THE HINDU NEWS ANALYSIS

BAJIRAO IAS ACADEMY

Why does India need bioremediation?

What are the two different types of bioremediation? How is traditional microbiology combined with cutting-edge biotechnology? Has the government initiated schemes to further bioremediation programmes? What are some of the challenges the country faces with respect to adoption of such technologies?

EXPLAINER

Shambhavi Naik

The story so far:

Human waste is leading to a world where access to clean air, water and soil is becoming increasingly difficult. The solution is two-pronged – reduce waste and clean up the waste already made.

What is bioremediation?

Bioremediation literally means "restoring life through biology." It harnesses microorganisms such as bacteria, fungi, algae and plants to sequester or transform toxic substances such as oil, pesticides, plastics, or heavy metals. These organisms metabolise these pollutants as food, breaking them down into harmless by-products such as water, carbon dioxide, or organic acids. In some cases, they can convert toxic metals into less dangerous forms that no longer leach into the soil or groundwater.

There are two broad types of bioremediation – in situ bioremediation, where treatment happens directly at the contaminated site such as when oil-eating bacteria is sprayed on an ocean spill; or ex situ bioremediation, where contaminated soil or water is removed, treated in a controlled facility, and returned once cleaned.

Modern bioremediation combines traditional microbiology with cutting-edge biotechnology. New biotechnologies are enabling humans to gain unprecedented insight into biology, allowing them to identify biomolecules with useful characteristics. These technologies also allow humans to replicate biomolecules under desired conditions of use, such as in sewage plants or agricultural lands. For example, genetically modified (GM) microbes are designed to degrade tough chemicals like plastics or oil residues that natural species struggle with.

Why does India need it?

India's rapid industrialisation has come at a heavy environmental cost. Although pollution has been reducing, rivers such as the Ganga and Yamuna receive untreated sewage and industrial effluents daily. Oil leaks, pesticide residues, and heavy-metal contamination threaten both ecosystems and public health.

New methods: Garbage being dumped in the Mittaganahalli landfill in Bengaluru in 2024. FILE PHOTO

Traditional clean-up technologies are expensive, energy-intensive, and often create secondary pollution. Bioremediation offers a cheaper, scalable, and sustainable alternative, especially in a country where vast stretches of land and water are affected but resources for remediation are limited. Moreover, India's diverse biodiversity is a huge advantage. Indigenous microbes adapted to local conditions, such as high temperatures or salinity, can outperform imported strains.

Where does India stand today?

Bioremediation is gaining traction in India, though still largely in pilot phases. The Department of Biotechnology (DBT) has supported several projects through its Clean Technology Programme, encouraging partnerships between universities, public research institutions, and industries.

The CSIR-National Environmental Engineering Research Institute has a mandate to propose and implement programmes related to bioremediation. Researchers at the Indian Institute of Technology have experimented with a nanocomposite material synthesised from cotton that can be used to mop up oil spills and others have identified bacteria that can consume toxic pollutants in soils.

Startups are also entering the space. Firms like Biotech Consortium India Limited (BCIL) and Ecomirmal Biotech offer microbial formulations for soil and wastewater treatment.

However, widespread adoption faces challenges such as a lack of site-specific knowledge and the complex nature of pollutants, and a lack of unified bioremediation standards.

What are other countries doing?

Japan integrates microbial and plant-based cleanup systems into its urban waste strategy. The European Union funds cross-country projects that use microbes to tackle oil spills and restore mining sites. China has made bioremediation a priority under its soil pollution control framework, using genetically improved bacteria to restore industrial wastelands.

The opportunities for India are immense. Bioremediation can help restore rivers, reclaim land, and clean industrial sites, while creating jobs in biotechnology, environmental consulting, and waste management. It can also integrate with the government's Swachh Bharat Mission, Namami Gange, and other green technology initiatives.

What are the risks?

The introduction of genetically modified organisms into open environments need to be strictly monitored to prevent unintended ecological effects. Inadequate testing or poor containment can create fresh problems while solving old ones. Public engagement will be necessary to allow the smooth adoption of new technologies. India will need new biosafety guidelines, certification systems, and trained personnel to scale this technology responsibly.

What next?

First, there is a need to develop national standards for bioremediation protocols and microbial applications. Second, building regional bioremediation hubs linking universities, industries, and local governments would enable better understanding of local issues and identifying appropriate technologies for their resolution. Finally, public engagement would raise awareness that microbes can be allies, not threats, in environmental restoration.

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

THE GIST

- India's rapid industrialisation has come at a heavy environmental cost. Although pollution has been reducing, rivers such as the Ganga and Yamuna receive untreated sewage and industrial effluents daily.
- Bioremediation can help restore rivers, reclaim land, and clean industrial sites, while creating jobs in biotechnology, environmental consulting, and waste management.
- The introduction of genetically modified organisms into open environments need to be strictly monitored to prevent unintended ecological effects.

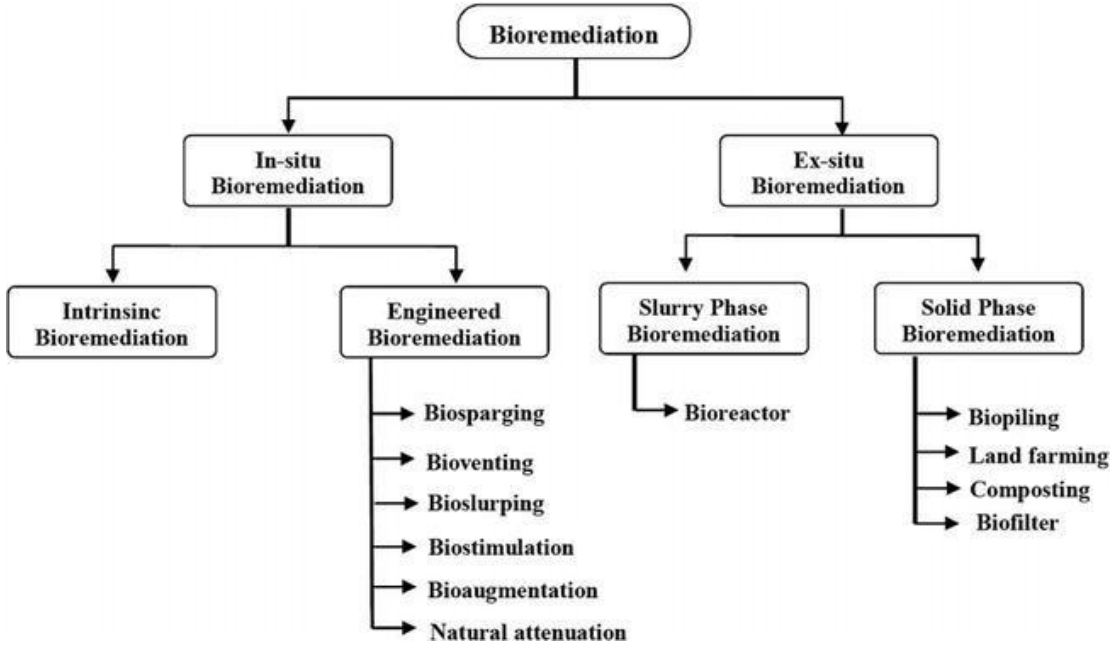
Syllabus

General Studies paper III

- Science and Technology- developments and their applications and effects in everyday life.
- Conservation, environmental pollution and degradation, environmental impact assessment.

Bioremediation in India: Opportunities, Challenges and the Way Forward

- Human activity has generated unprecedented levels of pollution in air, water, and soil.
- As conventional clean-up technologies remain expensive and energy-intensive, **bioremediation**—the use of living organisms to detoxify polluted environments—has emerged as an efficient and sustainable alternative.
- For a rapidly industrialising nation like India, with large polluted ecosystems and limited remediation resources, bioremediation offers transformative potential.



What is Bioremediation?

Bioremediation refers to using microorganisms—**bacteria, fungi, algae, and plants**—to degrade or immobilise toxic substances such as **oil, heavy metals, pesticides, plastics**, and industrial effluents.

These organisms metabolise pollutants as food, converting them into harmless substances like **water, CO_2, and organic acids**. In some cases, microbes transform toxic metals into less mobile, less harmful forms.

Types of Bioremediation

1. **In situ bioremediation** – Treatment at the contaminated site itself.
   Example: Spraying oil-degrading bacteria directly on marine oil spills.

2. **Ex situ bioremediation** – Removal of contaminated soil or water, treatment in a controlled environment, and later restoration.

Role of Biotechnology

Modern bioremediation integrates microbiology with biotechnology. **Genetically modified (GM) microbes** are increasingly used to break down persistent pollutants like plastics and industrial oils, which natural species cannot effectively degrade.

Why India Needs Bioremediation

1. Heavy Pollution Load

India's rapid industrialisation has resulted in:

- Untreated sewage and industrial effluents entering rivers such as the **Ganga and Yamuna**.
- Frequent **oil leaks**, pesticide accumulation, and **heavy metal contamination** affecting agricultural soils and groundwater.

Traditional remediation methods often produce **secondary pollution**, consume high energy, and are expensive—making them unsuitable for large-scale use.

2. Cost-Effective and Scalable

Bioremediation offers:

- Low operational costs
- Minimal energy requirement
- Scalability for large polluted areas

This makes it ideal for a resource-constrained country with extensive contamination.

3. Unique Biodiversity Advantage

India's diverse climatic zones support a rich microbial ecosystem. **Indigenous microbes**, adapted to high temperatures or salinity, often outperform imported species in detoxifying local pollutants.

Current Status of Bioremediation in India

Though still in early stages, bioremediation is gaining traction through government, research, and private sector initiatives.

Government and Institutional Efforts

- The **Department of Biotechnology (DBT)** supports several projects under its Clean Technology Programme, linking academia with industry.
- **CSIR–National Environmental Engineering Research Institute (NEERI)** plays a central role in designing and implementing large-scale bioremediation solutions.

Research Innovations

- IIT researchers have developed **cotton-based nanocomposites** capable of absorbing oil spills.
- Indian scientists have isolated bacteria capable of degrading toxic soil pollutants.

Risks and Concerns

- Introduction of **GM microbes** can disrupt indigenous ecosystems if not properly monitored.

- Lack of robust **biosafety guidelines**, standardised protocols, and trained personnel increases risk.
- Public mistrust in microbial technologies can impede adoption.

Way Forward

1. **Establish national bioremediation standards** for microbial application, monitoring, and safety.

2. **Create regional bioremediation hubs** integrating universities, industries, and local governments.

3. **Strengthen biosafety mechanisms** with certification, rigorous testing, and regulatory reforms.

4. **Promote public engagement** to build awareness about the benefits and safety of microbe-based technologies.

5. **Integrate bioremediation into national missions** like Swachh Bharat, Namami Gange, and Smart Cities.

Can India become self-reliant in REE production?

How is China using its dominance over rare earth elements as a geopolitical strategy?

V. Nivedita

The story so far:

The Union Cabinet has approved a ₹7,280-crore scheme to manufacture rare earth permanent magnets domestically. The scheme would facilitate the creation of integrated Rare Earth Permanent Magnet (REPM) manufacturing facilities, involving the conversion of rare earth oxides to metals, metals to alloys, and alloys to finished REPMs. This announcement comes at a time when China's export controls are squeezing global supply chains.

What is extent of China's dominance?

Rare earth elements (REEs), a group of 17 minerals, are crucial for their high density, melting point and conductivity. They are moderately abundant, but hard to extract economically and sustainably. China built global supremacy in this sector by controlling 90% of global REE processing and 70% of production, despite holding only 30% of global reserves. In April, China imposed export restrictions on seven rare earth elements and finished magnets, in a bid to counter the trade war. This hit many sectors, especially the automobile sector. "EV makers are the worst hit," said Pranay Kotasthane, deputy director of Takshashila Institution.

Though China's controls come amid a broader reshaping of global trade due to U.S. President Donald Trump's tariffs, they are not new. In 2009, Beijing imposed export quotas on REEs which was scrapped after it lost a World Trade Organisation case brought by the U.S. and others in 2015. "China realised that this is something which it can play in order to achieve its geopolitical, geostrategic and geoeconomic objectives. They played the same playbook in 2020 while restricting the export of graphite. In 2021, they started an export licensing plan in which they started restricting the supplies to certain industries," Dr. Ram Singh, Professor (IB), Head (CDOE), Indian Institute of Foreign Trade, explained.

Why is India focusing on REEs?

India's focus on REEs is driven by its ambitions in electric mobility, renewable energy, electronics manufacturing and defence. These industries depend heavily on rare earth magnets and components.

The country imported over 53,000 metric tonnes of REE magnets in FY 2024-25, despite having 8% of the world's REE reserves – mainly in monazite sands across Andhra Pradesh, Odisha, Tamil Nadu and Kerala. Yet, India produces less than 1% of global output. To fix this, the government launched the ₹16,300 crore National Critical Mineral Mission in January, with a total outlay of ₹34,300 crore spread over seven years, to achieve self-reliance. The mission focuses on exploration, processing, and recycling minerals like lithium, cobalt, and rare earths. To boost domestic production, the government has auctioned new mining blocks and is inviting private companies to participate in exploration and processing. "This sector was closed to the private sector until August 2023 and hence this is a new domain. China's restrictions will help generate interest among private players," Mr. Kotasthane said. However, he points out that only a handful of exploration licences were handed out. "The stumbling block is government regulations and control. Deregulating all segments of this supply chain, fast-tracking environmental regulations, and funding exploration projects to reduce information asymmetry is crucial," he said.

Dr. Singh cautioned that India still lacks refining infrastructure, skilled labour and innovation capacity. He also pointed out that domestic manufacturing would take years to take off given the long gestation period.

"The good thing is that India isn't in a particularly bad position," Mr. Kotasthane said, pointing out that India's monazite sands have several light rare earths, including Neodymium, which are used in magnets. "Several companies have plans to substantially increase capacity in the rare earth magnet recycling space from end-of-life electronic devices and appliances," he added.

Syllabus

General Studies paper III

- Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment.

India's Push for Rare Earth Self-Reliance:

- Rare Earth Elements (REEs), comprising 17 critical minerals, are indispensable for modern technologies due to their exceptional **magnetic strength, high conductivity, and thermal resistance**.
- They are central to electric vehicles (EVs), renewable energy systems, electronics, and defence applications.
- India's recent approval of a **₹7,280-crore scheme** to manufacture **Rare Earth Permanent Magnets (REPMs)** marks a significant step toward reducing import dependence and enhancing strategic resilience.

SEVENTEEN RARE EARTH ELEMENTS

Rare earth name	Discovery year	Atomic name & number	Light/heavy REE	Critical/ Uncritical
Yttrium	1788	Y-39	Heavy	Critical
Cerium	1803	Ce-58	Light	Excessive
Lanthanum	1839	La-57	Light	Uncritical
Erbium	1842	Er-68	Heavy	Critical
Terbium	1843	Tb-65	Heavy	Critical
Ytterbium	1878	Yb-70	Heavy	Excessive
Holmium	1878	Ho-67	Heavy	Excessive
Scandium	1879	Sc-21	Heavy	Critical
Samarium	1879	Sm-62	Light	Uncritical
Thulium	1879	Tm-69	Heavy	Excessive
Praseodymium	1885	Pr-59	Light	Uncritical
Neodymium	1885	Nd-60	Light	Critical
Dysprosium	1886	Dy-66	Heavy	Critical
Europium	1886	Eu-63	Heavy	Critical
Gadolinium	1886	Gd-64	Heavy	Uncritical
Lutetium	1907	Lu-71	Heavy	Excessive
Promethium	1947	Pm-61		

Source: Author

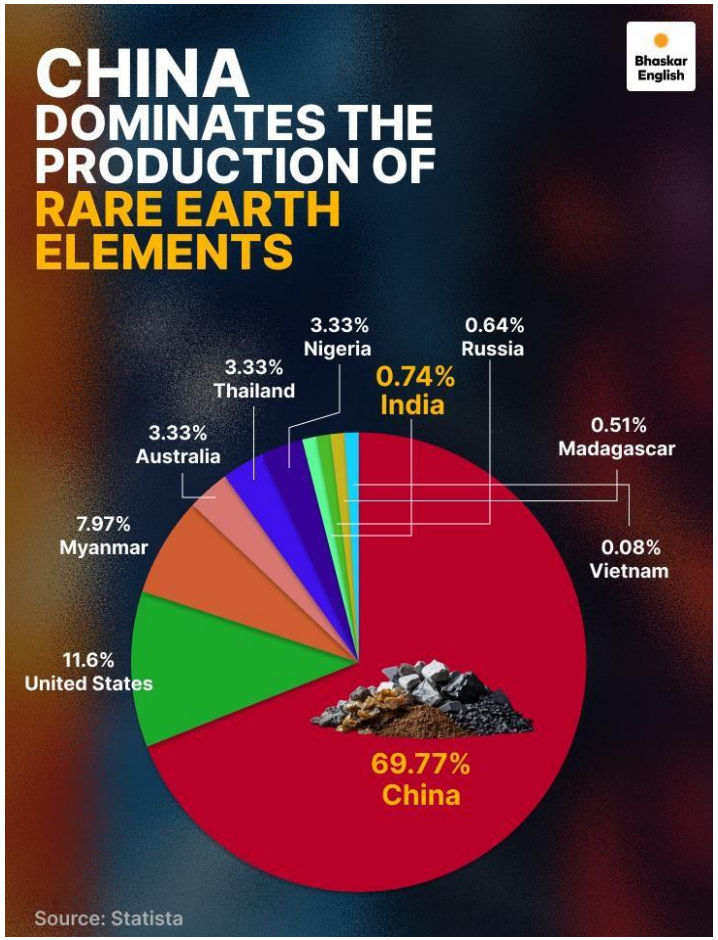
The Print

China's Dominance in the Global Rare Earth Ecosystem

China has built an overwhelming presence across the REE value chain:

1. Control Over Production and Processing

- **90% of global REE processing**
- **70% of global REE production**
- Holds only **30% of global reserves**, yet dominates through early investments and low-cost extraction.

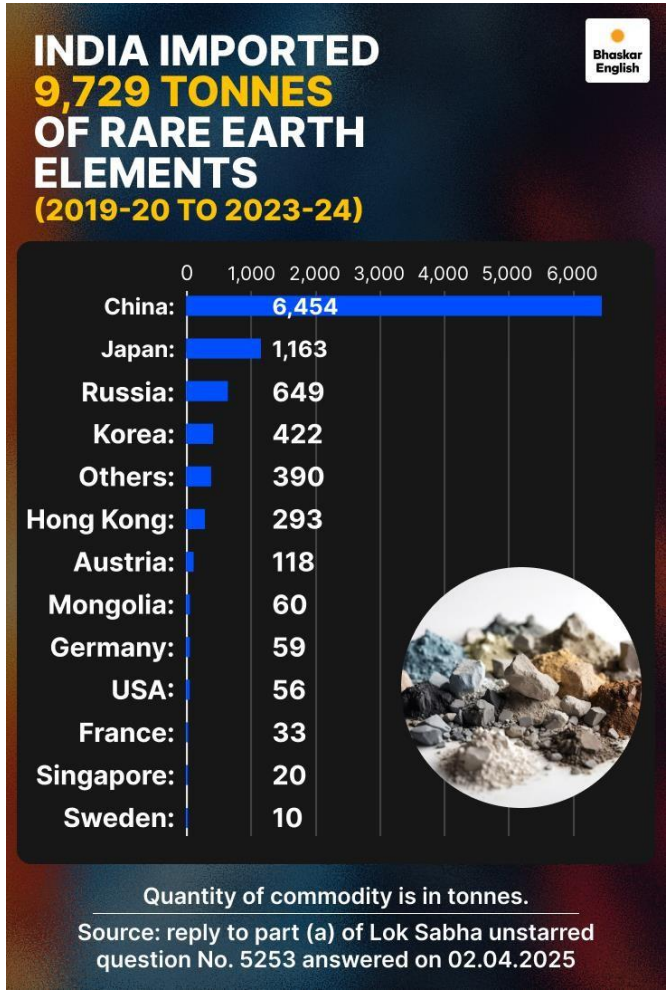


2. Weaponisation of Supply Chains

China has frequently leveraged REEs as geopolitical tools:

- **2009:** Export quotas led to a WTO dispute; China lost the case in 2015.
- **2020:** Export restrictions on graphite.
- **2021:** Export licensing to curb supplies to select industries.
- **2024:** New restrictions on **seven REEs and finished magnets**, severely impacting EV and electronics sectors globally.

As noted by analysts, **EV manufacturers are the "worst hit"**, demonstrating the vulnerability of high-tech industries to China's policy decisions.



Why India Is Focusing on Rare Earths

1. Growing Industrial Requirements
India aims to scale sectors heavily reliant on REEs:

- **Electric mobility and batteries**
- **Wind turbines and solar technologies**
- **Defence systems (missiles, radars)**
- **Consumer electronics manufacturing**

Despite holding **8% of world REE reserves**, India imports over **53,000 metric tonnes** of REE magnets (FY 2024–25), contributing to strategic vulnerability.

2. Policy Initiatives

- **National Critical Mineral Mission (₹34,300 crore)** over seven years for exploration, processing, and recycling of lithium, cobalt, and REEs.
- Opening the REE sector to **private players (post-Aug 2023)**—a major structural shift.
- **Auctioning new mining blocks** and promoting recycling of magnets from end-of-life electronics.

Challenges for India

1. Lack of Refining and Processing Infrastructure
India produces **less than 1% of global REE output**, largely due to limited refining capacity.

2. Regulatory and Institutional Constraints
- Slow environmental clearances
- Limited exploration licences
- High government control leading to investor hesitancy

3. Technological and Skill Gaps
REE value chains require:
- Specialised metallurgical expertise
- High-end chemical processing
- Long gestation periods and high capital investments

Way Forward

- **Deregulate and incentivise** private sector participation across mining and refining.
- **Develop REE clusters** integrating mining, metal extraction, alloying, and magnet manufacturing.
- **Promote recycling**, where Indian firms are already scaling capacity.
- **Invest in R&D** to develop cost-effective and sustainable extraction techniques (e.g., ionic-clay extraction, solvent extraction).

SC gives CBI free hand to stop 'digital arrest' scams

It says every type of scam defrauding victims, especially senior citizens, needs to be investigated; court directly ordering CBI, overriding state consent, to conduct probe is an extraordinary step

Krishnadas Rajagopal
NEW DELHI

The Supreme Court on Monday tasked the Central Bureau of Investigation with cracking down on 'digital arrest' scammers and their associates, giving the agency a "free hand" to launch an anti-corruption probe into bankers involved in the opening of mule accounts linked to cybercrimes.

A Bench of the Chief Justice of India Surya Kant and Justice Joymalya Bagchi found "enough was enough", and held that 'digital arrest' scams required the immediate attention of the CBI. A note provided by the Centre in the court showed that ₹3,000 crore had already been scammed by fraudsters from victims, mostly drawn from the elderly population, through 'digital arrests'.

"There is no second opinion that every type of cyberscam defrauding victims, especially senior citizens, is required to be investigated. The CBI shall investigate first the digital arrest scams. Other types of cyberscams [fraudulent investments, promise of part-time jobs] can come in the second and third stages," the court observed in the order. The court directly ordering the CBI, overriding state consent, to conduct a pan-India probe and hunt down scammers is an extraordinary step. It cannot order the CBI, except when compelled by exceptional circumstances.

Bihar, Tamil Nadu, Karnataka, Kerala, West Bengal, Madhya Pradesh, Uttarakhand, Rajasthan, Punjab, Maharashtra, Meghalaya, Jharkhand, and Tripura have been directed to accord consent to the CBI under Section 6 of the Delhi Special Police Establishment Act to investigate 'digital arrest' cases under the Information Technology Act, 2000 in their jurisdictions.

CONTINUED ON » PAGE 10

Tough action

The Supreme Court has asked the Central Bureau of Investigation (CBI) to crack down on 'digital arrest' scammers

THREE CATEGORIES OF CYBER SCAMS IDENTIFIED BY SC

- **Digital arrests:** Victims are made to believe government authorities are entitled to their hard-earned money, and they are subjected to coercive acts of extortion
- **Investment scams:** Victims are lured by attractive investment schemes to deposit large amounts, but eventually are duped of the money. The fraudsters continue to coin different terminologies to dupe victims. In some of the cases, the money is sought in the name of 'advance tax'
- **Part-time jobs:** Victims are paid for 'free tasks' like positive reviews or watching YouTube. They are later made to pay huge amounts for 'premium tasks'

Syllabus

General Studies paper III

- Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention.

Digital Arrest Scams in India: Growing Threat and Institutional Response

- Digital arrest scams have emerged as one of India's most alarming cyber frauds, exploiting public fear, technological vulnerabilities, and weak regulatory enforcement.
- With over **₹3,000 crore** already siphoned from victims—primarily senior citizens—the Supreme Court has termed the situation "enough is enough," mandating an unprecedented **pan-India CBI investigation**.

What Are Digital Arrest Scams?

These scams involve fraudsters impersonating law-enforcement officials or regulatory agencies. Victims are coerced into believing they are involved in criminal activity and are threatened with immediate **"digital arrest"**, where scammers force them to stay on video calls for hours while extorting money through digital payments.

How It Works (Example)

A typical case involves:

- A scammer posing as a police officer from another State.
- Fake FIRs, fabricated video calls, or doctored police IDs.
- Pressure on the victim to transfer money to "verification accounts"—usually **mule accounts** opened fraudulently.

Elderly citizens are disproportionately targeted due to fear and unfamiliarity with digital processes.

‘DIGITAL ARREST’

PTI GRAPHICS

Modus Operandi of Fraudsters (1/2)

- Victim receives a call, typically a video call, from an unknown number

- Victim is told they or someone else sent a parcel containing illegal goods in their name
- Sometimes, fraudsters say that someone known to the victim is involved in a crime or an accident and is in their custody

Image generated via AI for representational purposes

‘DIGITAL ARREST’

PTI GRAPHICS

Modus Operandi of Fraudsters (2/2)

- A demand for money is made to ‘compromise the case’
- Victims are made to undergo ‘Digital Arrest’ and remain visually available over Skype or other video conferencing platforms to the fraudsters, till their demands are met

- Victims often end up sending whatever money fraudsters demand to steer clear of ‘punishment’

Image generated via AI for representational purposes

Judicial Intervention and CBI Mandate

The Supreme Court, invoking extraordinary circumstances, has:

- Directed the **CBI** to investigate digital arrest scams as the first priority.
- Ordered **States (including TN, Karnataka, Kerala, Maharashtra, WB, MP, Punjab, Jharkhand, etc.)** to grant consent under Section 6 of the Delhi Special Police Establishment Act.
- Allowed the CBI to form a national team of police officers and domain experts.

Use of Technology and International Coordination

- The Court tasked the **RBI** with explaining how **AI/ML tools** can detect fund "layering" across multiple accounts.

- The CBI must coordinate with **Interpol** to trace foreign-based cybercrime hubs.
- Under the **IT Rules 2021**, online intermediaries must assist by sharing relevant data.

Sanchar Saathi app must be pre-installed on phones: DoT

It must be installed on devices sold from March, govt. tells phone makers; move will help safeguard people from buying non-genuine handsets and enable easy reporting of telecom resource misuse

Aroon Deep
NEW DELHI

The Department of Telecommunications (DoT) on Monday ordered smartphone manufacturers to pre-install the Sanchar Saathi app on new devices sold from March 2026, and to make sure "that [the app's] functionalities are not disabled or restricted".

The Hindu has viewed a copy of the directions. The Sanchar Saathi app will be used to "verify authenticity of IMEIs used in mobile devices," the order said. It is unclear if the app will have access to the IMEI number of devices it is pre-installed on, or if users will have to input the hardware identifier on their own.

In a statement, the DoT said the move was meant to "safeguard the citizens from buying the non-genuine handsets, enabling easy reporting of suspected misuse of telecom resources and to increase effectiveness of the Sanchar Saathi initiative". The Sanchar Saathi app, first introduced as a portal in 2023, has been used to report scam calls, enable users to identify SIM cards registered in their name, and remotely disable phones if they are stolen. It is much like the Telecom Regulatory Authority of India's (TRAI) DND app, the commercial spam equivalent.

Secure system

The Government has issued a directive to mobile phone manufacturers as part of a crackdown on telecom scams

- The DoT order requires pre-installation of Sanchar Saathi app on all new phones
- Govt. says 50,000 lost phones are recovered per month due to the app
- For devices that are in the market, the app must be installed as part of an OS software update
- The move may face resistance from premium smartphone maker Apple, which has resisted similar moves by TRAI in the past
- The app is used for blocking stolen phones, ensuring IMEI on device is genuine, reporting scam calls
- The order comes after the DoT directed messaging platforms to perform 'SIM binding'

2.48 lakh complaints

The government has promoted the app, with 2.48 lakh complaints received so far on the platform, according to a dashboard on the site. Almost 2.9 crore requests to see mobile connections associated with a certain user have been made, the site says.

"Spoofed/Tampered IMEIs in telecom network leads to situation where same IMEI is working in different devices at different places simultaneously and pose challenges in action against such IMEIs," the DoT said.

"India has a big second-hand mobile device market. "Cases have also been observed where stolen or blacklisted devices are being re-sold. It makes the purchaser abettor in crime and causes financial loss to them. The blocked/blacklisted IMEIs can be checked using Sanchar Saathi App." In a Google Play listing for the app, the DoT declared that the app does not collect any user data. In a separate statement, the DoT also defended its order to messaging platforms.

The "DoT's SIM-binding directions are essential to plug a concrete security gap that cybercriminals are exploiting to run large-scale, often cross-border, digital frauds," the DoT said.

"Accounts on instant messaging and calling apps continue to work even after the associated SIM is removed, deactivated or moved abroad, enabling anonymous scams, remote "digital arrest" frauds and government-impersonation calls using Indian numbers."

Some smartphone makers have resisted government mandates to pre-install apps around the world. Apple, for instance, resisted the TRAI's draft regulations to install a spam-reporting app, after the firm balked at the TRAI app's permissions requirements, which included access to SMS messages and call logs.

Sanchar Saathi helped recover 50,000 lost or stolen devices in October, the DoT said.

Syllabus

General Studies paper III

- Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention.

Sanchar Saathi Rules in India: Strengthening Telecom Security and Citizen Protection

The Department of Telecommunications (DoT) has intensified efforts to curb digital fraud, identity misuse, and mobile theft by mandating the **pre-installation of the Sanchar Saathi app on all smartphones sold from March 2026**. This move marks a major step in India's push toward telecom security and user protection.

What is Sanchar Saathi?

Launched as a portal in 2023, **Sanchar Saathi** is a citizen-centric digital platform designed to:

- Identify SIM cards issued in a user's name
- Report scam calls and suspicious telecom activity
- Verify IMEI authenticity
- Block or track lost/stolen devices

By October 2024, the app had helped **recover over 50,000 mobile devices**, demonstrating its utility.

Key Features of the New Rules

1. Mandatory Pre-Installation on New Devices
Smartphone manufacturers must:

- Pre-install the Sanchar Saathi app from **March 2026**
- Ensure its **functions cannot be disabled or restricted**
- Support verification of IMEI numbers to prevent tampering and misuse

This rule aims to ensure every new smartphone user has access to telecom safety tools by default.

2. IMEI Authentication and Fraud Prevention
The DoT highlighted concerns about:

- **Spoofed or tampered IMEIs**, which enable the same IMEI to operate on multiple devices
- Resale of stolen or blacklisted phones, especially in India's large second-hand device market.

Sanchar Saathi allows users to check whether a device is blocked or blacklisted, preventing accidental involvement in illegal activities.

3. Addressing Digital Frauds and SIM-Based Vulnerabilities

The DoT's SIM-binding rules aim to curb:

- **Digital arrest scams**
- Government impersonation calls
- Anonymous calls using SIMs operated from abroad

Fraudsters often continue using messaging or calling apps even after removing or deactivating the original SIM. The new rules directly target this loophole.

Thank you

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