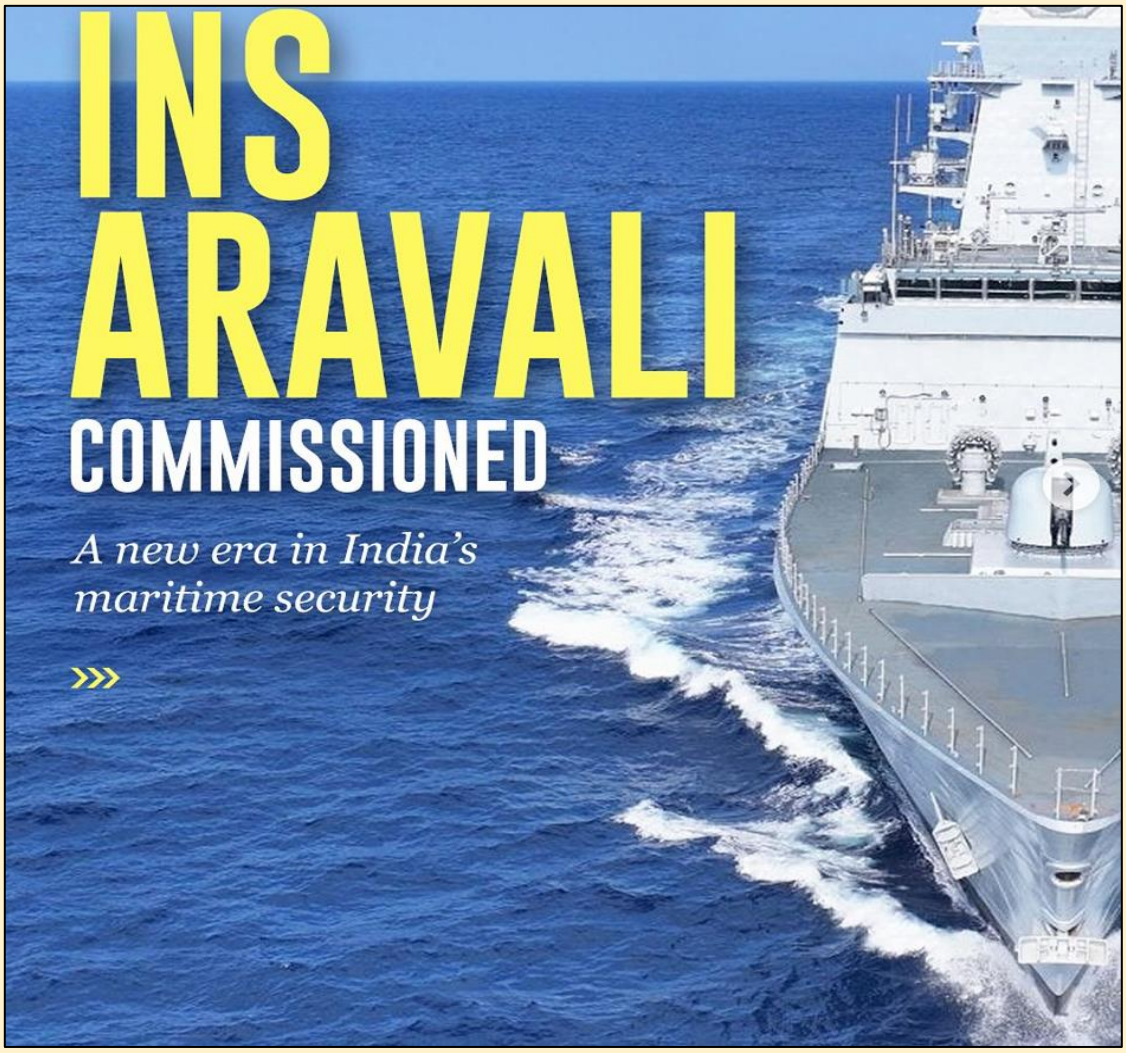
- India does not recognize the Nine-Dash Line.
- Supports freedom of navigation and rules-based maritime order.
- Engages in diplomatic and naval presence through QUAD, ASEAN dialogues, and freedom of navigation operations.

INS ARAVALI

INS Aravali is a newly commissioned shore-based naval information and communication facility of the Indian Navy in Gurugram, Haryana.

Key Highlights

- **Nature:** Not a warship, but a state-of-the-art naval information base.
- **Role:** Functions as a headquarters for real-time maritime surveillance, data fusion, and threat detection in the Indian Ocean Region.
- **Global Linkages:** Connects with 43 multinational centers across 25 countries for live maritime data sharing, aiding cooperation against piracy, terrorism, smuggling, and illegal fishing.
- **Symbolism:** Named after the resilient Aravali Range; its crest features a mountain and rising sun symbolizing strength and vigilance.



Core Capabilities

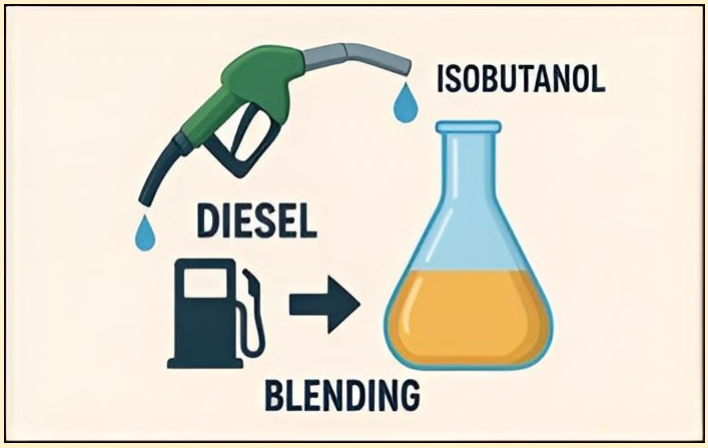
- **AI-driven surveillance** of ships and submarines with rapid threat analysis.
- **Satellite-enabled communication** through GSAT-7R.
- **National Maritime Domain Awareness Center (NMDA)** to be housed within, integrating security and intelligence agencies.
- **Global maritime hub** for India's international security partnerships.

ISOBUTANOL

The Indian government is conducting trials to blend isobutanol with diesel fuel after ethanol–diesel blends failed due to engine compatibility issues like corrosion and operational problems.

Why Isobutanol?

- **Better Compatibility:** A four-carbon alcohol with higher energy density and lower water absorption than ethanol, reducing corrosion risks in diesel engines.
- **Ongoing Trials:** A 10% isobutanol–diesel blend is being tested for performance, emissions, and efficiency.
- **Policy Push:** Supports the National Biofuel Policy by reducing oil imports, enhancing energy security, and creating farmer income through biomass demand.



National Biofuel Policy, 2018

- **Objective:** To promote the production and use of biofuels for reducing crude oil imports, ensuring energy security, generating rural income, and promoting cleaner fuels.

- **Key Features:**
  - **Types of Biofuels:** Categorized as *Basic* (1G – ethanol from sugarcane juice, molasses, etc.) and *Advanced* (2G ethanol, drop-in fuels, bio-CNG, bio-hydrogen).
  - **Feedstock Expansion:** Allows production of ethanol from surplus food grains (like maize, damaged grains, rice, etc.) subject to approval.
  - **Blending Targets:**
    - *Ethanol Blending in Petrol:* Achieve **20% (E20) by 2025-26**.
    - *Biodiesel Blending in Diesel:* Achieve **5% by 2030**.
  - **Incentives:** Viability gap funding, tax incentives, and interest subvention for 2G bio-refineries.
  - **Waste-to-Wealth:** Promotes biofuels from urban, industrial, and agricultural waste to reduce environmental pollution.

- **Recent Context:**
  - E20 blending with petrol has been achieved nationwide.
  - Diesel blending with ethanol failed, leading to current trials with **isobutanol–diesel blends** as an alternative.
- **Significance:**
  Reduces dependence on fossil fuels, improves air quality, supports farmer incomes, and contributes to India's climate goals under the **Paris Agreement**.

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