

WHAT IS THE INDIAN COMPUTER EMERGENCY RESPONSE TEAM (CERT-IN)?



- It is the **national nodal agency** for responding to computer security incidents as and when they occur.
- It is a **functional organisation** of the **Ministry of Information & Electronics Technology**, Government of India.
- **Objective: Securing Indian cyberspace.**
- The **constituency** of CERT-In is the **Indian cyber community and Indian cyberspace.**
- CERT-In has been **designated under Section 70B of the Information Technology Act, 2000**, to serve as the national agency to perform the following **functions** in the area of cyber security:
 - **Collection, analysis, and dissemination of information on cyber incidents.**
 - **Forecasts and alerts** of cybersecurity incidents.
 - **Emergency measures** for handling cybersecurity incidents.
 - **Coordination** of cyber incident response activities.
 - **Issue guidelines, advisories, vulnerability notes, and white papers** relating to information security practices, procedures, prevention, response, and reporting of cyber incidents.
 - Such other functions relating to cyber security as may be prescribed.
- To perform these functions, CERT-In is **empowered to call for information and issue directions** to service providers, intermediaries, data centres, body corporates, and any other person.
- CERT-In **provides services to organizations in the Government, Public, and Private sectors.** In addition, CERT-In provides **services to individuals and home users as well.**
- CERT-In **collaborates with international counterparts** to share information regarding emerging threats, vulnerabilities, and malware.



CROSS & CLIMB
MAKING THE ELIGIBLE ENTITLED

CROSS & CLIMB ROHTAK

Institute of Research Based Learning & Competition

Current Affairs - 28 July 2025



CROSS & CLIMB
MAKING THE ELIGIBLE ENTITLED

EXERCISE DRONE PRAHAR



- It is a **high-tech military drill** conducted by the **Indian Army** to validate the integration of drone technology into tactical battlefield operations.
- It was conducted at the **military station at Rayang in Arunachal Pradesh's East Siang District**.
- Carried out under realistic operational conditions, the exercise demonstrated the effective **use of drones for intelligence, surveillance, and reconnaissance**, as well as real-time sensor-to-shooter coordination and precision targeting.
- The **aim** was to enhance command reach and improve situational awareness for tactical commanders by employing layered surveillance and supporting dynamic decision-making on the ground.
- The exercise also evaluated critical aspects necessary for seamless drone integration in battlefield scenarios.
- This included testing of airspace deconfliction, ensuring secure communication channels, and establishing coordination protocols among various arms and services.

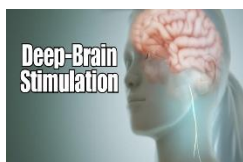
VEER PARIVAR SAHAYATA YOJANA



- It is a **joint initiative** of the **National Legal Services Authority (NALSA)**, the **Kendriya Sainik Board (KSB)**, **Rajya Sainik Boards (RSBs)**, and **Zilla Sainik Boards (ZSBs)**, under the **Department of Ex-Servicemen Welfare, Ministry of Defence**.
- **Objective:** Providing **free and competent legal services to defence personnel, ex-servicemen, and their families**.

- It will be implemented through a **nationwide network of Legal Services Clinics** established across Rajya and Zila Sainik Boards in all states and union territories.
- These clinics will **operate in close collaboration** with the **Department of Ex-Servicemen Welfare**, Ministry of Defence and **respective Directorates of Sainik Welfare**.
- The scheme is especially **relevant for personnel posted in remote locations** who often find it difficult to appear in court or follow up on legal matters involving family property, land disputes, or domestic issues.
- Through this initiative, **NALSA will facilitate proper legal representation** in such cases across the country.
- **Panel lawyers and paralegal volunteers of the legal services authority** will provide free legal aid to soldiers.
- The **support will also extend to paramilitary personnel**, including those from the Border Security Force (**BSF**), Central Reserve Police Force (**CRPF**), Indo-Tibetan Border Police (**ITBP**), and **others who serve in similarly isolated and high-risk conditions**.

DEEP-BRAIN STIMULATION



- It is a **medical technique** where **doctors implant electrodes deep inside** specific areas of the **brain** to treat certain disorders.
- **How does it work?**
 - These electrodes are connected by wires to a small device, similar to a heart's pacemaker, which is usually placed under the skin in the upper chest.
 - The device **sends controlled, mild electrical impulses to targeted brain regions**, helping adjust abnormal brain activity or chemical imbalances.
- **Application of Deep-Brain Stimulation:**

- DBS is most commonly used for movement disorders, especially in people with **Parkinson's disease, essential tremor, and dystonia**, whose symptoms no longer respond well to medication.
- It has also been approved for some psychiatric conditions like **obsessive-compulsive disorder**, and is being studied for severe depression and epilepsy.
- DBS works by modifying how groups of neurons talk to each other. Many of these disorders involve faulty electrical signals in the brain.
- Delivering electrical pulses through DBS can interrupt these erratic signals, helping reduce symptoms such as tremors or muscle stiffness.
- **Advantages of DBS**
 - One advantage of DBS is that, unlike brain surgery that destroys tissue, its effects are reversible: if you turn off the device, the stimulation stops.
 - It is believed to help normalise disrupted brain circuits at both the cellular and network levels.

WORLD FOOD INDIA



- The **first edition was held in 2017**, followed by a successful second edition in 2023 and the third in 2024.
- It is a gateway to the **Indian food economy** and an opportunity to showcase, connect, and collaborate.
- It is organized by the **Ministry of Food Processing Industries, Government of India**,
- It is the largest gathering of investors, manufacturers, producers, food processors, policy makers, and organizations from the global food ecosystem.
- It aims to **provide opportunities for both investment and trade** in the food processing sector for leading Indian and international companies.
- WFI serves as a premier platform for stakeholders from across the world to connect, collaborate, and explore opportunities in India's dynamic food processing landscape. Building on the remarkable success of previous editions,



CROSS & CLIMB
MAKING THE ELIGIBLE ENTITLED

CROSS & CLIMB ROHTAK

Institute of Research Based Learning & Competition

Current Affairs - 28 July 2025



CROSS & CLIMB
MAKING THE ELIGIBLE ENTITLED

- **Theme of WFI 2025:** “Processing for Prosperity”
- The food processing sector is a priority under the **Make in India initiative**, with the Ministry of Food Processing Industries implementing schemes to attract investment and develop infrastructure.
- **Mega Food Parks** with essential utilities and common processing facilities are being established in agriculturally rich areas, offering a plug-and-play model for entrepreneurs.

EXERCISE BOLD KURUKSHETRA 2025



- It is a **joint military Exercise** conducted between **India and Singapore**.
- It was **first conducted in 2005**, this exercise underscores the strong and long-standing bilateral defence relationship between both countries and enhances cooperation between the two armies.
- The exercise will witness the participation of the 42 Singapore Armoured Regiment of the 4 Singapore Armoured Brigade and the Indian Army’s **Mechanised Infantry Regiment**.
- The exercise will be conducted as a **Table Top Exercise and Computer-Based Wargame**, aimed at validating operational procedures for mechanised warfare.
- **Objective:** The objective of the exercise is to **enhance interoperability and joint training capabilities** of both armies under United Nations mandate, thereby strengthening bilateral defence cooperation.
- Both defence establishments also interact regularly through high-level visits, policy dialogues, courses and other professional exchanges.
- **Significance:** Exercise Bold Kurukshetra 2025 will further consolidate the strong defence ties between India and Singapore and foster greater mutual understanding and collaboration at both tactical and strategic levels.

INDIA'S PREPAREDNESS AGAINST GLACIAL LAKE OUTBURST FLOODS

- **Glacial Lake Outburst Floods (GLOFs)** occur when unstable glacial lakes, formed due to melting glaciers, suddenly burst, releasing massive volumes of water downstream. In the Indian Himalayan Region (IHR), two major types of glacial lakes are found:
 - **Supraglacial Lakes:** Formed on the glacier surface, vulnerable to summer melting.
 - **Moraine-Dammed Lakes:** Formed at the glacier toe and dammed by loose debris, highly prone to collapse due to avalanches or ice-core instability.
- According to the **National Remote Sensing Centre**, India is home to around **28,000 glacial lakes**, with most situated above 4,500 metres, making ground access difficult and monitoring sparse.

National Strategy for GLOF Mitigation

- Recognising the scale of the threat, the NDMA launched a **\$20 million national programme**, identifying **195 high-risk lakes**, classified into four levels of vulnerability.
- The initiative, under the **Committee on Disaster Risk Reduction (CoDRR)**, focuses on five core objectives:
 - **Hazard Assessment** of each lake
 - Installation of **Automated Weather and Water Stations (AWWS)**
 - Deployment of **Early Warning Systems (EWS)**
 - **Water drawdown or retention structures** at critical lakes
 - **Community engagement and education** to improve response readiness

Scientific Techniques and Innovations

- To bridge India's existing data and monitoring gaps, several advanced tools and technologies have been deployed:
 - **Synthetic Aperture Radar (SAR) Interferometry:** Used for micro-level monitoring of slope stability and lake expansion, accurate up to a centimetre.

- **Electrical Resistivity Tomography (ERT):** Helps detect subsurface ice cores that could lead to dam failure.
- **Bathymetry and UAV Surveys:** Assess lake volume and surrounding terrain.
- Notably, **two lakes in Sikkim** are now equipped with AWWIS units, transmitting water level and weather data every 10 minutes along with daily images of lake perimeters, establishing India's first operational monitoring stations in the cryosphere.

Institutional and Community Preparedness

- Apart from technical tools, India has turned to ground-level institutions like the **Indo-Tibetan Border Police (ITBP)** for manual early warnings.
- Given their high-altitude deployments, ITBP personnel are now being trained to detect visible signs of GLOF risk.
- Community engagement has also emerged as a critical element. Several scientific teams were welcomed or rejected based on their rapport with local residents.

INDIA'S FIRST HYDROGEN TRAIN COACH: A STEP TOWARDS GREEN RAILWAYS

- Launched by Northern Railway in 2020-21, the hydrogen train project involves converting two 1600 HorsePower (HP) diesel power cars into hydrogen fuel cell-powered units.
- The project also includes setting up a **hydrogen storage and fuelling facility at Jind, Haryana**, with a storage capacity of 3,000 kg of hydrogen.
- The converted train, comprising 10 coaches and capable of carrying over 2,600 passengers, will operate between Jind and Sonapat in Haryana, covering two daily round trips of 356 km.

How India's First Hydrogen Train Will Operate Safely

- Indian Railways' hydrogen train project involves retrofitting two diesel power cars with hydrogen fuel cell systems, each storing 220 kg of hydrogen in specially designed cylinders at 350 bar pressure.

- Given hydrogen's highly flammable nature, multiple safety measures have been built in, including pressure relief valves, leak and flame detection sensors, temperature monitors, and optimized ventilation systems.
- Extensive testing of key components—like the traction and auxiliary converters—has been completed.
- To ensure global safety standards, German firm TUV-SUD has been brought in as an independent safety auditor, while the engineering is led by Medha Servo Drives at ICF Chennai.

Hydrogen Fuelling Facility at Jind: Backbone of India's Hydrogen Train Project

- A dedicated 3,000-kg hydrogen fuelling facility is being established at Jind in Haryana to support the operation of India's first hydrogen-powered train.
- The facility will function under the safety norms and specifications of the Petroleum Explosives Safety Organisation (PESO), ensuring strict adherence to national standards.
- Northern Railway is also developing supporting infrastructure, including power supply lines, access roads, and a firefighting tank, to make the facility fully operational.

Hydrogen for Heritage: A Green Transport Vision

- The tested coach is part of the "Hydrogen for Heritage" initiative, under which Indian Railways plans to deploy 35 hydrogen-powered trains on heritage and hill routes.
- Each train will cost around ₹80 crore, with an additional ₹70 crore earmarked for ground infrastructure per route.
- While the running costs of hydrogen-powered trains are currently high, they are expected to fall as scale and efficiency improve.
 - The main appeal of hydrogen lies in its zero carbon emissions, aligning with India's green energy goals.
- India's hydrogen ambitions are not limited to the rail sector.
- In 2024, Union Minister Hardeep Singh Puri presented a hydrogen-fueled bus, developed by Indian Oil, to Bhutan's Prime Minister during his visit — underscoring India's broader commitment to clean mobility.



CROSS & CLIMB
MAKING THE ELIGIBLE ENTITLED

CROSS & CLIMB ROHTAK

Institute of Research Based Learning & Competition

Current Affairs - 28 July 2025



CROSS & CLIMB
MAKING THE ELIGIBLE ENTITLED

CHINA'S MEGA DAM ON BRAHMAPUTRA & CONCERNS IN INDIA



China's construction of a massive 60,000 MW hydropower dam on the Yarlung Zangbo (Brahmaputra) near the "Great Bend" in Tibet, just before the river enters Arunachal Pradesh as the Siang, has sparked serious concerns in India.

India's Cautious Response to China's Brahmaputra Dam Project

- India has not issued an official response to the recent groundbreaking ceremony of China's massive dam on the Brahmaputra River, but continues to closely monitor the developments.
- The Ministry of External Affairs (MEA) has reiterated India's concerns as a lower riparian state with established rights, emphasizing the need for transparency and consultation with downstream countries like India and Bangladesh.
- In contrast, China has maintained that the project falls within its sovereign rights and assured ongoing cooperation with downstream nations on hydrological data and disaster management.

India's Mitigation Strategy Amid China's Brahmaputra Dam Concerns

- Experts recommend scientific assessment and capacity-building to anticipate any deliberate Chinese actions.
- They have proposed constructing storage infrastructure on Brahmaputra tributaries to manage erratic flows.
- Additional strategies include **developing inland channels for excess water diversion** and **pursuing long-term interlinking projects between the Brahmaputra and Ganga basins**, as proposed by the National Water Development Authority.
- On the diplomatic front, experts advocate for continuous access to hydrological and project data from China.