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புல்லறிவாண்மை

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அறிவு இல்லாதவனுக்கு அறிவிப்பவன் தானே அறிவில்லாதவனாய் நிற்பான், அறிவு இல்லாதவனோ தான் அறிந்த வகையால் அறிவுடையவனாகத் தோன்றுவான். — மு. வரதராசன்

Centre notifies rules for deep-sea fishing

Rules for sustainable harnessing of fisheries in EEZ aims to give priority to fishermen cooperative societies, fish farmer producer organisations

The Hindu Bureau
NEW DELHI

Sea of change: The Ministry said the initiative is expected to open new horizons for the country's marine fisheries sector. FILE PHOTO

The Union Government on Saturday notified the rules for 'Sustainable Harnessing of Fisheries in the Exclusive Economic Zone (EEZ)' to give priority to fishermen cooperative societies and fish farmer producer organisations (FFPOs) for undertaking deep-sea fishing operations and managing technologically advanced vessels. "The EEZ rules will not only facilitate deep-sea fishing but will also contribute to enhancing seafood exports by emphasising value addition, traceability, and certification," the Union Fisheries Ministry said in a release.

The rules has defined "operator" as an individual or enterprise, or FFPOs or Fisheries Cooperatives (including multi-state cooperatives), that controls the operation or management of a fishing vessel or who has assumed the responsibility for its operation.

The rules added that the Centre would take steps to provide training and capacity-building of traditional and small-scale fishers including fisheries cooperatives, Self Help Groups and FFPOs to enhance skills for deep sea fishing and value-chain efficiencies.

The Ministry said the initiative is expected to open new horizons for the country's marine fisheries sector through the creation of modern infrastructure and the introduction of the mother-and-child vessel concept, allowing mid-sea transshipment under an effective monitoring mechanism of RBI regulations. "In island regions of the Andaman & Nicobar Islands and Lakshadweep, which together account for 49% of India's EEZ area, the use of mother and child vessels will give boost to the export of high-quality fish," the Ministry said.

A spokesman for the Seafood Exporters Association of India said the rules should define juvenile and illegal fishing and must ensure that a proper catch certification is provided by the Marine Products Export Development Authority. "We need to have a proper catch certification and the country must promote sustainable fishing practices to help us get new markets," he said.

The rules prescribe that the applications for catch certificate and health certificate shall be submitted through designated online portals of the respective agencies, which shall be duly integrated with the 'ReALCRaft' portal for verification and processing of vessel and catch-related information. The Centre said the EEZ Rules take a firm stand against harmful fishing practices such as LED light fishing, pair trawling and bull trawling to protect the marine ecosystem and ensure equitable fishing opportunities.

"To conserve biodiversity, a minimum legal size for fish species will also be prescribed and Fisheries Management Plans will be developed in consultation with stakeholders including State governments to restore declining fish stocks. Mariculture practices such as sea-cage farming and seaweed cultivation will also be promoted as alternate livelihoods in order to reduce fishing pressure in nearshore areas while increasing production without compromising environmental integrity," it said.

Topic: Centre notifies Rules for Sustainable Harnessing of Fisheries in India's EEZ

Source: *The Hindu*

Relevance: GS Paper 3 – Economy, Environment, and Biodiversity

Linked Topics: Blue Economy, Marine Resources, Fishermen Welfare, Sustainable Development Goals (SDGs), Coastal Livelihoods

Context:

The Union Government has notified rules for the *Sustainable Harnessing of Fisheries in the Exclusive Economic Zone (EEZ)* to ensure responsible deep-sea fishing, prioritize fishermen cooperatives and Fish Farmer Producer Organisations (FFPOs), and promote value addition, traceability, and sustainable marine resource use.

Curiosity Question:

Can India balance marine resource exploitation and sustainability while empowering traditional fishers through modern deep-sea fishing policies?

Analytical Overview:

- The new *EEZ Rules* define "operator" as individuals, enterprises, FFPOs, or cooperatives managing fishing vessels.
- Priority is given to fishermen cooperatives and FFPOs to undertake deep-sea fishing and operate technologically advanced vessels.
- The initiative aims to enhance seafood exports and ensure sustainability through certification and traceability mechanisms.
- The Centre will provide training and capacity-building for traditional and small-scale fishers, including SHGs and cooperatives.

Key Features:

- **Mother-and-Child Vessel Concept:** Allows mid-sea transshipment under RBI-regulated mechanisms to improve efficiency and reach deeper waters.

- **Digital Integration:** Applications for catch and health certificates to be submitted online through portals integrated with the *ReALCRaft* system for vessel and catch verification.
- **Ban on Harmful Practices:** Prohibits LED light fishing, pair trawling, and bull trawling to protect the marine ecosystem.
- **Conservation Focus:** Minimum legal size for fish species; Fisheries Management Plans to be developed with States and stakeholders.
- **Promotion of Alternate Livelihoods:** Encouragement of mariculture practices like sea-cage farming and seaweed cultivation to reduce nearshore fishing pressure.

Policy / Constitutional Linkages:

- Linked to **Article 48A** – Protection and improvement of the environment.
- Supports **SDG 14 (Life Below Water)**.
- Aligns with India's **Blue Economy Policy** and the **National Fisheries Policy**.

Way Forward / Recommendations:

- Strengthen enforcement mechanisms and data transparency in fish catch and vessel tracking.
- Provide financial and technical support to cooperatives for vessel modernization.
- Establish ecosystem-based fisheries management with local participation.

Prelims Pointers:

- **EEZ:** Area extending up to 200 nautical miles from the baseline; India's EEZ area ≈ 2.02 million sq km.
- **Islands' Share:** Andaman & Nicobar and Lakshadweep together account for ~49% of India's EEZ.
- **Portal:** *ReALCRaft* – For vessel registration and catch verification.

- **Banned Practices:** LED fishing, pair trawling, bull trawling.

Mains Keywords: Blue Economy, Sustainable Fisheries, EEZ, Fishermen Cooperatives, Traceability, Marine Biodiversity, Mariculture, Deep-sea Fishing

Mains Practice Question:

“Discuss how India’s new rules for Sustainable Harnessing of Fisheries in the Exclusive Economic Zone (EEZ) aim to balance economic growth with marine ecosystem conservation.”

One Line Takeaway:

India’s new EEZ fishing rules mark a shift toward sustainable, technology-driven, and inclusive deep-sea fisheries management that integrates livelihood, export, and environmental priorities.

What's the plan to relocate forest tribes?

What will happen to those living in traditional forest habitats within tiger reserves? What are they guaranteed under the Forest Rights Act? Why did a directive from the National Tiger Conservation Authority prompt the setting up of a new policy framework?

Abhinay Lakshman

The story so far:

The Union Ministry of Tribal Affairs has prepared a new policy framework that outlines the procedures to be followed when implementing existing laws governing the relocation of forest-dwelling communities from tiger reserves.

What is the brief?

This policy brief reiterates that relocations be considered a last resort and that if they are carried out, the rights of forest-dwelling Scheduled Tribes and others must be settled under the Forest Rights Act (FRA), 2006, first. Notably, the policy brief spells out mechanisms that allow these communities to continue residing within tiger reserves and also provides for measures that include them in the conservation and management of the biodiversity within the reserves.

What is the framework?

This policy brief titled "Reconciling Conservation and Community Rights: A Policy Framework for Relocation and Co-existence in India's Tiger Reserves" was prepared by the Tribal Affairs Ministry in October this year. It calls for a National Framework for Community-Centred Conservation and Relocation, through which the Environment Ministry and Tribal Affairs Ministry can jointly set procedural standards, timelines, and accountability. It also suggests a National Database on Conservation-Community Interface (NDCCI) to record and track relocations, compensation, and status post-relocation. It recommends annual independent audits of relocation projects by empanelled agencies that assess compliance with the FRA, the Wildlife Protection Act (WPA), 1972 and human rights standards. The policy document also spells out consent procedures, specifying that consent for relocation must be obtained before any administrative notification declares an area as part of a tiger reserve. It adds that the consent must be verifiable, not just at the Gram Sabhas' level, but also at the level of each household.

Many tribes allege that they are being pushed to relocate when the FRA allows them to live in tiger reserves

It further stresses that forest-dwelling communities residing within tiger reserves must have the option to exercise their rights under the FRA to continue living in their traditional forest habitats. In the framework, the Tribal Affairs Ministry has said that, "The State bears an affirmative constitutional duty to safeguard these rights (FRA rights of forest-dwellers) and may not curtail them except upon demonstrable ecological necessity." The Ministry has stated that this policy framework is intended to develop a collaborative approach between the Ministries of Environment, Forests, and Climate Change, and Tribal Affairs so that "relocation, if undertaken, be voluntary, scientifically justified, rights-compliant, and grounded in equity and dignity".

Sharing space: Tribals assert their claims over forest land in the Nagarhole Tiger Reserve, in Karnataka on June 7. SPECIAL ARRANGEMENT

Why this policy brief now?

According to a letter to the Secretary of the Environment Ministry sent by the Tribal Affairs Ministry on October 22, this policy brief was prepared in the wake of several representations to the government over "serious concerns" about the "overall non-implementation" of the FRA in areas declared as tiger reserves and other protected areas. The letter communicating the policy brief to the Environment Ministry noted that these representations had come from State governments and Gram Sabhas that are within the boundaries of tiger reserves.

In June 2024, a directive from the National Tiger Conservation Authority (NTCA), calling for States to prioritise relocations from tiger reserves, had led to widespread protests from Gram Sabhas. This also led to representations to the National Commission for Scheduled Tribes (NCST) and the Union government, seeking the rollback of this directive.

Village relocations have been a feature of India's efforts for tiger conservation from as early as 1973, and these have come to be governed by the twin operation of the WPA and the FRA. While the WPA empowered forest departments to create the spaces required to sustain tiger populations, the FRA mandated them to settle forest-dwellers' rights to land, forest produce, and other forest activities, allowing them to either continue living in their habitats or to relocate them with a monetary package. In case the villagers choose to stay on, the administration is mandated to provide them with basic services and infrastructure. For relocation, guidelines provide an option for a monetary package, which currently stands at ₹15 lakh per family. But the process of relocating villages from forested areas being identified for tiger conservation has been controversial, with many forest-dwelling communities, often Scheduled Tribes, alleging that they were being pushed to opt for relocation when the FRA allowed them to continue living there, or accusing administrations of depriving them of basic facilities for choosing to stay on.

For instance, in the Nagarhole National Park in Karnataka, one such conflict is playing out in the State's High Court, where the Jenu Kuruba community, a Scheduled Tribe Group, has argued that their rights to ancestral lands within the tiger reserves were not being recognised under the FRA.

According to a reply in Parliament this August, the Environment Ministry said that since January 2022, a total of 5,166 families from 56 villages were relocated from tiger reserves in as many as seven States across the country, such as Madhya Pradesh, Karnataka, Jharkhand, Maharashtra, Odisha, West Bengal, and Rajasthan. There were 591 villages and 64,801 families within the core areas of tiger reserves as of June last year, according to the NTCA.

Why does it matter?

While existing laws, rules, and guidelines for the relocation of villages from tiger reserves already mandate that village relocation must be voluntary and only carried out once it has been scientifically determined that no form of cohabitation with human settlements is possible, the gaps in the way these rules are implemented has necessitated their reiteration in the new policy brief from the Tribal Affairs Ministry. The current guidelines governing the relocation of villages from tiger reserve areas come from the NTCA, which operates under the aegis of the Union Ministry of Environment, Forests, and Climate Change.

The new policy brief from the Ministry of Tribal Affairs notes the need for monitoring the relocations being carried out under these guidelines, and suggests mechanisms for this that require more involvement and oversight from the Tribal Affairs Ministry's representatives and outside experts.

What next?

The Tribal Affairs Ministry's letter to the Environment Ministry noted the "critical importance" of the points raised in the policy brief and has sought the latter's cooperation in this regard. The Tribal Affairs Ministry has said that this policy document should be circulated across Tribal Welfare and Forest Departments in the States, down to the district level.

Topic: Policy Framework for Relocation of Forest Tribes from Tiger Reserves

Source: *The Hindu*

Relevance: GS Paper 2 – Governance, Welfare of Vulnerable Sections | GS Paper 3 – Environment, Conservation, Biodiversity

Linked Topics: Forest Rights Act (FRA) 2006, Wildlife Protection Act (WPA) 1972, Tiger Conservation, Tribal Rights, Human-Wildlife Coexistence

Context:

The Ministry of Tribal Affairs has issued a new policy framework to guide the relocation of forest-dwelling communities from tiger reserves. The framework emphasizes that relocation must be voluntary, rights-compliant, and scientifically justified, while protecting the constitutional and legal rights of Scheduled Tribes under the Forest Rights Act, 2006.

Curiosity Question:

Can India ensure both tiger conservation and justice for indigenous communities by making forest relocation voluntary, transparent, and rights-based?

Analytical Overview:

- The policy, titled *"Reconciling Conservation and Community Rights: A Policy Framework for Relocation and Co-existence in India's Tiger Reserves"*, was drafted in October 2024.
- It emerged after protests against the **NTCA's June 2024 directive** asking States to prioritize relocations from tiger reserves, which drew backlash from Gram Sabhas and tribal groups.
- The framework insists that **relocation be a last resort**, carried out only after FRA rights are settled and consent is obtained at both Gram Sabha and household levels.

- It advocates **community-centred conservation**, where forest-dwellers can also choose to remain within reserves and participate in biodiversity management.

Key Features of the Framework:

- **National Framework for Community-Centred Conservation and Relocation (NFCCR):** A joint structure between Environment and Tribal Affairs Ministries to set standards, timelines, and accountability.
- **National Database on Conservation-Community Interface (NDCCI):** To track relocations, compensation, and post-relocation outcomes.
- **Independent Annual Audits:** By empanelled agencies to assess compliance with FRA, WPA, and human rights standards.
- **Consent Mechanism:** Verifiable consent required from each household before an area is declared part of a tiger reserve.
- **Affirmative Constitutional Duty:** The State cannot curtail FRA rights unless there is demonstrable ecological necessity.
- **Option to Stay:** Communities may exercise FRA rights to continue residing within traditional forest habitats.

Why Now:

- Triggered by **non-implementation of FRA** within tiger reserves and concerns over forced or poorly compensated relocations.
- Aims to correct imbalances where conservation priorities have overshadowed community rights.
- As per 2024 data:
    - 5,166 families from 56 villages relocated since Jan 2022 across 7 States.
    - 591 villages and 64,801 families remain within tiger reserve core areas.

Policy / Constitutional Linkages:

- **Article 46:** Promotion of educational and economic interests of Scheduled Tribes.
- **Article 48A:** Protection and improvement of the environment.
- **FRA 2006:** Recognition of forest-dwellers' rights to land and forest produce.
- **WPA 1972:** Basis for tiger reserve creation under Project Tiger.
- Aligns with **SDG 15 – Life on Land** and **SDG 10 – Reduced Inequalities**.

Way Forward / Recommendations:

- Build joint institutional mechanisms between the Environment and Tribal Affairs Ministries.
- Ensure meaningful consultation and free, prior, informed consent before relocation.
- Develop co-existence models integrating tribal livelihoods with biodiversity protection.
- Introduce third-party social audits and grievance redressal for relocated families.

Prelims Pointers:

- **Forest Rights Act, 2006:** Recognizes individual and community rights over forest land and resources.
- **National Tiger Conservation Authority (NTCA):** Apex body under MoEFCC for tiger reserve governance.
- **Current Relocation Package:** ₹15 lakh per family for voluntary relocation.
- **Major Case:** *Jenu Kuruba tribe vs Karnataka Government* – FRA rights violation in Nagarhole Tiger Reserve.

Mains Keywords: Forest Rights Act, Tribal Welfare, Voluntary Relocation, Tiger Reserves, Biodiversity Conservation, Human Rights, Gram Sabha Consent, Coexistence, Ecological Justice

Mains Practice Question:

"Critically examine how India's new policy framework on forest tribe relocation seeks to reconcile wildlife conservation with tribal rights and livelihood security."

One Line Takeaway:

India's new policy framework marks a shift toward inclusive and rights-based conservation, ensuring that tiger protection does not come at the cost of forest-dwellers' dignity and constitutional rights.

What does new study show on diabetes risks?

Can tiny molecules in blood predict diabetes and kidney complications before tests show signs of disease?

Purnima Sah

The story so far:

India has one of the highest burdens of Non-Communicable Diseases (NCDs) globally, with over 100 million people living with diabetes and another 136 million classified as pre-diabetic. Despite this, most diagnoses still rely on conventional tools and tests which often detect the disease only after significant damage has occurred. A new study published in the *Journal of Proteome Research* by researchers from IIT Bombay, Osmania Medical College, and Clarity Bio Systems suggests that tiny molecules in blood, known as metabolites, could serve as early warning signals for diabetes and its complications, particularly kidney disease.

What are biochemical markers?

Biochemical markers are small molecules produced during metabolic processes in the body. These include sugars, amino acids, lipids, and other compounds that reflect the state of various organs and systems. Metabolomic profiling, the large-scale study of these molecules, allows researchers to detect subtle changes in the body's chemistry that may precede disease. Using advanced techniques like liquid chromatography and mass spectrometry, scientists can analyse hundreds of metabolites from a single blood sample.

In the recent study, researchers used dried blood spots, a simple finger-prick method, to collect samples from 52 individuals, including healthy participants, diabetics, and those with diabetic kidney disease (DKD). They found distinct patterns in the levels of certain metabolites that could help identify disease risk earlier than usual tests.

By identifying disease risk before symptoms appear, healthcare providers can intervene early, potentially preventing complications such as kidney failure

What did the study find?

The study identified 26 metabolites that differed significantly between healthy individuals and those with diabetes. These included expected markers like glucose and cholesterol, but also lesser-known compounds such as valerobetaine, ribothymidine, and fructosyl-pyroglutamate. Among those with kidney complications, seven metabolites – including arabitol, myo-inositol, and 2PY – showed a progressive increase from healthy to diabetic to DKD stages. Sneha Rana, the study's first author and a Ph.D scholar in Professor Pramod Wangikar's lab at IIT Bombay, explained, "Type 2 diabetes is not just about high blood sugar; it disrupts multiple metabolic pathways that standard tests often miss."

The study also revealed two distinct subgroups among diabetics. One group had metabolic profiles closer to healthy individuals, while the other showed pronounced changes in markers related to stress, inflammation, and energy metabolism.

Why is this important for India?

According to the Indian Council of Medical Research - India Diabetes survey, 11.4% of adults have diabetes and 15.3% are pre-diabetic. The country also faces high rates of hypertension, obesity, and other metabolic risk factors. Yet, more than 80% of people with NCDs remain undiagnosed or inadequately treated. Early detection tools like metabolomic profiling could be transformative. By identifying disease risk before symptoms appear or organs are damaged, healthcare providers can intervene earlier, potentially preventing complications such as kidney failure, heart disease, and nerve damage. If validated in larger studies, metabolomic markers could be used to develop low-cost, field-friendly tests for early screening. The use of dried blood spots makes sample collection easy and scalable, especially in rural and underserved areas.

Moreover, metabolomic profiling could enable personalised care. Patients could be grouped based on their metabolic profiles, allowing doctors to tailor interventions, from lifestyle changes to medication, based on individual risk.

Are there limitations to this approach?

While the findings are promising, the study had a small sample size and needs to be replicated across larger and more diverse populations. Translating metabolomic data into clinical practice also poses challenges, including standardising lab protocols, ensuring regulatory approvals, and making the technology accessible. Mass spectrometry, the technique used to analyse metabolites, is expensive and not widely available outside research settings. Developing affordable versions of these tests will be crucial for widespread adoption.

Researchers are planning larger cohort studies to validate these findings and explore how metabolomic markers perform across different age groups, ethnicities, and comorbidities. If successful, India could lead the way in integrating metabolomics into routine healthcare, shifting from reactive treatment to proactive prevention.

Topic: New Study on Metabolomic Markers for Early Diabetes and Kidney Disease Detection

Source: *The Hindu*

Relevance: GS Paper 2 – Health & Welfare | GS Paper 3 – Science & Technology, Biotechnology

Linked Topics: Non-Communicable Diseases (NCDs), Diabetes, Preventive Health, Personalized Medicine, Metabolomics, IIT Research, Public Health Policy

Context:

India faces a massive diabetes burden — over 100 million people live with diabetes and 136 million are pre-diabetic. A new **IIT Bombay–Osmania Medical College–Clarity Bio Systems** study, published in the *Journal of Proteome Research*, suggests that **metabolomic profiling** (study of small molecules in blood) can predict diabetes and kidney complications much earlier than traditional tests.

Curiosity Question:

Can molecular-level blood analysis transform diabetes care from late diagnosis to early prevention in India?

Analytical Overview:

- Current diabetes diagnostics rely on glucose and HbA1c levels, which often detect the disease **after organ damage** has begun.
- The study explored **metabolites**—tiny molecules like amino acids, lipids, and sugars—to find early biochemical markers.
- Using a **dried blood spot (DBS)** method, researchers collected samples from 52 individuals (healthy, diabetic, and diabetic kidney disease groups).
- They discovered **distinct metabolite patterns** that could help identify diabetes and kidney complications at a much earlier stage.

Key Findings:

- **26 metabolites** differed significantly between healthy and diabetic individuals — including glucose, cholesterol, valerobetaine, ribothymidine, and fructosyl-pyroglutamate.
- **7 metabolites** (e.g., arabitol, myo-inositol, 2PY) progressively increased from healthy → diabetic → diabetic kidney disease stages.
- Two subgroups among diabetics were identified — one closer to healthy metabolic profiles, and another with elevated stress and inflammation markers.
- The study shows diabetes is **not just a glucose disorder**, but a multi-pathway metabolic disruption.

Why It Matters for India:

- India has **11.4% adult diabetes prevalence** and **15.3% pre-diabetic population** (ICMR Survey).
- Over **80% of NCD cases remain undiagnosed or untreated**.
- **Early metabolomic screening** could:
    - Detect risks before symptoms appear.
    - Prevent complications (e.g., kidney failure, neuropathy, heart disease).
    - Enable **personalized healthcare**, tailoring interventions to metabolic profiles.
- The **dried blood spot** method is simple, low-cost, and scalable — ideal for rural and underserved populations.

Limitations & Future Prospects:

- **Small sample size (n=52)** — needs validation in larger, diverse populations.
- **High cost and limited access** to mass spectrometry technology.
- Requires **standardization of protocols**, **regulatory approval**, and **affordable testing kits** for clinical use.
- Researchers plan **large cohort studies** to verify biomarkers and integrate metabolomics into public health screening programs.

Policy / Constitutional Linkages:

- **National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS)**.
- **National Health Policy (2017):** Focus on early detection and preventive care.
- **Ayushman Bharat – Health and Wellness Centres:** Platform for decentralized NCD screening.
- **SDG 3.4:** Reduce premature mortality from NCDs through prevention and treatment.

Way Forward / Recommendations:

- Integrate **metabolomic screening pilots** in high-risk districts.
- Develop **indigenous, affordable mass spectrometry tools** via public–private partnerships.
- Combine **AI-based analytics** with metabolite data for predictive healthcare models.
- Create a **national metabolomic database** to track biomarkers and guide preventive policy.

Prelims Pointers:

- **Metabolomics:** Study of small molecules (metabolites) in cells, tissues, or biofluids.
- **Dried Blood Spot (DBS):** A minimally invasive sample collection method.
- **Diabetic Kidney Disease (DKD):** Chronic kidney damage caused by diabetes.
- **Key Institutions:** IIT Bombay, Osmania Medical College, Clarity Bio Systems.

Mains Keywords:

Metabolomics, Non-Communicable Diseases, Early Diagnosis, Preventive Healthcare, Personalized Medicine, Public Health Innovation, Diabetes Burden, Biotechnology in Healthcare, Health Equity

Mains Practice Question:

"Discuss how emerging technologies like metabolomic profiling can revolutionize India's approach to Non-Communicable Disease management, with special reference to diabetes."

One Line Takeaway:

Metabolomic blood profiling could make early diabetes detection possible, shifting India's health strategy from reactive treatment to proactive prevention.

How is AI going to be regulated in India?

What are the government's India AI Governance Guidelines? Why have guidelines become necessary? What is the key thrust? How do the guidelines look at AI models for Indian circumstances? What are the concerns it raises about AI usage and intellectual property rights?

Aroon Deep

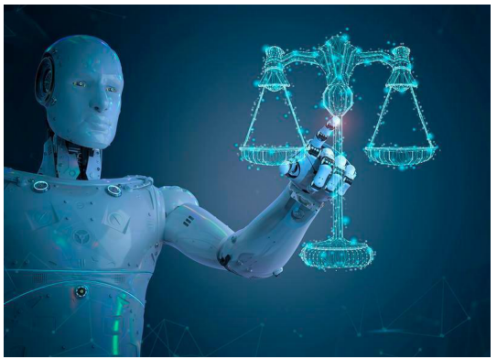
The story so far:

On November 5, the Ministry of Electronics and Information Technology (MeitY) unveiled the India AI Governance Guidelines, a 66-page document outlining an approach to regulating and promoting the use of Artificial Intelligence (AI) technologies in Indian society. The guidelines' launch marks one of the many steps the government is taking in the months leading up to the AI Impact Summit 2026, to be hosted by India in New Delhi.

What do the guidelines seek to accomplish?

The guidelines flow from the government's need to have a consistent way to regulate the AI industry and the use of its tools, especially in the light of their growing usage in India, the world's second largest user of Large Language Models (LLMs) like ChatGPT after the U.S. "India's goal is to harness the transformative potential of AI for inclusive development and global competitiveness, while addressing the risks it may pose to individuals and society," the guidelines say. In previous multilateral AI summits in Bletchley Park (U.K.), Seoul and Paris, governments have generally agreed on rough starting points to managing the spread of LLMs and AI in their countries: watch out for and classify the risks that can emerge, create policies for who will be responsible when something goes wrong, and conduct safety research among other things.

India is the world's second largest user of large language models like ChatGPT after the U.S.



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The guidelines outline a strategy for India to approach this process. An earlier draft framework was prepared by a subcommittee under a Principal Scientific Adviser-led advisory group. These guidelines, however, have been finalised by a committee set up by MeitY in July, separate from that subcommittee. The committee is led by Balaraman Ravindran, who who leads the Centre for Responsible AI (CeRAI) at IIT Madras.

What do the rules recommend?

On the back of principles like people-centricity, accountability, fairness, and understandability (of AI models), the guidelines recommend setting up lines of communication between different parts of the government, like Ministries, sectoral regulators, standards setting agencies, etc. It is recommended that these groups meet often and suggest changes to the law, voluntary commitments, put out standards, and "[i]ncrease access to AI safety tools." The overarching inter-ministerial body would be the proposed "AI Governance Group". Beyond the Ministries, the framework recommends the RBI for the financial industry (the RBI has put out its own FREE-AI Committee report for the banking and finance industry in August), bodies like NITI Aayog, and standards organisations like the Bureau of Indian Standards.

The guidelines also include some advice to the private sector, namely to "ensure compliance with all Indian laws; adopt voluntary frameworks; publish transparency reports; provide grievance redressal mechanisms; [and] mitigate risks with techno-legal solutions." Many of the safety-related recommendations rely on the AI Safety Institute (AISI), a framework that is in place in many countries, including in India; while there is no physical institute, the government has designated a group of academia brought together under the IndiaAI Mission as an online AISI.

A key differentiator from similar AI policies elsewhere is the emphasis the guidelines put on building infrastructure and making it accessible. The policy recommends that State governments "increase AI adoption through initiatives on infrastructure development and increasing access to data and computing resources." On the other hand, the recommendations join other countries' concerns around AI and intellectual property, and recommend legal changes in the copyright law to address the issues coming up in that area. The guidelines also reiterate other India-specific priorities that the government has expressed, such as building AI models for Indian languages: one recommendation pushes for the "use of locally relevant datasets to support the creation of culturally representative models and applications".

Are the guidelines consistent with what the government is planning around AI?

The Union government has largely followed a hands-off approach to pre-emptive AI regulation, as is the case in most countries around the world, with one sharp exception: the issue of deepfakes. "Content authentication," as the guidelines put it, is a pressing issue, the guidelines say. In the weeks leading up to the guidelines, MeitY proposed rules that would require social media companies to label synthetically (AI-generated) images and videos.

There are other parts of the guidelines that are in line with what MeitY has already been doing: for instance, the IndiaAI Mission under the Ministry is already procuring Graphics Processing Units (GPUs) for a common compute facility and sharing access to that compute capacity with researchers and startups.

Another recommendation, to "[s]upport the integration of Digital Public Infrastructure (DPI) with AI with policy enablers," also seems in motion: the Unique Identification Authority of India (UIDAI), which manages Aadhaar, easily India's most recognisable example of DPI, has formed a committee this month to deliberate how to use AI to add value to the ID number.

While the guidelines are a result of the government's main AI policymakers' deliberations (such as Additional Secretary Abhishek Singh), IT Secretary S. Krishnan said at the launch that if evolving circumstances demanded quick action outside the framework envisioned by this document, the government "won't hesitate" to act quickly, such as by passing a stringent law.

Topic:

India AI Governance Guidelines – Regulating Artificial Intelligence in India

Source:

The Hindu

Relevance:

GS Paper 2 – Governance, Government Policies and Interventions
GS Paper 3 – Science and Technology, IT & Emerging Technologies, Ethics of AI

Linked Topics:

Digital India | AI in Governance | Data Protection | Intellectual Property Rights | Deepfakes | Ethical AI | IndiaAI Mission | Digital Public Infrastructure (DPI)

Context:

The Ministry of Electronics and Information Technology (MeitY) released the **India AI Governance Guidelines (2025)**, a 66-page framework to regulate and promote the responsible use of Artificial Intelligence (AI) across sectors. The move precedes the **AI Impact Summit 2026** and reflects India's growing emphasis on ethical AI aligned with national priorities.

Curiosity Question:

How can India balance innovation and regulation in AI to ensure safety, accountability, and inclusivity in its technological transformation?

Analytical Overview:

- **Objective:** To provide a structured, people-centric approach to AI governance in India focusing on inclusivity, fairness, and transparency.
- **Need for Guidelines:** Rapid proliferation of Large Language Models (LLMs) like ChatGPT (India is the 2nd largest user globally) necessitates a consistent regulatory mechanism to mitigate risks and promote responsible innovation.

- **Key Principles:** People-centricity, accountability, fairness, transparency, and understandability of AI systems.
- **Institutional Framework:**
    - Establishment of an **AI Governance Group** (inter-ministerial).
    - Inclusion of sectoral regulators (RBI, BIS, NITI Aayog).
    - Creation of an **AI Safety Institute (AISI)** to oversee AI safety, risk classification, and compliance.
- **Private Sector Role:** Voluntary compliance, transparency reports, grievance mechanisms, and legal adherence.
- **India-specific Focus:**
    - AI for Indian languages and culturally relevant datasets.
    - Infrastructure accessibility and state-level AI adoption.
    - Legal reform for copyright and IP rights in AI-generated works.
- **Alignment with Existing Policy:** Consistent with IndiaAI Mission, GPU infrastructure initiatives, and integration with DPI (e.g., Aadhaar).
- **Regulatory Posture:** Currently light-touch, but open to stricter laws if deepfake and misinformation risks escalate.

Constitutional / Policy Linkages:

- **Article 38:** Directive Principles – Promotion of welfare through technological advancement.
- **Digital India Programme (2015)**
- **National Strategy for Artificial Intelligence (NITI Aayog, 2018)**
- **IndiaAI Mission (2023)** – Focus on innovation, compute infrastructure, and AI talent ecosystem.
- **IT Act 2000 & Draft Digital India Act (Upcoming)** – Legal foundation for AI and digital governance.

Way Forward / Recommendations:

- Enact a dedicated **AI Regulation Act** to define accountability, transparency, and liability norms.
- Strengthen **AI literacy and capacity building** at citizen and bureaucratic levels.
- Foster **Public–Private Partnerships (PPPs)** for responsible AI innovation.
- Build **India-centric datasets** ensuring linguistic and cultural inclusivity.
- Collaborate internationally for **AI safety standards** and ethical frameworks.
- Prioritize **deepfake regulation** and content authenticity mechanisms.

Prelims Pointers:

- **IndiaAI Mission** – Flagship initiative under MeitY.
- **AI Safety Institute (AISI)** – Virtual institute under IndiaAI Mission.
- **AI Governance Group** – Proposed inter-ministerial coordination body.
- **FREE-AI Committee** – RBI committee for financial AI safety.
- **Balaraman Ravindran Committee** – Chaired the framework preparation; Head of CeRAI, IIT Madras.
- **AI Impact Summit 2026** – To be hosted by India, New Delhi.

Mains Keywords:

Responsible AI | Ethical AI | Inclusive Development | Data Governance | Techno-legal Regulation | Digital Public Infrastructure | Deepfake Regulation | Intellectual Property Reform

Mains Practice Question (with Dimensions):

Q: *India's AI Governance Guidelines aim to promote responsible innovation while ensuring accountability and inclusivity. Critically examine the need, scope, and challenges of regulating Artificial Intelligence in India.*

Dimensions:

- Rationale for Regulation
- Key Features and Institutional Framework
- Ethical and Legal Challenges (IPR, Bias, Safety)
- India-specific Context (Languages, Infrastructure, DPI)
- Global Comparisons and Cooperation
- Policy Recommendations

One Line Takeaway:

India's AI Governance Guidelines mark a strategic shift towards a people-centric, inclusive, and ethical framework for harnessing Artificial Intelligence while safeguarding against its risks.