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Page 01:GS 2 & 3 : I.R. & Indian Economy / Prelims

The India–U.K. Free Trade Agreement (FTA), formally known as the **Comprehensive Economic and Trade Agreement (CETA)**, marks a significant step in deepening economic, strategic, and cultural cooperation between the two nations. During his first official visit to India, **U.K. Prime Minister Keir Starmer** highlighted the deal as a "launchpad for growth", describing it as the largest trade agreement for both countries since Brexit.

Trade pact a launchpad for growth: U.K. PM

The Trade Agreement presents unparalleled opportunities, says Starmer as he begins visit

Starmer to meet PM Modi today to take stock of India-U.K. Comprehensive Strategic Partnership

The U.K. will offer duty-free access on 99.1% of its tariff lines, immediately upon enforcement

The Hindu Bureau
NEW DELHI

The opportunities waiting to be seized under the India-U.K. Free Trade Agreement are "unparalleled", British Prime Minister Keir Starmer said in Mumbai on Wednesday as he kick-started his first visit to India after assuming charge.

"It's the biggest deal we've struck since we left the European Union," Mr. Starmer said. "I think it's also the biggest deal that India has ever struck, so it's hugely important."

Mr. Starmer, accompanied by a delegation of nearly 100 entrepreneurs, cultural representatives, and university Vice-Chancellors, arrived in Mumbai for a two-day visit to take advantage of the opportunities brought about by the India-U.K. Comprehensive Economic and Trade Agreement signed in July.

"It's not just a piece of paper, it's a launchpad for growth. With India set to be the third biggest economy in the world by 2028, and trade with them about to become quicker and cheaper, the opportunities waiting to be seized are unparalleled," he said.

He will meet Prime Minister Narendra Modi on Thursday. They will address the sixth edition of the Global Fintech Fest in Mumbai.

"Welcome Mr. Starmer on your historic first visit to India with the largest ever trade delegation from the U.K.," Mr. Modi said on X. "Looking forward to our meeting tomorrow for advancing our shared vision of a stronger, mutually prosperous future."

"During the visit, on October 9 in Mumbai, the two Prime Ministers will take stock of progress in diverse aspects of the India-U.K. Comprehensive Strategic Partnership in line with 'Vision 2035', a focused and time bound 10-year road map of programmes and initiatives in key pillars of trade and investment, technology and innovation, defence and security, climate and energy, health, education and people to people relations," the External Affairs Ministry said.

Boosting ties: U.K. Prime Minister Keir Starmer interacts with a delegation accompanying him on his India visit. AFP

Both leaders would engage with business and industry leaders regarding the opportunities presented by the trade agreement. "They will also exchange views on issues of regional and global importance," it added. The India-U.K. CETA aims at boosting bilateral trade by £25.5 billion annually.

It provides substantial tariff reductions on a range of goods, including textiles, whisky, and cars, enhancing competitiveness for exporters in both markets. Specifically, the U.K. will offer duty-free access on 99.1% of its tariff lines, covering 100% of the trade value immediately upon enforcement.

Investments and visas

Mr. Starmer's trip to India has yielded positive statements from some U.K. companies, such as Rolls-Royce, about their future plans in India.

"We have deep ambitions to develop India as a home for Rolls-Royce, building on our strong and successful partnership," Tufan Erginbilgic, CEO of Rolls-Royce, said in Mumbai. "Our competitively advantaged technologies across air, land, and sea applications position us to successfully build in-country capabilities and foster strategic partnerships that will accelerate India's progress towards a Viksit Bharat," he said.

Mr. Starmer, however, reportedly indicated that the U.K. would not be revisiting its visa requirements for Indians. According to the *BBC*, Mr. Starmer reportedly said that no business leaders he had met so far raised the question of visas. It added that, during the flight to India, Mr. Starmer said that visas "played no part" in the CETA and that the situation had not changed.

Mr. Starmer also visited the Yash Raj Films (YRF) studio, where he met Indian producers and film stars, such as Rani Mukherjee.

The British Prime Minister is reportedly keen to strengthen cultural ties between India and the U.K. and promote collaboration between the film industries of the two countries.

The U.K. government issued a release on Wednesday saying that three new Bollywood movies would be made in the U.K. from next year, with YRF having confirmed plans to bring their major productions to locations across the U.K. from early 2026.

Commerce and Industries Minister Piyush Goyal met Peter Kyle, the U.K.'s Secretary of State for Business and Trade, in Mumbai with a view to moving forward with the operationalisation of the India-U.K. CETA, the Commerce and Industry Ministry said in a statement. Mr. Kyle is part of the delegation accompanying Mr. Starmer.

Current Context

- **Event:** U.K. PM Keir Starmer's first official visit to India.
- **Objective:** To advance the implementation of the **India–U.K. Comprehensive Economic and Trade Agreement (CETA)** and strengthen the **Comprehensive Strategic Partnership**.
- **Key Highlights:**
  - The U.K. will offer **duty-free access on 99.1% of its tariff lines**, covering 100% of trade value immediately upon enforcement.
  - Aim to **boost bilateral trade by £25.5 billion annually.**

- Focus areas: trade & investment, innovation, defence, climate, education, and people-to-people ties under **"Vision 2035"**.
- Business giants like **Rolls-Royce** expressed plans to expand operations and build in-country capabilities in India.
- U.K. clarified that **visa relaxations** for Indians are **not part of the FTA**.
- Cultural cooperation is being expanded, with **Yash Raj Films (YRF)** set to produce three new movies in the U.K. starting 2026.

Static Linkages

1. What is a Free Trade Agreement (FTA)?

An **FTA** is an agreement between two or more countries to reduce or eliminate trade barriers (tariffs, quotas, etc.) to promote free flow of goods and services.

India's Key FTAs:

- **India–ASEAN FTA**
- **India–UAE CEPA (2022)**
- **India–Australia ECTA (2022)**
- **Ongoing/Proposed:** India–EU, India–Canada, India–GCC

2. India–U.K. Trade Relations

- Bilateral trade (2024–25): Around **£38 billion**.
- India is one of the U.K.'s fastest-growing trade partners post-Brexit.
- Major exports from India: Textiles, gems & jewellery, machinery, pharma.
- Major imports from U.K.: Spirits (whisky), automobiles, machinery, and high-tech equipment.
- **Indian diaspora** (≈1.8 million in the U.K.) acts as a cultural and economic bridge.

Analytical Perspective

1. Significance for India

- **Economic Diversification:** Strengthens India's trade presence beyond the U.S. and EU markets.
- **Boost to 'Make in India':** Lower tariffs could enhance competitiveness of Indian textiles, pharma, and auto parts.
- **Investment & Technology Flow:** Encourages U.K. investments in AI, fintech, green energy, and defence manufacturing.
- **Cultural Soft Power:** Bollywood collaborations enhance India's global cultural influence.
- **Strategic Leverage:** Strengthens India's position in the Indo-Pacific and global value chains.

2. Significance for U.K.

- **Post-Brexit Strategy:** Aims to secure large non-EU trade partnerships.
- **Access to Emerging Market:** India projected to be the **3rd largest economy by 2028**.
- **Business & Education Collaboration:** Expands opportunities for British universities and startups in India.

3. Challenges

- **Visa Restrictions:** Lack of liberalisation for Indian professionals may limit service sector gains.
- **Regulatory Divergences:** Differences in data protection, IP rights, and agricultural standards.
- **Trade Balance Concerns:** U.K. industries fear Indian imports may impact domestic producers.
- **Implementation:** Ensuring transparent and time-bound operationalisation of the agreement.

Conclusion

The India–U.K. Free Trade Agreement is more than a trade deal — it represents a **strategic partnership for growth and innovation**. As both nations seek to align economic and geopolitical goals in a multipolar world, successful implementation of this agreement could transform the bilateral relationship into a **model for equitable and future-oriented cooperation**.However, its success will depend on **resolving mobility issues**, ensuring **mutual market access**, and maintaining **long-term political and economic commitment**.

UPSC Prelims Practice Question

Ques: Assertion (A): The India–U.K. FTA is the largest trade deal signed by the United Kingdom since its exit from the European Union.

Reason (R): The U.K. has prioritized trade diversification towards Commonwealth countries after Brexit.

Codes:

a) Both A and R are true, and R is the correct explanation of A.

b) Both A and R are true, but R is not the correct explanation of A.

c) A is true, but R is false.

d) A is false, but R is true.

Ans:b)

UPSC Mains Practice Question

Ques: Discuss the significance of the India–U.K. Free Trade Agreement in enhancing bilateral relations in the post-Brexit era. Highlight the potential benefits and challenges in its implementation.**(250 Words)**

Page 01 :GS 3 : Science and tech/ Prelims

The **2025 Nobel Prize in Chemistry** was awarded jointly to **Richard Robson (Australia)**, **Susumu Kitagawa (Japan)**, and **Omar Yaghi (Jordan–American)** for their pioneering work in developing a new class of substances called **Metal–Organic Frameworks (MOFs)**.Their work bridged the long-separated realms of **metals and organic chemistry**, leading to materials that can store, separate, and transform gases — a breakthrough with major applications in **climate change mitigation, clean water, and sustainable chemistry**.

Trio wins Chemistry Nobel for bridging metals and organics

Jacob Koshy
NEW DELHI

An Australian, a Japanese and a Jordanian-American scientists were announced winners of the Nobel Prize in Chemistry for discovering and creating a class of materials, called metal-organic frameworks (MOF).

Metallic and organic substances are as far apart in the chemical world as Australia and the U.S. geographically and it was inconceivable that stable, useful products could be made out of materials formed by integrating them. But beginning Richard Robson's initial conception of them in the mid 1970s, sparked from a science project for his Melbourne University students; to Susumu Kitagawa's dogged determination, in Kyoto University, at creating porous molecules – despite knowing that they were "useless" – but tinkering with them until he created the right kind of structures that were useful enough to work as a filter whilst remaining flexible and pliant; to finally Omar Yaghi at the University of California, Berkley, making a variety of metal-organic frameworks, as he named them, that were capable of drawing water vapour out of desert air at night and releasing them as water in the day. The three will equally share the prize of 11 million Swedish kroner, about ₹1 crore.

Following the laureates' groundbreaking discoveries, chemists have since built tens of thousands of different MOFs. Some of these may contribute to solving some of humankind's greatest challenges, with applications that include separating PFAS (a family of chemicals that are believed to be toxic) from water, breaking down traces of pharmaceuticals in the environment, capturing carbon dioxide or harvesting water from desert air, a press statement noted.

For the development of **metal-organic frameworks**

OMAR M. YAGHI, University of California, U.S. | RICHARD ROBSON, University of Melbourne, Australia | SUSUMU KITAGAWA, Kyoto University, Japan

Molecular kit

Researchers have developed a molecular kit with a wide range of different pieces that can be used to create new MOFs. These have different shapes and characters, providing incredible potential for the rational –or AI-based – design of MOFs for different purposes.

First of the block and inspired by a project to make wooden block representations of chemical bonds, Mr. Robson began by testing the inherent properties of atoms in a new way. He combined positively charged copper ions with a four-armed molecule; this had a chemical group that was attracted to copper ions at the end of each arm. When they were combined, they bonded to form a well-ordered, spacious crystal. It was like a diamond filled with innumerable cavities.

Mr. Robson immediately recognised the potential of his molecular construction, but it was unstable and collapsed easily. However, Mr. Kitagawa and Mr. Yaghi provided this building method with a firm foundation; between 1992 and 2003 they made, separately, a series of revolutionary discoveries.

Mr. Kitagawa showed that gases can flow in and out of the constructions and predicted that MOFs could be made flexible.

Mr. Yaghi created a very stable MOF and showed that it can be modified using rational design, giving it new and desirable properties.

Initially, it was challenging for the scientific community to appreciate MOF as they didn't seem to be much better than a class of materials called zeolites. But things changed when they succeeded in developing soft MOFs – a step up over zeolites that were hard. One of those who was able to present a flexible material was Kitagawa himself. When his material was filled with water or methane, it changed shape, and when it was emptied, it returned to its original form. It behaved somewhat like a lung that can breathe gas in and out, changeable but stable.

What are Metal–Organic Frameworks (MOFs)?

Definition: Metal–Organic Frameworks (MOFs) are **crystalline porous materials** made by linking **metal ions or clusters (inorganic part)** with **organic ligands (carbon-based molecules)** through coordination bonds. This combination forms **highly ordered, sponge-like structures** with large surface areas and tunable chemical properties.

In simple terms:MOFs are like molecular sponges — they can trap, store, and release gases or molecules selectively.

Key Discoveries and Contributions

Scientist	Contribution	Year/Institution
Richard Robson (Australia)	Conceived the idea of linking metal ions with organic ligands to form 3D frameworks. Created first crystal-like MOF model.	1970s, University of Melbourne
Susumu Kitagawa (Japan)	Developed porous and flexible MOFs that could "breathe" — absorb and release gases like methane or water.	Kyoto University, 1990s
Omar Yaghi (Jordan–U.S.)	Created stableand customizable MOFs; introduced "rational design" for targeted applications like CO_2 capture and water harvesting.	UC Berkeley, 2000s

Applications and Importance

1. **Environmental Protection**
   - **Carbon Capture:** MOFs can absorb CO_2 from industrial emissions.
   - **Water Harvesting:** Certain MOFs (like Yaghi's) can extract water from desert air.
   - **Pollutant Removal:** Can filter PFAS ("forever chemicals") and pharmaceutical residues from water.
2. **Energy and Industry**
   - **Hydrogen and Methane Storage:** Crucial for fuel cell technologies and clean energy.
   - **Catalysis:** MOFs can act as catalysts for chemical reactions.
   - **Gas Separation:** Used in refining and purification industries.
3. **Healthcare and Biotechnology**
   - **Drug Delivery:** MOFs can carry and release medicines in controlled ways.

Static Linkages

Topic	Link with MOFs
Coordination Chemistry	MOFs are coordination compounds with metal centers and organic linkers.
Nanotechnology	MOFs operate at the molecular and nanoscale level.
Zeolites vs MOFs	Zeolites are hard, inorganic and less tunable; MOFs are flexible and can be engineered for specific uses.
Rational / AI-based	Modern MOF design uses Artificial Intelligence to predict structures for desired

Topic	Link with MOFs
Design	properties.
Sustainable Chemistry	MOFs promote green chemistry by enabling efficient catalysis and pollution control.

Analytical Perspective

1. Significance for Science and Society

- Integrates **basic research with practical innovation** — bridging inorganic and organic chemistry.
- Provides a **foundation for climate technology** like CO_2 capture and desalination.
- Strengthens interdisciplinary research — chemistry, materials science, and nanotechnology.

2. India's Context

- Indian institutions like **IITs and CSIR labs** are working on **MOF-based CO_2 capture** and **hydrogen storage** projects.
- MOFs align with **India's Net Zero 2070** and **National Hydrogen Mission** goals.

3. Challenges

- **Cost of synthesis** and **scaling up** industrial production.
- **Stability and recyclability** under harsh environmental conditions.
- **Commercialization gap** — limited translation of lab-scale research to industrial use.

Conclusion

The discovery of **Metal–Organic Frameworks** represents a transformative leap in material science — uniting metals and organics into versatile, tunable structures with immense potential for **clean energy, environmental sustainability, and resource efficiency**.As the world faces challenges of climate change and pollution, innovations like MOFs embody the future of **green and intelligent chemistry**, where science serves humanity through smart material design.

UPSC Prelims Practice Question

Ques: The 2025 Nobel Prize in Chemistry was awarded for the discovery of which of the following?

(a) CRISPR-Cas9 gene-editing system

(b) Metal–Organic Frameworks (MOFs)

(c) Quantum dots for electronic devices

(d) Artificial photosynthesis using perovskites

Ans: (b)

UPSC Mains Practice Question

Ques: Metal–Organic Frameworks (MOFs) represent a new frontier in material chemistry. Discuss their structure, applications, and relevance in addressing global environmental challenges.(**150 Words)**

Page 06 :GS 2 : Social Justice / Prelims

The Government of India has released the Draft National Labour and Employment Policy (NLEP), also known as "Shram Shakti Niti, 2025", for public consultation. The policy seeks to create a universal and portable social security system for all workers—formal and informal—by 2030, while promoting inclusivity, productivity, and gender equality in India's evolving labour ecosystem.

This marks a crucial step towards achieving "Viksit Bharat @2047", where economic growth is balanced with social justice and workers' welfare.

Draft labour policy unites social security schemes

It aims at creating universal, portable social security accounts for all workers by 2030; it also seeks to raise women's labour participation to 35%, offer single-window digital compliance for MSMEs

The Hindu Bureau
NEW DELHI

Universal and portable social security is a major component of the draft National Labour and Employment Policy, which proposes to create a universal account by integrating the Employees Provident Fund Organisation, Employees State Insurance Corporation, Pradhan Mantri Jan Arogya Yojana, e-SHRAM, and State welfare Boards.

The draft policy, known as the Shram Shakti Niti, 2025, was released on Wednesday for public consultation.

The proposals include the implementation of the Occupational Safety and Health Code with risk-based inspections, gender-sensitive standards, and the convergence of various skills schemes. The draft policy presents a renewed vision for a fair, inclusive, and future-ready world of work aligned with the national aspiration of a developed India by 2047, Union Labour Minister Mansukh Mandaviya said.

"Rooted in India's civilisational ethos of *śrama dharma*, the dignity and moral value of work, the policy envisions a labour ecosystem that ensures protection, productivity, and participation for every worker. It seeks to create a balanced framework that upholds workers' welfare while enabling enterprises to grow and generate sustainable livelihoods," Mr. Mandaviya said.

Workforce reforms : The policy envisions a labour ecosystem that improves protection and productivity for every worker. FILE PHOTO

Policy outcomes

Expected outcomes of the policy include universal worker registration and social security portability, near-zero workplace fatalities, increased female labour-force participation, a sharp reduction in informal jobs through digital compliance, AI-driven labour-governance capacity in all States, the creation of millions of green and decent jobs, and a fully converged "One Nation Integrated Workforce" ecosystem. The last date to submit suggestions on the draft is October 27.

The draft policy seeks to increase women's participation in the labour force to 35% by 2030, and expand entrepreneurship and career guidance initiatives for youth. It also proposes a single-window for digital compliance, with self-certification and simplified returns for MSMEs. Promotion of green jobs, AI-enabled safety systems, just-transition pathways for workers, and a unified national labour data architecture ensuring inter-ministerial coherence and transparent monitoring are also part of the policy document.

Accountability plan

Policy implementation will proceed in three phases. Phase I (2025-27) focuses on institutional setup and social-security integration.

During Phase II (2027-30), the nationwide rollout of universal social security accounts, along with skill-credit systems, and district-level Employment Facilitation Cells. Phase III (beyond 2030) will bring in paperless governance, predictive analytics, and continuous policy renewal.

"Progress will be tracked through real-time dashboards, a Labour & Employment Policy Evaluation Index (LPEI) benchmarking States, and an Annual National Labour Report to Parliament," the document says.

Key Features and Objectives of the Draft Policy

1. Universal Social Security Framework

- Integration of multiple schemes and institutions:
  - EPFO (Employees' Provident Fund Organisation)
  - ESIC (Employees' State Insurance Corporation)
  - PM-JAY (Ayushman Bharat – Pradhan Mantri Jan ArogyaYojana)
  - e-SHRAM database

  - State Welfare Boards
- Aim: To provide every worker with a universal, portable social security account.

2. Gender and Inclusion

- Raise female labour-force participation to 35% by 2030.
- Promote gender-sensitive workplace standards and entrepreneurship for women and youth.

3. MSME and Ease of Compliance

- Single-window digital compliance with self-certification and simplified returns for MSMEs.
- Reduction in informal employment through digital labour governance.

4. Safety, Skills, and Green Jobs

- Implementation of Occupational Safety and Health Code with risk-based inspections.
- Promotion of green and decent jobs and AI-enabled safety systems.
- Convergence of skill development schemes and district-level Employment Facilitation Cells.

5. Phased Implementation

Phase	Timeline
I (2025–27)	Institutional setup & integration of social security systems
II (2027–30)	Rollout of universal accounts, skill credits, district facilitation
III (Beyond 2030)	Paperless governance, predictive analytics, continuous review

6. Monitoring & Accountability

- Labour and Employment Policy Evaluation Index (LPEI) to benchmark States.
- Annual National Labour Report to Parliament.
- Real-time dashboards for monitoring progress.

Expected Outcomes

- Universal worker registration and portable benefits.
- Near-zero workplace fatalities.
- Reduction in informal jobs and rise in formal sector employment.
- AI-driven governance across all States.

- Creation of millions of green and decent jobs.
- Establishment of a One Nation – Integrated Workforce Ecosystem.

Static Linkages

Concept	Link with Policy
Social Security (Article 41, DPSP)	State's duty to ensure right to work, education, and assistance in cases of unemployment and sickness.
Labour Reforms	Aligned with four Labour Codes (2019–20) — Wage Code, Social Security Code, Occupational Safety Code, Industrial Relations Code.
ILO Conventions	India's commitment to Decent Work Agenda and Universal Social Protection by 2030.
e-SHRAM Portal (2021)	Centralized database for unorganised workers — base for social security portability.
SDG 8	Promotes "decent work and economic growth."

Analytical Perspective (Mains Relevance)

1. Significance

- Bridges the formal–informal divide: Most Indian workers (≈85%) are in the informal sector; the policy aims to extend coverage to all.
- Promotes women's participation: Critical for achieving demographic dividend and inclusive growth.
- Digitally driven governance: AI-based monitoring ensures transparency and data-driven decision-making.
- Boost to MSMEs: Simplified compliance enhances productivity and formalization.

2. Challenges

- Implementation complexity: Integrating multiple schemes and databases across states.
- Funding constraints: Ensuring fiscal sustainability of universal coverage.
- Worker awareness: Low digital literacy among informal workers.
- Inter-ministerial coordination: Convergence between Labour, Health, Skill, and Finance ministries.

Comparative Perspective

Countries such as Brazil (BolsaFamília) and South Korea have achieved universal social protection through integrated databases and portable digital IDs — India aims for similar outcomes via e-SHRAM and Aadhaar-based systems.

Conclusion

The Shram Shakti Niti, 2025 represents a forward-looking attempt to redefine India's labour landscape — combining welfare with efficiency, protection with productivity, and technology with trust. If effectively implemented, it could transform India's fragmented labour ecosystem into a cohesive, inclusive, and future-ready workforce aligned with the vision of "Viksit Bharat by 2047."

UPSC Prelims Practice Question

Ques: The Shram Shakti Niti, 2025 recently released for public consultation primarily aims to:

A. Replace the four existing Labour Codes with a single law

B. Create a universal and portable social security account for all workers

C. Introduce mandatory minimum wages for informal workers

D. Provide employment guarantee to all workers in the private sector

Ans : b)

UPSC Mains Practice Question

Ques: Discuss the significance of the Draft National Labour and Employment Policy, 2025 in ensuring universal social security and inclusive growth in India. Highlight the challenges that may arise in its implementation. (250 Words)

Page : 07: GS 3 : Environment/ Prelims

India's rich biodiversity is increasingly threatened by Invasive Alien Species (IAS) — non-native species that disrupt native ecosystems, alter habitats, and endanger local flora and fauna.The recent discussions among Indian ecologists highlight a pressing policy dilemma — whether to first document all invasives comprehensively or to act and conserve simultaneously.This reflects the global challenge of balancing scientific assessment with urgent conservation action amid accelerating ecological change.

What Are Invasive Alien Species (IAS)?

Definition (as per Convention on Biological Diversity – CBD):

India's invasive species present a dilemma: document or conserve

Invasive alien species were introduced as ornamental fish and decorative shrubs, or as a solution to a problem, such as revegetating land; eventually they took over and displaced much of the local biodiversity, even rendering some native species locally or globally extinct, and destroyed habitats

T.V. Padma

Conservation scientists are sounding warning bells over "stealth invader" species that they say are destroying local biodiversity and changing landscapes.

This has in turn posed a chicken-and-egg dilemma for researchers: should they wait to document the effects of all invasive alien species in India and then prepare a conservation plan or should they conduct the exercises in parallel?

Invasive alien species are non-native species that have been introduced into a landscape by accident, as exotic ornamental fishes and decorated shrubs; or as a solution to a problem such as revegetating arid land. Soon these species take over a region and displace much of the local biodiversity, even rendering some native species locally or globally extinct and destroying habitats.

Invasive alien species have received more research and policy attention of late due to the economic and non-economic losses they cause. At present, some 37,000 established alien species have been introduced by human activities worldwide and every year there are 200 more, K.M. Sankaran, former director of Kerala Forest Research Institute, Thrissur, said. Of these, around 3,500 alien species for 10% have been found to have negative consequences for nature and people, Dr. Sankaran had told a forum of invasive alien species biologists in Bhopal in February.

India has an estimated 139 invasive alien species, mostly insect pests of crops, according to Ankila Hiremath at the Ashoka Trust for Research in Ecology and the Environment, Bengaluru. Others indirectly damage crops due to their effects on native insects. For example the invasive yellow crazy ant (*Anoplolepis gracilipes*) reduces the numbers of other ants that help keep pests in check.

Soil and water

Dr. Hiremath cited the example of the fast-growing weed *Lantana camara*, introduced as a colourful shrub in the British colonial period, today it's in the way of efforts to conserve elephants and other large herbivores. The plant thrives in a range of soils from alkaline to acidic, and fertile to infertile, and is unpalatable for large herbivores and makes their habitat harder to navigate. The animals adapt by switching to cash crops, pushing them closer to human settlements, and increasing human-animal conflict.

Invasive plants also degrade natural wild habitats, endangering predator-prey relationships and jeopardising conservation efforts, Achyut Banerjee, assistant professor at the Azim Premji University in Bhopal, said.

Similarly, *Prosopis juliflora* is a tree originally introduced to India from South America and the Caribbean in the 19th century. In the 1960s and 1970s, the Gujarat Forest Department brought it to the Banni grassland in the Kutch region to combat soil salinisation and boost green cover. Now known locally as 'gando bawar', or the mad tree, this invasive species covers 50-60% of the original grassland area. *Prosopis* is very thirsty and guzzles water from surface soil, thus competing with grasses and native trees such as Acacia, Dr. Hiremath said.

The water hyacinth is among the world's worst invasive species and looms everywhere, from paddy fields to lakes that host migratory birds in winter, and even in the Kaziranga National Park in Assam. TYAGI KARAT

This has led to more salt-water intrusion from the nearby coast rather than less — and has stressed the local wildlife, frustrated access to grazing resources, and has broken down traditional pastoralist-farmer networks.

Aquatic ecosystems are at risk as well. Dominant aquatic weed species include the water hyacinth (*Pontederia crassipes*), alligator weed (*Alternanthera philoxeroides*), duck weed (*Lemnoideae species*), and water lettuce (*Pistia stratiotes*). Water hyacinth is listed among the 10 worst invasives and looms everywhere, from paddy fields to lakes that host migratory birds in winter as well as in the Kaziranga National Park in Assam.

"Alien species are a major threat for 1,070 species of threatened freshwater fishes," Rajeev Raghavan, scientist at the Kerala University of Fisheries and Ocean Studies, Kochi, said.

India alone has 636 alien aquatic species, mostly introduced via the aquarium trade, aquaculture, and for mosquito control and sport fishing, according to Raghavan. Alien fish are now found across India, from the Dal Lake in Kashmir and the rivers and lakes of Manipur lakes to water bodies in Telangana and Kerala.

Poor documentation

A major problem scientists grapple with is the absence of extensive documentation. Unlike a few invasives, such as *Parthenium*, *Lantana*, and *Prosopis*, most of them in India have no recorded invasion histories, invaded regions or extent of consequences, said Alok Bang, assistant professor at Azim Premji University.

Freshwater invasion biology as a

> Conservation of a species might be understood differently by different stakeholders, so scientifically, we must define what we mean by conservation and impacts
>
> ALOK BANG
> AZIM PREMJI UNIVERSITY

discipline is also "still in its infancy", according to Raghavan. There is a lack of comprehensive studies to understand micro-level distribution of alien species, their potential interactions with native species, and their impacts at the species and ecosystem levels.

"Conservation of a species might be understood differently by different stakeholders, so scientifically, we must define what we mean by conservation and impacts," and understand their multiple impacts, Dr. Bang said.

For example, at the species level, they affect native inhabitants' ability to survive and reproduce. At the population level, they affect the population size and genetic diversity. Species could become locally extinct and/or have reduced ranges or communities with multiple species could undergo changes in their composition and functions.

Invasive plants can also change the soil's porosity and compactness; the acidity and turbidity of water; and the availability of light (e.g. by preventing light from penetrating to the forest floor or sea floor).

At the ecosystem level, processes like food webs, primary productivity, nutrient cycling, and energy transfers could change – or an entire existing ecosystem could transform into a new one.

Document or conserve?

Conservation researchers, practitioners, and policymakers in India thus face a dilemma. As Dr. Bang put it, should they wait to document the effects of all these species to prepare a conservation plan, or should they document and conserve in parallel?

Waiting to document all "would be unwise because there is no end to doing site-specific documentation, and we may not have the resources to do these studies."

It would be wiser to simultaneously conduct more impact studies in India and prepare conservation plans based on the knowledge of their ecological and socio-economic consequences in other countries, Dr. Bang added.

He recommended developing standardised quantitative methods to map the cumulative effects of invasive alien species on ecosystems as well as studies on impact assessment and eradication efforts.

"This approach can help identify highly impactful invasive alien species and hotspots of highly [affected] areas and prioritise sites, pathways, and species for management actions," Dr. Bang, who is working on such a framework, added.

According to him, scientists must also step out of silos and communicate and consult with diverse stakeholders that are interested in and affected by biological invasions while designing potential future prevention, control, and eradication.

He also said citizen science efforts could help create atlases of invasive species distribution.

T.V. Padma is a science journalist in New Delhi. tvpadma.10@yahoo.co.in)

Daily News Analysis

Invasive Alien Species are species introduced outside their natural distribution range that become established and spread, causing harm to the environment, economy, or human health.

Key Facts

- Globally: Around 37,000 alien species introduced by human activities.
- About 3,500 (10%) have harmful impacts.
- In India: Nearly 139 identified invasive alien species, mostly insects and plants.
- 626 alien aquatic species reported, many through aquarium trade or aquaculture.

Causes of Invasion

1. Intentional Introduction
    - Ornamental plants (e.g., Lantana camara)
    - Forestry or soil rehabilitation (Prosopisjuliflora)
    - Fish for mosquito control or sport (Tilapia, Gambusiaaffinis).
2. Unintentional Introduction
    - Through shipping ballast water, cargo, or tourism.
3. Weak Monitoring and Regulation
    - Limited border biosecurity and poor ecological documentation.

Examples and Ecological Impacts

Species	Original Purpose	Impact
Lantana camara	Ornamental plant (British period)	Displaces native shrubs, unpalatable to herbivores → increases human-elephant conflict.
Prosopisjuliflora (GandoBawar)	Combat salinity & desertification in Kutch	Reduces water table, increases soil salinity, destroys grasslands.
Water Hyacinth (Pontederiacrassipes)	Ornamental aquatic plant	Chokes lakes, reduces oxygen, impacts migratory birds & fisheries.
Yellow Crazy Ant	Accidentally introduced	Kills native ants, disrupts pest control in crops.

Ecological and Socio-Economic Effects

1. On Biodiversity:
    - Outcompetes native flora/fauna → local extinction.
    - Alters predator-prey and pollination dynamics.
2. On Soil and Water:

- Changes soil porosity, nutrient cycling, and water acidity.
- Reduces availability of light in aquatic ecosystems.

3. On Humans and Livelihoods:
   - Reduces grazing land productivity.
   - Increases human-wildlife conflict.
   - Impacts fisheries and agriculture.

Static Context for UPSC

Static Concept	Link
Convention on Biological Diversity (1992)	Article 8(h) mandates prevention and control of IAS.
Global Biodiversity Framework (2022)	Target: Reduce introduction of IAS by 50% by 2030.
Wildlife Protection Act (Amendment) 2022	Mentions "alien species" for the first time; empowers regulation.
National Biodiversity Authority (NBA)	Responsible for biosecurity and conservation of native biodiversity.
SDG 15	"Life on Land" — focuses on protecting terrestrial ecosystems and halting biodiversity loss.

The Core Dilemma: Document or Conserve?

Option 1: Document First

Pros:

- Helps identify all invasives and quantify their impacts.
- Enables prioritization of species and regions.

Cons:

- Time-consuming; invasives spread rapidly in the meantime.
- Limited manpower and funding.

Option 2: Parallel Approach

- Conduct impact studies and conservation simultaneously.
- Use existing global data to design interim control strategies.
- Apply quantitative impact-mapping frameworks to identify hotspots.
- Encourage citizen science to record invasions and create species atlases.

Policy and Research Challenges

1. Poor Documentation:
   - Only a handful of invasives (Lantana, Prosopis, Parthenium) well studied.
2. Lack of Coordination:
   - Fragmented efforts between forest, agriculture, and fisheries departments.
3. Weak Legislation:
   - No dedicated "Invasive Species Management Act."
4. Low Public Awareness:
   - Exotic species often viewed as aesthetically pleasing.
5. Funding and Technical Gaps:
   - Limited investment in biosecurity and eradication programs.

Way Forward

1. Develop a National Invasive Species Framework (NISF) — with clear mandates for prevention, control, and monitoring.
2. Integrate with National Biodiversity Mission for funding and data convergence.
3. Strengthen Biosecurity at Borders — screening imports and ornamental species.
4. Leverage AI and GIS Mapping — for real-time tracking of invasion hotspots.
5. Promote Community and Citizen Science — local awareness and data collection.
6. Eradication and Restoration — manual removal, biological control, and reforestation with native species.

Conclusion

India's biodiversity is under stealth attack from invasive alien species that silently transform ecosystems and threaten ecological balance.While comprehensive documentation is essential, delayed action could lead to irreversible loss of native flora and fauna.Therefore, a dual-track approach — combining immediate mitigation with continuous documentation and research — is the most pragmatic path forward.Invasive species management must become a core pillar of India's conservation strategy, aligning science, policy, and citizen participation toward protecting its natural heritage.

UPSC Prelims Practice Question

Ques :Which of the following best describes 'Invasive Alien Species'?

A. Species native to India but spreading rapidly in other countries

B. Non-native species introduced accidentally or deliberately that threaten native biodiversity

C. Domesticated species that adapt to wild conditions

D. Endangered species introduced for conservation

Ans: B)

UPSC Mains Practice Question

Ques: Invasive alien species are among the greatest drivers of biodiversity loss in India. Discuss their ecological and socio-economic impacts and suggest a balanced strategy to address the documentation–conservation dilemma. **(150 Words)**

Page 10 :GS 3: Indian Economy/ Prelims

India has witnessed a series of industrial accidents in recent months — from the Sigachi Industries chemical reactor blast (Telangana) to the Gokulesh Fireworks explosion (Sivakasi) and the Ennore coal-handling plant collapse (Chennai) — exposing the persistent crisis in industrial safety and workers' rights.Despite India's elaborate labour laws and international commitments under the International Labour Organization (ILO), the protection of workers remains fragile, especially in the informal and contract sectors.

These tragedies raise the fundamental question: Are workers' rights being eroded in India's pursuit of ease of doing business?

Are workers' rights being eroded?

What happened at the Sigachi Industries chemical factory in Telangana when a chemical reactor burst? What has the International Labour Organization (ILO) said about industrial accidents? What laws are in place in India that protect workers' rights?

EXPLAINER

Gautam Mody

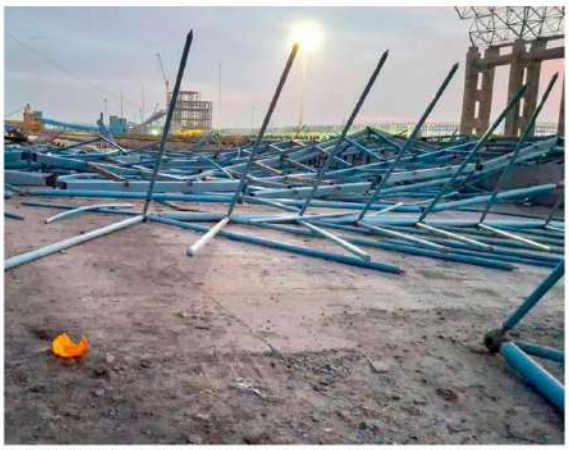
The story so far:

On June 30, at the Sigachi Industries chemical factory in Telangana, 40 workers were killed when a chemical reactor burst. Countless others were injured. Barely a day later, on July 1, eight workers were killed in an explosion at Gokulesh Fireworks in Sivakasi, Tamil Nadu. And yet again on September 30, nine workers died when a 10-metre-high coal-handling plant collapsed at Chennai's Ennore Thermal Power Station. The British Safety Council estimates that one in four fatal workplace accidents worldwide occur in India. This is a conservative figure, given the widespread underreporting of workplace injuries and deaths, especially among contract and informal workers whose employment is neither registered nor protected by law.

Why do workplace accidents occur?

Accidents occur not because they are inevitable but because employers fail to prevent them. Prevention means eliminating hazards through proper workplace design, equipment maintenance, safety systems, and by enforcing protective procedures and training all workers and supervisors exposed to risk.

The Telangana explosion is a case in point. The reactor was operating at twice the permissible temperature. No alarms went off, and no safety officer intervened. The machinery was outdated, maintenance was ignored, and repeated worker complaints were dismissed. When the blast occurred, workers jumped factory walls to save themselves. The required on-site ambulance was missing, and the injured were taken to the hospital in a damaged company bus. Even after a week, authorities could not determine how many were "missing" which is clear evidence that unregistered workers were working in a highly hazardous plant with no entry or exit records. The Ennore collapse also followed the same pattern. The coal-handling structure fell likely due to faulty design, poor-quality scaffolding, or inadequate anchoring.



In ruins: Scaffolding came crashing down at the Ennore plant, Chennai on September 30. FILE PHOTO

The International Labour Organization (ILO) has confirmed that industrial accidents are rarely random. They occur because managements cut corners, underinvesting in safety to reduce costs and maximise profit. Even when employers blame "human error," the real causes lie in employer practices: long working hours, inadequate rest, excessive work pressure, or wages so low that workers are forced to take double shifts.

What are the laws in place in India?

Workers have fought for safer workplaces since the dawn of the industrial age. The first Factories Act in India was enacted in 1881. After Independence, the Factories Act, 1948 became the cornerstone of labour regulation. It governed everything from factory licensing and machinery maintenance to working hours, rest breaks, canteens, and crèches based on the principle that decent working conditions and safety go hand in hand. The Act also saw amendments in 1976 and 1987, the latter prompted by the Bhopal Gas Tragedy. These laws were enforced through licensing and inspection, and a combination of scheduled and surprise checks. Though imperfect, this allowed workers, especially unionised ones, to file complaints and compel employers to act. But the Bhopal tragedy exposed its limits – inspections could be bribed away, records falsified, and violations ignored.

India's mechanisms to compensate injured or deceased workers – the Workmen's Compensation Act, 1923 and Employees' State Insurance Act, 1948 – recognise compensation for loss of earnings, including lifetime income. However, in practice, such compensation remains meagre.

More importantly, these laws do not hold employers criminally accountable. When such accidents draw media attention, governments announce ex gratia payments from public funds. This turns compensation into charity and absolves employers of responsibility.

What is the situation now?

Since the 1990s, labour protections have been systematically dismantled. Employers demand "flexibility" including freedom to hire, fire, and extract work without oversight. Governments have obliged by weakening inspections, diluting laws, and branding safety regulations as "obstacles to business." For example, in 2015, the Maharashtra government allowed employers to "self-certify" compliance with labour laws. And the BJP government's 'Ease of Doing Business' campaign has pushed other States to follow.

The Occupational Safety, Health and Working Conditions (OSHWC) Code, 2020, which seeks to replace the Factories Act, epitomises this shift. Though currently in abeyance, once enforced it will move health and safety from being a statutory right to executive discretion. What was once a worker's right will become government generosity. At the same time, States have increased their working hours, a practice started during the COVID pandemic, which is a major blow to safety. In 2023, Karnataka made this permanent, increasing daily limits and reducing rest periods.

It is well established that safe workplaces enhance productivity and profits. Yet India's dominant business culture is not about sustainable profits but extracting the maximum from labour with minimal responsibility. Until the state restores workplace safety as a right, reinstates inspection as enforcement, and holds employers criminally liable for preventable deaths, workers' lives will always hang in the balance.

Gautam Mody is General Secretary of the New Trade Union Initiative.

THE GIST

- The British Safety Council estimates that one in four fatal workplace accidents worldwide occurs in India. This is a conservative figure, given the widespread underreporting of workplace injuries and deaths.
- Employers demand "flexibility" including freedom to hire, fire, and extract work without oversight. Governments have obliged by weakening inspections, diluting laws, and branding safety regulations as "obstacles to business."
- It is well established that safe workplaces enhance productivity and profits. Yet India's dominant business culture is not about sustainable profits but extracting the maximum from labour with minimal responsibility.

Recent Incidents Highlighting the Crisis

Incident	Location	Fatalities	Key Cause
Sigachi Industries Reactor Burst (June 2024)	Telangana	40 dead	Reactor operated at twice permissible temperature; no safety checks or alarms.
Gokulesh Fireworks Blast (July 2024)	Tamil Nadu	8 dead	Poor storage and handling of explosives.

Incident	Location	Fatalities	Key Cause
Ennore Thermal Power Station Collapse (Sept 2024)	Chennai	9 dead	Faulty design and poor-quality scaffolding.

Common pattern: Negligence, outdated machinery, lack of inspections, and unregistered workers.

ILO's Stand on Industrial Safety

- The International Labour Organization (ILO) stresses that industrial accidents are not random events — they stem from management failures, underinvestment in safety, and profit-driven cost-cutting.
- ILO Convention No. 155 (Occupational Safety and Health, 1981) and Convention No. 187 (Promotional Framework for Occupational Safety and Health, 2006) highlight the state's duty to ensure safe working environments.
- The ILO's estimate: India accounts for nearly 25% of all fatal workplace accidents globally, though underreporting suggests the true figure is higher.

Legal Framework for Workers' Rights in India

1. Historical Foundations

- Factories Act, 1948 – cornerstone of labour protection; mandated licensing, safety inspections, rest periods, and canteens.
    - Amended in 1976 (working hours) and 1987 (post-Bhopal Gas Tragedy) for stricter safety standards.
- Workmen's Compensation Act, 1923 – provided financial compensation for injury/death.
- Employees' State Insurance Act, 1948 – offered medical and wage benefits during sickness or injury.

2. Post-1990s Reforms

- Shift toward labour flexibility and deregulation.
- Rise of self-certification systems (e.g., Maharashtra 2015), reducing on-site inspections.
- Ease of Doing Business reforms diluted enforcement in the name of efficiency.

3. New Labour Codes (2020)

- The Occupational Safety, Health, and Working Conditions (OSHWC) Code, 2020 consolidates 13 labour laws.
- Critics argue it converts statutory rights into executive discretion, reducing accountability.
- Implementation pending, but it symbolizes the shift from worker protection to employer facilitation.

Current Challenges

1. Erosion of Inspections and Accountability
    - Inspections replaced by "self-certification" mechanisms → employers mark themselves compliant.
    - Leads to underreporting and invisibility of violations.
2. Informality and Lack of Registration
    - Over 85% of India's workforce is informal or contract-based, lacking records or insurance.
    - Many victims are invisible to the law, with no compensation or benefits.
3. Weak Penalties
    - Most industrial accidents invite minor fines or ex gratia payments, not criminal liability.
    - Compensation often comes from public funds, not the employer.
4. Gender and Migrant Vulnerabilities
    - Women and migrant labourers face the highest risks with least protection or recourse.
5. Ease of Doing Business vs. Worker Welfare
    - Labour safety regulations often labelled as "barriers to investment."
    - Economic liberalization has prioritized employer flexibility over labour dignity.

Analytical Perspective

- Industrial safety is a constitutional obligation under:
    - Article 21 – Right to life includes the right to safe working conditions.
    - Directive Principles (Article 41, 42, 43A) – mandate humane work conditions and worker participation.
- Weak enforcement reflects the state's retreat from welfare responsibility, contradicting "Shram Dharma" (dignity of labour) — a principle recently invoked in the Draft Labour Policy 2025.
- India's push for Viksit Bharat @2047 cannot rest on unsafe, underpaid, and unprotected labour.

Way Forward

1. Reinstate Independent Inspections
    - Regular and surprise inspections by trained officers.
2. Criminal Liability for Negligent Employers
    - Make industrial deaths punishable under criminal law, not just through compensation.
3. Strengthen Informal Sector Registration
    - Integrate e-SHRAM data with EPFO/ESIC for universal coverage.
4. Use Technology for Transparency
    - Real-time reporting dashboards for workplace safety compliance.
5. Worker Representation and Unions
    - Encourage collective bargaining to enhance accountability.

Conclusion

India's industrial safety record reveals a grim reality: economic liberalization without social safeguards. When profit outweighs protection, and inspection gives way to self-certification, accidents become predictable — not accidental.Protecting workers' lives and dignity must be seen not as a burden but as the foundation of a sustainable and humane economy.Only when workplace safety is restored as a non-negotiable right, not a privilege, will India truly embody the spirit of "Shram Shakti" and inclusive growth.

UPSC Prelims Practice Question

Ques:The International Labour Organization (ILO) has stated that industrial accidents occur primarily due to:

A) Natural inevitabilities in hazardous industries

B) Management failures, underinvestment in safety, and cost-cutting

C) Workers' negligence and lack of training

D) Government overregulation of industries

Ans :a)

UPSC Mains Practice Question

Ques: India's industrial accidents reflect a crisis of governance rather than fate." Discuss in the context of recent workplace disasters and the dilution of labour protection laws. **(150 Words)**

Page : 08 Editorial Analysis

Daily News Analysis

The danger of an unchecked pre-crime framework

Articles 22(3) - (7), which constitutionalised preventive detention, are the Bermuda Triangle in India's constitutional Atlantic where fundamental rights such as liberty, equality and due process vanish without a trace.

In June this year, while setting aside a preventive detention order under the Kerala Anti-Social Activities (Prevention) Act, 2007 (KAAPA) in *Dhanya M. vs State of Kerala* (2025 INSC 809), the Supreme Court of India underscored that the extraordinary power of preventive detention must be exercised sparingly and strictly in accordance with constitutional safeguards. Reaffirming the principle that individual liberty cannot be curtailed lightly, the Court highlighted the vital distinction between "public order" and "law and order" and clarified that preventive detention cannot be used as a substitute for criminal prosecution or as a means to circumvent bail orders.

Similarly, in *S.K. Nazneen vs State of Telangana* (2023), the Court held that preventive detention was not justified when the case pertained to a mere law and order issue rather than a public order concern.

However, such judicial assertions appear increasingly inconsistent with the operation of laws such as KAAPA, which envelop the entire Milky Way of "law and order" rather than confining themselves to the solar system of "public order", due to their broad definitions of "goonda" and "rowdy".

The judgment in *Dhanya M.* referenced *Rekha vs State of Tamil Nadu*, where the Court held that the power of preventive detention is an exception to Article 21 and must be treated as such – an exceptional measure to be employed only in rare circumstances. Likewise, in *Banka Sneha Sheela vs State of Telangana* (2021), the Court reiterated that any action involving preventive detention must be tested against the standards of Article 21. These rulings offer a faint glimmer of light at the end of a tunnel, yet executive overreach continues unchecked in the domain of preventive detention.

A constitutional abyss

Preventive detention in India has a long lineage, dating back to the Bengal Regulations of 1818, devised by the British to maintain colonial control. The Government of India Act, 1935, empowered provincial legislatures to enact preventive detention laws in the interest of "public order". Although Britain employed such measures only during wartime, independent India inherited and retained this colonial relic with astonishing zeal.

In *The Indian Constitution: A Conversation with Power*, Gautam Bhatia says: "Occupying an ambiguous zone between the (formally) extraordinary and the (practically) ordinary, preventive detention was thoroughly embedded into the Indian legal landscape at the time of Independence: so much so that, facing a situation of communal tensions, communist uprisings, and the Partition, it turned into a public order tool under the newly independent federal and provincial governments."

Faisal C.K

is Deputy Law Secretary to the Government of Kerala

The preventive detention regime needs reform; it should not be used as a routine administrative tool

Preventive detention was fiercely debated in the Constituent Assembly. The prevailing communal unrest lent it some legitimacy. Gautam Bhatia astutely observes that "Article 22 was framed as a Janus-faced provision – incorporating elements of due process, and then excluding them from the scope of preventive detention laws."

The case of *A.K. Gopalan vs State of Madras* (1950) became a litmus test for the nascent republic's commitment to the constitutional citizen's right to life and liberty. Gopalan, a communist leader, was detained under a colonial law, later revalidated by the Preventive Detention Act, 1950. He challenged his detention under Article 21, citing the absence of "procedure established by law", and under Article 19, alleging a violation of his freedoms of movement and speech. The Court, however, rejected his claims, holding that preventive detention could only be tested on the basis of Articles 22(3)-(7).

Thus, Article 22 became an "authoritarian penal colony" or a "Devil's Island" in India's constitutional geography – isolated from the ocean of fundamental rights. Parliament was empowered to enact laws that could even dispense with the advisory board review required under Article 22(4), by merely invoking special "circumstances" or "classes of persons". Somnath Lahiri rightly warned that such provisions rendered the Indian Constitution a "Police-Constable Constitution."

When the golden triangle eclipses

Subsequent judgments fortified this constitutional Devil's Island. The top court ruled that even when the grounds of detention directly implicated a fundamental right, it was sufficient for authorities to comply with the procedures in Article 22 – there was no requirement to meet the substantive restrictions applicable to fundamental rights. This position endured despite the Court's revolutionary judgment in *Maneka Gandhi vs Union of India* (1978), which held that "procedure established by law" must mean fair, just and reasonable due process, and that fundamental rights must be read as a unified whole.

Yet, in *A.K. Roy vs Union of India* (1982), the Court fell back on pre-*Maneka* reasoning to assert that preventive detention laws could not be challenged for violating Articles 14, 19, or even the enriched interpretation of Article 21. The Court also refused to subject such laws to the doctrine of proportionality, which had become a central tenet of constitutional review elsewhere in the rights framework. Thus, a person ensnared in this Bermuda Triangle of Article 22 is effectively cut off from the Golden Triangle of Articles 14, 19, and 21, and is plunged into legal darkness.

Granville Austin, in *Working a Democratic Constitution: A History of the Indian Experience* (1999), prophetically observed: "Preventive detention had had seductive charms for the executive branch, as the former Chief Justices' letter [to the President and Prime Minister in 1966] had pointed out. Although perhaps a 'necessary evil' in some situations – such as witness intimidation – it easily became a crutch whose overuse produced not only injustice to individuals but also atrophy in police investigatory and prosecutorial skills. These hazards would only intensify over time."

Dilemma of the pre-crime

Steven Spielberg's *Minority Report* (2002) – based on Philip K. Dick's 1956 short story – powerfully dramatises the jurisprudential dilemmas of preventive detention, particularly in liberal democracies. In the film, a special police unit called PreCrime uses precognitive humans (Precogs) and advanced technology to prevent murders before they occur. The protagonist is apprehended for a murder he has not yet committed. He is presumed guilty, denied a fair trial, and offered no opportunity to be heard.

This mirrors the legal logic of preventive detention, which bypasses fundamental principles such as *audi alteram partem*, the presumption of innocence and judicial scrutiny. Although science fiction, the film offers a striking metaphor for the ethical and legal perils that accompany the logic of preventive incarceration.

In the film, alternative futures – or "minority reports" – reveal that the Precogs are not infallible. This echoes the inherent uncertainty in predicting human behaviour, which is the Achilles' heel of preventive detention regimes. In India, courts have repeatedly acknowledged that the "subjective satisfaction" of the detaining authority is susceptible to misuse, especially in cases that involve dissent, protest or political opposition.

In this metaphorical ecosystem, the sponsoring authority, detaining authority, and even the advisory board function as India's equivalent of the Precogs – issuing decisions based on perceptions and probabilities rather than proof and procedure. With weak procedural safeguards and limited judicial review, preventive detention in India presents the very dangers that Minority Report sought to warn us against.

In light of the top court's recent observations in *Dhanya M.*, there is an urgent need to re-examine the constitutional propriety of *A.K. Gopalan* and *A.K. Roy*, and to reform the preventive detention regime. At the very least, such extraordinary powers should be confined strictly to combating grave threats such as terrorism and transnational drug cartels, and not used as a routine administrative tool. Unless checked, India's pre-crime framework will continue to undermine the very constitutional values that it purports to protect.

The views expressed are personal

GS. Paper 2–Indian Polity

UPSC Mains Practice Question: Critically examine the preventive detention regime in India under Article 22. Discuss its constitutional safeguards, judicial interpretations, and the potential dangers of misuse. **(150 Words)**

Context :

Preventive detention, enshrined under Articles 22(3)–(7) of the Indian Constitution, allows authorities to detain individuals without trial to maintain "public order". While designed as an exceptional measure, its misuse over time has created a constitutional dilemma: balancing individual liberty against state security. Recent Supreme Court rulings, such as Dhanya M. vs State of Kerala (2025), underscore the tension between safeguarding rights and exercising extraordinary executive powers.

Legal and Constitutional Context (Static Linkages)

Aspect	Details
Article 22	Protects against arbitrary detention but allows preventive detention up to 3 months without trial, subject to review.
Historical Roots	Originated in Bengal Regulations, 1818, expanded under Government of India Act, 1935; inherited from British colonial framework.
Key Judgments	- A.K. Gopalan vs State of Madras (1950): restricted fundamental rights' applicability to preventive detention. - Maneka Gandhi vs Union of India (1978): broadened Article 21 to include fair, just, reasonable procedure. - A.K. Roy vs Union of India (1982): reaffirmed limits on judicial review over preventive detention.
Judicial Safeguards	Advisory boards under Article 22(4), requirement of reviewing detaining authority's satisfaction.

Analytical Perspective

1. Preventive Detention as a "Pre-crime" Framework

- Preventive detention bypasses audialterampartem, presumption of innocence, and judicial scrutiny, resembling a "Minority Report"-style system.
- Decisions are often based on subjective satisfaction of authorities rather than evidence.

2. Contemporary Concerns

- Broad statutory definitions (e.g., KAAPA's "goonda" and "rowdy") expand state power to routine law-and-order issues rather than serious threats to public order.

- Misuse for political dissent, protests, or minor offenses remains a risk.
- Courts have repeatedly emphasized that preventive detention cannot substitute ordinary criminal prosecution.

3. Ethical and Constitutional Implications

- Undermines Golden Triangle of Articles 14 (Equality), 19 (Freedom), and 21 (Life & Liberty).
- Creates a constitutional Bermuda Triangle, where fundamental rights vanish under preventive detention.
- Potential erosion of civil liberties if unchecked.

4. Recommendations

- Restrict preventive detention strictly to grave threats: terrorism, insurgency, transnational crime.
- Strengthen judicial review and procedural safeguards.
- Limit administrative discretion and clarify statutory definitions to prevent misuse.

Relevance for UPSC

- Polity: Constitutional safeguards, Articles 22, 14, 19, 21.
- Governance & Law: Rule of law, balance between liberty and security, preventive detention regime.
- Current Affairs: Recent SC judgments like Dhanya M. (2025); ongoing debates on public order vs. law and order.
- Ethics: Human rights, civil liberties, proportionality in state power.

Conclusion

Preventive detention, while constitutionally sanctioned as an extraordinary measure, carries inherent risks of executive overreach and civil liberties erosion. Judicial interventions, including Dhanya M., reaffirm the need for strict adherence to constitutional safeguards and careful distinction between public order and routine law enforcement. Unchecked, India's pre-crime framework could undermine the very values of liberty, equality, and due process it is meant to protect.

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- **Instagram :- https://www.instagram.com/k.nitinca?igsh=MTVxeXgxNGJyajN3aw==**
- **Facebook : - https://www.facebook.com/share/19JbpGvTgM/?mibextid=qi2Omg**
- **Telegram : - https://t.me/+ebUFssPR83NhNmJl**