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## Current Affairs - 16 November 2025

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### TERRITORIAL ARMY



- The Indian Territorial Army (TA) is a **part-time voluntary military force** that supports and augments the regular Indian Army.
- It is a **second line of defence** after the regular Indian Army; it is not a profession, occupation or a source of employment.
- It is only meant for those people who are **already in mainstay civilian professions**; gainful employment or self-employment in a civil profession is a prerequisite for joining the TA. **Motto:** Savdhani Va Shoorta (Vigilance and Valour).
- **History of Territorial Army:**
  - It was raised by **the Britishers in 1920** through **Indian Territorial Act of 1920**.
  - It was organized into two wings namely – ‘**The Auxiliary Force**’ for Europeans & Anglo-Indians and ‘**The Indian Territorial Force**’ for Indian Volunteers.
  - After Independence **Territorial Army Act was passed in 1948** and the Territorial Army was formally inaugurated by the first Indian Governor General **Shri C Rajagopalachari** on 09 Oct 1949.
- **Eligibility to Join Territorial Army:**
  - **Nationality:** Citizens of India. (Men & Women). **Age:** 18 to 42 years
  - **Educational Qualifications:** Graduate from any recognized university
  - **Employment:** Gainfully Employed
  - Serving member of the Regular Army/ Navy/ Air Force/ Police/ GREF/ Para Military and like forces are not eligible
- **Role of Territorial Army:**
  - It includes “**relieving the Regular Army from static duties**”, while also providing assistance to civil authorities in times of natural calamities and tragedies.
  - They also **help civil administration** with providing essential services in areas where state machinery is stretched or there are security threats.



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## Current Affairs - 16 November 2025

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### WHAT IS VRINDAVANI VASTRA?



The Assam Chief Minister recently left for London to initiate the process of bringing back the revered Vrindavani Vastra from the British Museum.

- It is a **400-year-old traditional textile from Assam**, woven with the theme of Krishna's various exploits.
  - The **childhood stories of Lord Krishna in Vrindavan**, his divine pastimes, and various events are woven with thread on this cloth.
  - It was made of woven silk using the complex 'lampas' technique. This technique requires two weavers working simultaneously.
  - The designs were woven with a large variety of colored threads, like red, white, black, yellow, green, etc.
  - It was created under the guidance of Srimanta Sankardeva, at the request of Koch king Nara Narayan, who ruled over parts of modern-day Assam and West Bengal.
    - Notably, Nara Narayan had sheltered Sankardeva after the Vaishnav saint was targeted by the Ahom kingdom on the instigation of Brahmin priests in the state.
  - The textile serves as a testament to Assamese weaving, incorporating elements from various artistic traditions, and travelled from Assam to Tibet before being acquired by the British Museum in 1904.
  - The exhibit, acquired by the British Museum, is **nine and a half metres long** and is made up of several pieces of silk drapes and originally featured 15 separate pieces that were later assembled.
  - A masterpiece of sacred art, the Vrindavani Vastra is a **central part of Assamese Vaishnavism**.
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## Current Affairs - 16 November 2025

### INDIA'S EV PUSH AMID CHINESE EXPORT RESTRICTIONS ON HREES

- China—holding over 90% of global rare earth processing—has imposed curbs on exports of key **heavy rare earth elements (HREEs)** critical for EV motors, threatening global EV supply chains.
- In response, **Indian start-ups** like Simple Energy and Chara Technologies are **developing rare-earth-free or rare-earth-light electric motors**.
- This marks a **crucial step toward Atmanirbhar Bharat**, de-risking supply chains, and strengthening India's EV ecosystem.

#### **Indigenous Technological Responses in India:**

- **Simple Energy:**
  - **Key innovation:** Developed and homologated a heavy rare-earth-free Permanent Magnet Synchronous Motor (**PMSM**).
  - **Eliminated restricted HREEs by:**
    - Using optimised compound magnets (iron, neodymium, boron, praseodymium, holmium).
    - Employing proprietary algorithms for real-time heat, torque and magnetic field management.
  - **Performance:** Almost 99.5% equivalence to conventional PMSM motors.
  - **Handling Chinese restrictions:** Holmium was later added to the restricted list. The company has already developed holmium-free magnets and has buffer stock.
  - **Market presence:** All current EVs use restricted-HREE-free motors. 1,050 units sold in October 2025 (highest ever, recording 215% YoY growth).
- **Chara Technologies:**
  - **Key innovations:** Developed **India's first** EV-grade Magnet-Free Synchronous Reluctance Motor (**SynRM**), eliminating all magnet requirements.
  - Overcame traditional SynRM limitation (low-speed industrial application) by creating -

## Current Affairs - 16 November 2025

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- High-speed, variable-speed EV-compatible motor.
- **Comparable torque and power** to rare-earth-based PMSM motors, with only a slight increase in size — about 16% larger.
  - **Deployment:** Currently used in agricultural and industrial machinery, with expected entry into the three-wheeler segment.

### Strategic Significance for India:

- **Supply chain security:** Reduces dependence on China's volatile supply of rare earths. Mitigates risks for India's rapidly growing EV and electronics industries.
- **Atmanirbhar Bharat and technological sovereignty:** Boosts indigenous R&D, IP creation, and local manufacturing capabilities.
- **Geopolitical cushioning:** Provides strategic resilience in the face of global critical mineral weaponisation.
- **Industry momentum:** Ola Electric, TVS Motor and others are also exploring rare-earth-free motors (e.g., ferrite motor approved recently).

### Challenges:

- **Technical and manufacturing challenges:** Matching compactness, efficiency, and performance of rare-earth PMSM motors (especially for SynRM). Scaling production while reducing size and weight.
- **Cost and supply stability:** Availability of alternative magnet compositions must be sustainable and cost-effective. Global rare earth volatility continues to pose uncertainty.
- **Market adoption:** Original equipment manufacturers' (OEM) willingness to shift from established PMSM technologies to new indigenous designs.
- **Raw material ecosystem:** India still lacks a robust domestic rare earth mining, processing, and refining ecosystem.

### Conclusion:

- India's indigenous EV motor innovations represent a significant step towards **technological self-reliance and supply chain resilience** amid China's tightening rare earth export controls.



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### EXERCISE GARUDA 2025



- It is a **bilateral air exercise** conducted between **India and France**.
- **Aim:** It aims to **refine tactics and procedures** in a realistic operational environment, enabling mutual learning and **fostering interoperability** between the IAF and the FASF.
- Indian Air Force will be participating with **Su-30MKI fighter aircraft**, C-17 Globemaster III, IL-78.
- During the exercise, the IAF's Su-30MKI aircraft will operate alongside the French multirole fighters in complex simulated air combat scenarios, **focusing on air-to-air combat, air defence, and joint strike operations**.
- **Significance:** It also provides an opportunity for professional interaction, exchange of operational knowledge, and **sharing of best practices between the two Air Forces**.

### Other Exercise Conducted with France

- **Exercise Varuna:** Naval
  - **Exercise Desert Knight-21:** Air exercise
  - **Exercise Shakti:** Army exercise
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### INDIA'S PROGRESS IN TACKLING TUBERCULOSIS

- The **World Health Organisation Global Tuberculosis Report 2025** has reaffirmed that **tuberculosis (TB)** continues to be among the world's **deadliest infectious diseases**, claiming over **1.2 million lives** and affecting **10.7 million people globally in 2024**.
- While India remains the **largest contributor** to the global TB burden, the country has made **significant strides in reducing incidence**, with a **21% decline between 2015 and 2024**, nearly double the global average rate of decline.
- However, despite these achievements, India has **missed its self-imposed target** of eliminating TB by **2025**, underscoring persistent challenges such as **drug-resistant strains, healthcare gaps, and social stigma**.



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---

### Government Initiatives and Policy Framework

- India's TB elimination efforts are anchored in the **National Tuberculosis Elimination Programme (NTEP)**, launched in 2020 after rebranding the earlier **Revised National TB Control Programme (RNTCP)**.
- The NTEP set an ambitious goal to eliminate TB by **2025**, five years ahead of the **global target of 2030**. Key interventions under the NTEP include:
  - **Expanded Diagnostic Infrastructure** - India has established 9,391 rapid molecular testing laboratories and 107 culture and drug susceptibility testing labs, forming the largest TB diagnostic network in the world.
  - **Use of Technology and AI** - Over 500 AI-enabled portable X-ray units have been deployed nationwide to enhance community screening, with 1,500 more units planned for delivery.
  - **Decentralised TB Care through Ayushman Arogya Mandirs** - Around 1.78 lakh primary health centres provide TB services closer to communities, improving accessibility.
  - **Nutritional Support under Ni-kshay Poshan Yojana** - Monthly Direct Benefit Transfer (DBT) to TB patients has been doubled from Rs. 500 to Rs. 1,000, supporting better treatment adherence and recovery.
  - **Community and ASHA Worker Engagement** - Accredited Social Health Activists (ASHAs) have been trained to identify early TB symptoms and ensure treatment compliance.

### Way Forward

- Experts emphasise the need for a **multi-pronged strategy** focusing on:
    - **Universal access to diagnosis and treatment**, especially for marginalised communities.
    - **Integration of TB care with primary health services** to ensure continuity.
    - **Scaling up digital surveillance** and AI-based diagnostic tools.
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### GNSS SPOOFING AND THE ASSOCIATED THREAT

- In early November, several aircraft flying over Delhi experienced GNSS (Global Navigation Satellite System) spoofing, where satellite navigation signals were manipulated without warning. Such incidents are uncommon outside border or conflict areas.
  - GNSS is a general term for satellite-based systems that provide positioning, navigation, and timing (PNT) services on a global scale.
  - E.g., - Russia's GLONASS, Europe's Galileo, China's BeiDou etc.
- Following the disruption, the government ordered an investigation led by the **National Security Council Secretariat (NSCS)** under National Security Adviser Ajit Doval.

### **GNSS Spoofing Near Delhi: A New and Unusual Safety Threat**

- Aircraft flying near Delhi recently faced **GNSS spoofing**, where fake satellite signals give wrong navigation data. Pilots reported incorrect aircraft positions and false terrain warnings.
  - An Air India pilot said he faced spoofing on all six days he flew in early November. These signals were detected within **60 nautical miles of Delhi**.
- Because navigation systems became unreliable, air traffic controllers had to give **manual guidance** to pilots.
- GNSS spoofing is usually seen only in **war zones or border areas**, such as West Asia, eastern Russia, and India's borders with Pakistan and Myanmar.
- It had **never been reported before over a major inland city** like Delhi. It should be noted that VIP movements do not cause spoofing; they only involve **GNSS jamming**, not false signals.
- No NOTAM (warning notice) was issued to explain the interference.
  - A NOTAM, or Notice to Airmen, is a notification issued by aviation authorities to alert pilots and other aviation personnel of potential hazards or changes that could affect flight safety.



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## Current Affairs - 16 November 2025

---

- The National Security Council Secretariat under Ajit Doval has launched an investigation.

### About GNSS Spoofing

- Modern aircraft depend heavily on **GNSS/GPS signals** for navigation, timing, terrain awareness, and communication.
- When these signals are faked or altered, aircraft systems may show:
  - Wrong positions
  - False terrain or runway warnings
  - Incorrect braking cues
  - Errors in communication and surveillance systems
- Spoofing usually doesn't immediately endanger a flight because aircraft have **backup systems**, like the Inertial Reference System, which works for up to five hours even if GPS fails.
- However, spoofing still affects safety by confusing pilots, creating false alerts, and increasing workload — especially when no NOTAMs warn them in advance.
- Even after the aircraft leaves the spoofed zone, some systems may **not reset properly** and may continue showing false alerts or navigation errors. This makes the situation harder to manage.

### Why India Needs Faster Response and Transparency?

- Repeated spoofing incidents around Delhi, Mumbai, and Kolkata have raised serious safety concerns in India.
  - Delayed communication and limited transparency make it difficult for airlines and pilots to take timely decisions.
  - This undermines trust among flight crews and passengers and highlights the urgent need for clear reporting protocols, faster alerts, and stronger technical safeguards.
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## Current Affairs - 16 November 2025

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### TUNGSTEN



- It is a chemical element with the symbol W, and **atomic number 74**.
  - It is a naturally occurring element and classified as a **transition metal**.
  - **Occurrence of Tungsten:**
    - It occurs in **rocks and minerals** combined with other chemicals, but never as a pure metal.
    - It is found in **nature in mineral forms like wolframite and scheelite**.
  - **Properties of Tungsten:**
    - It has the **highest melting point** of all metals at 3410 °C.
    - It has the **lowest vapor pressure** of all metals with 4.27 Pa at 3410 °C.
    - It has the **highest tensile strength** of all metals over 1650 °C.
    - Tungsten is a solid at room temperature.
    - Tungsten alloys tend to be strong and flexible, **resist wear**, and conduct electricity well.
  - **Uses of Tungsten:**
    - Tungsten is used in products such as x-ray tubes, light bulbs, high-speed tools, and welding
    - It is also **used as a catalyst** to speed up chemical reactions.
    - **Tungsten carbide** is **immensely hard** and is very important to the **metal-working, mining and petroleum industries**.
    - It is also **used in ceramic pigments**, as **fire retardant** coatings for fabrics, and as **color-resistant dyes for fabrics**.
  - **Major producers: China** (major global producer), Vietnam, Russia, and North Korea.
  - It has been classified as a **Critical Mineral** by the **Government of India**.
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