FINDER
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FORTUNE IAS NEWS DAILY EXPLAINER
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The other side of sport — mastering manufacturing

Prelims: General Studies Paper - 1
Current events of national and international importance

Mains: General Studies - 2
Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

1.Context

- **Sports equipment manufacturing is a labour-intensive sector** and plays a key role in the sports economy.
- A report titled "**Realising the Export Potential of the Sports Equipment Manufacturing Market in India"** highlights the sector's current status and opportunities.
- The report was **released by NITI Aayog in collaboration with Foundation for Economic Development.**
- Despite strong sports culture, **India contributes only around 0.5% to the $50 billion global sports equipment trade.**
- The low share is due to **structural issues in the industry**, not lack of capability.

2. Diverse Manufacturing Landscape

- India's sports equipment **manufacturing is geographically concentrated in Jalandhar and Meerut** (80 % of output).
- It is **operationally fragmented and dominated by MSMEs** with low production volume.
- **Focuses on labour-intensive products** like stitched balls, cricket gear, and basic fitness items.
- Artisanal methods limit scale, technology, and brands.
- **High product diversity** (different materials and techniques) makes policy design difficult.
- Indian **manufacturers face a 15% cost disadvantage compared to competitors like China and Pakistan** due to higher input costs, logistics inefficiencies

3.Core Issues

- **Lack of advanced raw materials** and heavy imports raise costs.
- High import duties on materials and machinery **increase production costs.**
- **Poor ease of doing business** (logistics, land, compliance issues).
- **High certification costs and lack of domestic testing** facilities.
- **Delays in certification** reduce innovation and market entry.
- **Weak global demand & branding**, leading to low-value contract manufacturing.

4.Way Forward

- **Rationalise import duties on raw materials** and machinery.
- **Provide fiscal support** (export incentives, certification cost support).
- **Leverage allied industries** (textiles, plastics, engineering) for upgrades.
- **Set up domestic testing** & certification centres.
- **Invest in local raw materials** to reduce import dependence.
- **Build strong Indian sports brands** with global marketing.
- **Use major sporting events & procurement** to boost demand and exports.

Jan Vishwas 2.0 is all about trust-based compliance

Prelims: General Studies Paper - 1
Indian Polity and Governance-Constitution, Political System, Panchayati Raj, Public Policy, Rights Issues, etc.

Mains: General Studies - 2
Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

1. Background & Objective

- The **Jan Vishwas (Amendment of Provisions) Bill, 2026** aims to shift from **criminalisation to trust-based regulation**.
- Focus on **ease of doing business** and **voluntary compliance**.
- Reduces **fear-driven compliance** caused by excessive criminal penalties.

2. Key Features of the Reform

- **Decriminalisation of minor offences** (technical/procedural lapses).
- Replaces **criminal penalties** with **civil penalties/ administrative measures**.
- **Jan Vishwas 2.0**:
  - Proposes amendments **784 provisions across 79 Acts**
  - **717 provisions decriminalised**
- Removes **obsolete laws** and improves **regulatory clarity**.

3. Role of Industry & Regulatory Shift

- **Confederation of Indian Industry (CII)** advocated reforms.
- Suggested shift from **court-imposed fines → administrative penalties**.
- Emphasis on:
  - **Proportional penalties**
  - **Time-bound resolution**
  - **Retrospective application**
- Overall shift toward **trust, proportionality, and economic efficiency**.

4. Impact & Significance

- Reduces **judicial burden** (nearly **50 million pending cases**).
- Introduces **graded enforcement**:
  - **Warnings**
  - **Lower penalties for first-time offences**
- Benefits **MSMEs** by lowering **compliance burden**.
- Promotes a predictable**, transparent, investor-friendly environment**.
- Success depends on **effective implementation and institutional capacity**.

Why India wants fast breeder reactors

Prelims: General Studies Paper - 1
Current events of national and international importance

Mains: General Studies - 2
Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

1. Context: PFBR Achieves Criticality

- India's **Prototype Fast Breeder Reactor (PFBR)** at Kalpakkam achieved **criticality** on April 6, marking a major milestone in India's nuclear programme.
- Criticality is not the final goal but the first operational step of a reactor.
- This milestone reflects the **gradual and complex progress** of India's nuclear power development.
- PFBR is central to India's energy security and fuel self-sufficiency strategy.

2. Meaning of Criticality and Reactor Operation

- A reactor reaches **criticality** when the **nuclear chain reaction becomes self-sustaining**, i.e., each fission causes at least one more fission.
- Each fission releases neutrons that trigger further reactions in nearby nuclei.
- Engineers control this process through **fuel composition, neutron flow, and reactor temperature**.
- Criticality indicates a **stable operating state**, but not commercial readiness.
- The reactor operates at low power for months post-criticality for testing.

- Only after safety validation does it move to higher power and commercial stage.

3. Working of Fast Breeder Reactors (FBRs) and India's Three-Stage Programme

- Most existing Indian reactors are **Pressurised Heavy Water Reactors (PHWRs)** using natural uranium (0.7% U-235, 99.3% U-238).
- PHWRs require a **moderator** to slow neutrons for fission and utilize only about **1% of fuel**, making them inefficient.
- FBRs use **plutonium-based fuel** and fast neutrons, improving fuel efficiency to **10% or more**.
- They are surrounded by a **depleted uranium blanket**, which converts into plutonium (fuel breeding).
- This process enables **closed fuel cycle and higher resource utilisation**.
- India's nuclear programme, conceptualised by **Homi J. Bhabha (Father of the Indian Nuclear Program)** has three stages:
  - Stage 1: PHWRs produce **plutonium and depleted uranium** from natural uranium.
  - Stage 2: FBRs use this plutonium to generate **more plutonium and energy**.
  - Stage 3: In future reactors use **thorium and plutonium** for long-term energy production.
- The strategy is based on India's **limited uranium but abundant thorium reserves**.
- FBRs act as a **bridge technology** between uranium-based and thorium-based energy systems.

4. Challenges, Governance Issues, and Future of PFBR

FBRs are technically complex and expensive, involving:

- Use of **liquid sodium coolant**, which improves heat transfer but reacts violently with air and water.
- Requires perfect sealing, leak detection, and high safety standards..

Global experience shows challenges:

- Japan's Monju reactor suffered a **sodium leak and fire (1995)**.
- France's Superphénix was shut due to **high costs and technical issues**.
- Russia continues limited FBR operations.

Economic & social issues:

- High cost, economic uncertainty and public acceptance concerns.

India's PFBR specifics:

- Designed by Indira Gandhi Centre for Atomic Research and built by Bharatiya Nabhikiya Vidyut Nigam Limited.
- Cost: ₹3,500 crore → ₹6,800 crore (2019).
- Multiple delays; commercialisation pending.

Institutional aspects:

- The Department of Atomic Energy reports directly to the PMO, ensuring **policy continuity** but reduces **transparency and accountability**.

Future steps:

- PFBR will undergo **low-power testing and safety validation**.
- Engineers will refine **operational parameters and protocols**.
- Approval from the Atomic Energy Regulatory Board is needed for commercial operation.
- Development of fuel reprocessing and fabrication infrastructure.
- Success will determine India's ability to achieve a **closed nuclear fuel cycle and long-term energy security**.

KEYWORDS

C-Vigil App

- The C-Vigil App is a mobile application **developed by the Election Commission of India to report violations of the Model Code of Conduct** during elections.
- It **allows citizens to instantly upload photos, videos, or audio of political misconduct** in real time.
- Each **complaint generates a unique ID**, enabling users to track the status of their report.
- The app ensures **a time-bound response through a 100-minute resolution mechanism** by authorities.

- It also **uses geo-tagging to capture the exact location of violations**, helping officials take quick and effective action.

Pulsars

- **Indian astronomers**, including researchers from **IIT-Kanpur**, have developed a **new technique** to measure **distances in the universe** using **pulsars**,the **rapidly spinning cores of dead stars**.
- The method studies how **radio signals get distorted** as they travel through **ionised gas clouds (plasma)** in the **Milky Way**, combining **two subtle physical effects**.
- **Pulsars** have an extremely **stable rotation rate**, so their **signals arrive at regular intervals**, making them reliable **cosmic clocks**.
- Any **variation in the arrival time** of these signals can indicate the presence of **astrophysical phenomena**, such as **gravitational waves**.