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## Current Affairs - 04 August 2025

### CENTRAL INDUSTRIAL SECURITY FORCE (CISF)



- It is a Central Armed Police Force (CAPF) in India.
- It is directly under the Union Ministry of Home Affairs and its headquarters are in New Delhi.
- **Motto: "Protection and Security"**
- **Establishment:**
  - The CISF came into existence in **1969** through the **CISF Act 1968** with a sanctioned strength of **only three battalions**.
  - The **original charter** of CISF was to **provide integrated security cover** to certain **sensitive public sector undertakings**.
  - The Act was **amended in 1983** declaring the CISF as an **Armed Force of the Union**.
  - The force has since grown into a premier multi-skilled organization with a **present strength** of more than **188,000 personnel**.
  - The CISF at present provides security cover to 359 establishments across the country.
- **Organisation Structure:**
  - CISF is **headed by an Indian Police Service officer** with the rank of **Director-General**, assisted by an IPS officer in the rank of **Addl. Director-General**.
  - The force is divided into **seven sectors** (Airport, North, North-East, East, West, South, and Training), and also has a **Fire Service Wing**.
- **Functions:**
  - The CISF **security umbrella** includes India's most **critical infrastructure facilities**, like **nuclear installations**, **space establishments**, **airports**, **seaports**, **power plants**, etc.



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### BIO-FORTIFIED POTATOES



- **Bio-fortified potatoes** are a new variety enriched with **higher iron content** aimed at addressing iron deficiency and hidden hunger. These are developed using **conventional breeding and biotechnology** without altering taste or yield.
- The initiative is led by the **International Potato Centre (CIP)**, based in The CIP is a **global research leader in tuber crops** and is working actively to promote **nutritionally improved potatoes** in India.

### About Bio-fortified Sweet Potatoes:

- Bio-fortified **sweet potatoes enriched with Vitamin A** are already available in **Karnataka, Assam, West Bengal, and Odisha**. Plans are underway to expand their access to more farmers across India.
- The current focus is on **iron-fortified potato varieties**, for which **germplasm has been shared** with **ICAR-Central Potato Research Institute (CPRI), Shimla**.
- A variety has already been released in **Peru** and is currently under **evaluation and adaptation** for Indian agro-climatic conditions.
- CIP is establishing a South Asia regional centre in Agra, Uttar Pradesh, acknowledging the **Indo-Gangetic plains** as the **world's largest potato-producing region**. This centre will boost regional R&D and seed access.
- ICAR has released **biofortified seed varieties** across **61 crops**, including **34 field crops** (cereals, pulses, millets, oilseeds) and **27 horticultural crops** (tubers, vegetables, medicinal plants).

### About Biofortification

- **Biofortification** is the process of **enhancing the nutrient content** of crops using **conventional breeding, agronomic techniques** or **modern biotechnology**.
- It helps increase **vitamin and mineral levels** in staple crops.



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## Current Affairs - 04 August 2025

### RADIOACTIVE ISOTOPE INJECTIONS: A BOLD NEW STRATEGY TO STOP RHINO POACHING

A South African university has launched the **Rhisotope Project**, an anti-poaching initiative that injects **radioactive isotopes into rhino horns** to deter illegal trafficking.

The method, developed over six years by the **University of the Witwatersrand** with support from the **IAEA**, is safe for rhinos and enables customs officials to detect trafficked horns.

The project began with **five rhinos treated in the Waterberg Biosphere Reserve** and aims to scale up for mass treatment to protect South Africa's declining rhino population.

#### Radioactive Isotopes: Overview and Uses

- Radioactive isotopes, or radioisotopes, are unstable forms of elements that emit radiation as they decay into more stable forms.
- They can occur naturally (e.g., Uranium-238, Carbon-14) or be artificially produced in reactors or accelerators (e.g., Cobalt-60, Iodine-131).
- **Examples of Radioactive Isotopes**
  - **Carbon-14:** Used in radiocarbon dating of ancient organic materials.
  - **Iodine-131:** Used in diagnosing and treating thyroid disorders.
  - **Cobalt-60:** Applied in sterilising medical equipment and cancer radiotherapy.
  - **Technetium-99m:** Widely used in medical imaging (nuclear scans).
  - **Uranium-235 & Plutonium-239:** Fuel for nuclear reactors and weapons.
- **Uses of Radioactive Isotopes**
  - **Medical Applications:** Cancer treatment (radiotherapy); Diagnostic imaging (PET, SPECT scans)
  - **Industrial Applications:** Non-destructive testing (X-ray of welds, pipelines); Sterilisation of medical equipment.
  - **Agriculture:** Tracing nutrient uptake in plants; Pest control through irradiation.
  - **Scientific Research:** Radiocarbon dating for archaeology; Tracer studies in biological and chemical research.



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## Current Affairs - 04 August 2025

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- **Anti-Poaching & Security:** Tagging wildlife parts (e.g., rhino horns in the Rhisotope Project) for tracking and detection at borders.

### Radioactive Isotope Tagging Aims to Deter Rhino Poaching

- The Rhisotope Project uses low-dose radioactive isotopes to tag rhino horns, making them detectable by **radiation portal monitors (RPMs)** at global border points, thereby deterring illegal trafficking.
- Developed by the University of the Witwatersrand with IAEA support, the method is non-invasive and harmless to rhinos, while rendering the horns “useless” and “poisonous” to humans.
- Tests using 3D-printed rhino horns confirmed that tagged horns could be detected even inside 40-foot shipping containers.
- A pilot phase in June injected isotopes into 20 rhinos, with cytological examinations by Ghent University finding no cellular damage.
- This innovation is considered as a potential game-changer in combating the rhino poaching crisis.

### The Poaching Crisis

- The global rhino population has plummeted from 500,000 in the early 20th century to just 27,000 today, largely due to rampant poaching driven by demand for rhino horns in Asian traditional medicine and status symbols.
  - **South Africa, home to the largest rhino population,** has lost over 10,000 rhinos in the past decade, with 103 poaching cases reported in early 2025 alone.
  - While the Rhisotope Project is not a definitive solution, researchers believe it could serve as a strong deterrent without disrupting rhino behaviour, unlike dehorning, which, though effective in reducing poaching, negatively affects rhino socialisation and territory ranges.
  - The project’s success could pave the way for similar strategies to protect other endangered species like elephants and pangolins.
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## Current Affairs - 04 August 2025

### POST-OPERATION SINDOOR: ARMY TO DEPLOY DRONES AT BATTALION

#### LEVEL

- In the wake of Operation Sindoor following the Pahalgam terror attack, the Indian Army is undertaking a significant organisational overhaul to enhance combat readiness for future warfare.
- A key focus is the integration of Unmanned Aerial Vehicles (UAVs) and counter-UAV systems as standard weapon systems at the battalion level across infantry, armoured, and artillery units.
  - Currently, drones are used as secondary assets, operated by personnel diverted from primary roles.
- The new structure will create dedicated UAV operating teams within each unit, ensuring focused training and deployment.
- Infantry battalions will incorporate surveillance drones at platoon and company levels, requiring the reassignment of approximately 70 personnel per unit for drone operations.
- **Institutionalising Drone Procurement and Supply Chains**
  - A key objective is to incorporate drones and next-generation equipment as standard issue items for combat arms.
  - This move will streamline procurement processes, establish dedicated supply chains, and reduce reliance on ad hoc or emergency purchases, ensuring sustained capability development.

#### **Boosting UAV Capabilities in Army Aviation & EME**

- The Army Aviation Corps will be strengthened with additional UAVs to reduce dependence on helicopters for reconnaissance and surveillance missions.
- Simultaneously, the Corps of Electronics and Mechanical Engineers (EME) will enhance its drone repair infrastructure at corps zone workshops.
- Discussions are ongoing to convert one company per battalion into a drone-centric unit.
- Engineer regiments will integrate drone sections for mine detection, area mapping, and reconnaissance.



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## Current Affairs - 04 August 2025

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### ELEPHANT DEATHS ON RAILWAY TRACKS SPUR NATIONWIDE MITIGATION STRATEGY

- Conducted collaboratively by the **Union Ministry of Environment**, the **Ministry of Railways**, and **state forest departments**, the survey covered **127 railway stretches** spanning **3,452 km**.
- From this, **77 stretches** were identified for immediate intervention based on historical data on elephant movements and fatalities.
- The survey marked a **first-of-its-kind systematic assessment** of railway-wildlife conflict zones.
- Using on-foot and trolley-based inspections, experts evaluated risk levels based on **track elevation, vegetation cover, existing infrastructure, and drainage systems**.

#### Proposed Mitigation Measures

- A total of **705 structures** have been proposed to reduce wildlife mortality, with a major focus on elephants. These include:
    - 503 ramps and level crossings
    - 72 bridge extensions and modifications
    - 65 underpasses
    - 22 overpasses
    - 39 fencing, barricading, or trenching structures
    - 4 exit ramps
  - These mitigation structures are designed to either allow elephants to cross safely or to divert them away from high-risk tracks.
  - States with high elephant populations, such as **Assam, Maharashtra, and Uttar Pradesh**, have been prioritised. Assam alone will get 131 level crossings with ramps, followed by 125 in Maharashtra and 92 in Uttar Pradesh.
  - With **greenfield rail projects on the rise**, these frameworks will also guide **retrofitting** and **future-proofing** of railways in wildlife corridors.
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## Current Affairs - 04 August 2025

### THE 'RIGHT TO REPAIR' MUST INCLUDE THE 'RIGHT TO REMEMBER'

- In May 2025, the **Indian government took a bold step by accepting a proposal for a Repairability Index for mobile phones and appliances.**
- This initiative, along with new e-waste policies incentivising formal recycling, **marks a timely push for sustainable electronics.**
- While these developments signal progress, **the path to a truly sustainable and inclusive digital future demands more than regulatory reform.**
- It **requires deep appreciation and support for the tacit, cultural knowledge** that underpins India's vibrant but often overlooked repair economy.

### **The Invisible Backbone of India's Technology Ecosystem**

- **India's evolving digital and AI policies**, exemplified by initiatives like Digital Public Infrastructure (DPI) and the National Strategy on Artificial Intelligence (NSAI), **prioritise innovation and data-driven efficiency.**
- Yet, **the informal repair sector, composed of mobile and appliance fixers** working in bustling places like Delhi's Karol Bagh and Chennai's Ritchie Street, **remains largely invisible to digital and policy frameworks.**
- This **sector's knowledge is not written in manuals or stored in software**; rather, it is embodied in experience, intuition, and adaptability.
- The **work of these repairers extends the life of electronics far beyond planned obsolescence.** They diagnose faults through sensory cues, reuse components, and improvise solutions with modest tools.
- **Their significance goes far beyond mere economic contribution**, they sustain India's material resilience, often in the face of increasing consumer disposability and devices designed to be unrepairable.

### **The Value of Tacit Knowledge**

- **Tacit knowledge**, passed through mentorship, observation, and hands-on practice, **is central to India's repair culture.**



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## Current Affairs - 04 August 2025

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- Unlike formal training, **it thrives on learning by doing, adapting to context, and improvising.**
- As AI systems continue to evolve, **drawing upon patterns shaped by this real-world problem-solving**, the contributions of informal workers become ever more crucial.
- Yet, **these communities typically receive little formal recognition** or policy support, exacerbating imbalances even as technology advances due to insights sourced from their labour.
- Globally, **the Right to Repair movement is gaining ground.** The European Union now mandates manufacturers to offer spare parts and repair documentation.
- **India, too, has made strides**, launching a Right to Repair framework and a national portal. Yet, **to lead effectively, India must recognise repair not merely as a service, but as essential knowledge work.**
- **Repairers are thus not simply menders of material goods, but stewards of the circular economy**, embodying the principles of reuse and longevity that sustainability demands.

### The Way Forward: Reimagining Policy and AI for Repair Justice

- A recent iFixit report showed that **just 23% of smartphones sold in Asia are easily repairable**, largely due to design choices.
- To address this, **repairability must be embedded in design norms** and procurement standards from the outset.

### Conclusion

- **Supporting repair is not just about intellectual property or technological efficiency, it is about valuing the quiet, essential labour** that keeps society's electronics running.
  - As philosopher Michael Polanyi once said, **We know more than we can tell.**
  - **By preserving the tacit knowledge at the core of repair culture, India can build a just, repair-ready technological future**, one where sustainability, innovation, and human wisdom go hand in hand.
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### PILIBHIT TIGER RESERVE (PTR)



- It is located in the Pilibhit District, Lakhimpur Kheri District and Bahraich District of **Uttar Pradesh**, in the **upper Gangetic Plain Biogeographic Province**.
- It lies along the **India-Nepal border** in the foothills of the Himalayas and is part of the **Terai Arc Landscape**.
- The total area of the reserve is 730 sq.km., inclusive of 602 sq.km. core zone.
- **Rivers:** The river **Gomti originates** from the PTR, which is also the catchment of several others like **Sharda, Chuka, and Mala Khannot**.
- **Habitat:** The habitat is characterized by **dense sal forests** and **tall alluvial grasslands, savannahs, and impenetrable swamps**, maintained by **periodic flooding from rivers**.
- **Vegetation:** **Tropical Moist Deciduous Forests, Tropical Dry Deciduous Forests, Seasonal Swamp Forests** and **Tropical Semi-evergreen Forests** are the major forest types found in the reserve.
- **Flora:**
  - The **sal woodland** is very dense with good natural regeneration, amounting to almost **76% of the reserve area**.
  - The forest patches are **interspersed with grass meadows** with several species like **Sacchrum, Sclerostachya, Imperata, Themeda, Bothriochloa, Vetiveria, Apluda, Dichanthium, Digitaria** and **Cyperus**.
- **Fauna:**
  - It is home to a myriad of wild animals, including the endangered **tiger, swamp deer, Bengal florican, hog deer**, leopard, etc.
  - The rich bird life in Pilibhit includes species like **Swamp Francolin, Great Hornbill, Bengal Florican**, Lesser Florican, Black Francolin, Jungle Bush Quail, Red Junglefowl, Asian Openbill, etc.