



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

# CROSS & CLIMB ROHTAK

Institute of Research Based Learning & Competition



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

## Current Affairs - 13 November 2025

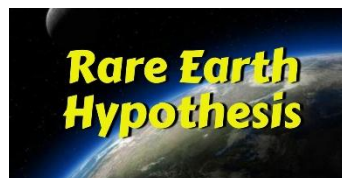
---

### WHAT IS THE DRISHTI SYSTEM?



- It is an **AI-Based Freight Wagon Locking Monitoring System**.
  - The **Northeast Frontier Railway (NFR)** joined hands with the **Indian Institute of Technology Guwahati Technology Innovation and Development Foundation (IITG TIDF)** to develop the system.
  - The **DRISHTI** system aims to **tackle operational challenges in identifying unlocked or tampered doors on moving freight wagons**, a persistent safety and security issue in rail logistics.
  - The new **AI-based** solution is designed to **provide real-time monitoring, detect anomalies in door locking mechanisms, and automatically generate alerts** without disrupting train movement.
  - It uses **AI-powered cameras and sensors** strategically installed to capture and analyse door positions and locking conditions.
  - It uses **advanced computer vision and machine learning technology** for the detection purposes.
  - **DRISHTI** is expected to improve freight security, enhance wagon sealing integrity, and reduce dependency on manual inspection processes.
  - Plans are underway to further refine and scale the system for wider adoption across NFR's freight corridors after successful completion of ongoing trials.
- 

### WHAT IS THE RARE EARTH HYPOTHESIS?



- The **Rare Earth hypothesis** posits that the emergence of complex life on planets outside Earth is highly unlikely due to a



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

# CROSS & CLIMB ROHTAK

Institute of Research Based Learning & Competition



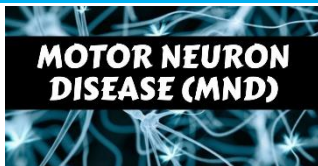
CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

## Current Affairs - 13 November 2025

unique combination of specific conditions required for such life to thrive.

- Proposed by paleontologist Peter Ward and astronomer Donald Brownlee in 2000, the hypothesis suggests that while microbial life may be abundant throughout the universe, the prerequisites for complex organisms are exceedingly rare.
- Key factors influencing the probability of complex life include the planet's location within its galaxy, the type and distance of its star, geological characteristics like size and tectonic activity, and the presence of a large moon.
- This perspective contrasts sharply with the principle of mediocrity, which suggests that Earth is just one of many planets capable of supporting complex life.
- The Rare Earth hypothesis provides insight into the Fermi paradox—highlighting why, despite the vastness of the universe, intelligent life has yet to make contact with humanity.
- By analyzing the requirements for both astronomical and biological conditions, the hypothesis concludes that the chance of finding another planet with complex life is minimal.
- If validated, this view could reposition Earth from being a typical planet to one characterized as extraordinarily special in the context of the universe.

### WHAT IS MOTOR NEURON DISEASE (MND)?



#### MOTOR NEURON DISEASE (MND)

- It is a rare condition that progressively damages parts of the nervous system.
- This leads to muscle weakness, often with visible wasting.
- MND is also called amyotrophic lateral sclerosis (ALS) and Lou Gehrig's disease.
- Cause:
  - MND happens when specialist nerve cells in the brain and spinal cord, called motor neurones, stop working properly and die prematurely. This is known as neurodegeneration.



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

# CROSS & CLIMB ROHTAK

Institute of Research Based Learning & Competition



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

## Current Affairs - 13 November 2025

---

- **Motor neurons instruct the muscles to move** by passing on signals from the brain.
- They **play a role in both conscious and automatic movements**, such as swallowing and breathing.
- **As MND progresses**, it can become more **difficult to do** some or all of **these activities**.
- **Messages can no longer travel between your brain and muscles**. This causes your **muscles to become weaker and weaker**. This eventually causes **paralysis**.
- Generally, MND is believed to be **caused by a combination of environmental, lifestyle, and genetic factors**.
- **20% of cases** are linked to **genetic causes**. Half of genetic cases will be in people who have a family history of MND.
- Adults of any age can get motor neurone disease (MND), but it **usually affects people over the age of 50**.

### Symptoms:

- The symptoms of MND start gradually over weeks and months.
- They **tend to appear on one side of the body first** and get progressively worse.
- MND often **begins with weakness of the muscles in the hands, feet, or voice**, although it can start in different areas of the body and progress in **different patterns** and at different rates.
- People with MND become increasingly **disabled**.
- **Average life expectancy** after diagnosis is **one to five years**, with 10 percent of people with MND living 10 years or more.

**Treatment:** There's **no cure** for MND, but treatment can help reduce the impact the symptoms have on your life.

---



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

# CROSS & CLIMB ROHTAK

Institute of Research Based Learning & Competition



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

## Current Affairs - 13 November 2025

### KEY FACTS ABOUT VITAMIN D



- Vitamin D (also referred to as **calciferol**) is a **fat-soluble** vitamin that is **naturally present** in a few foods, added to others and available as a dietary supplement.
- It is also **produced endogenously** when **ultraviolet (UV) rays** from sunlight strike the **skin** and **trigger vitamin D synthesis**.
- **During periods of sunlight, vitamin D is stored in fat** and then **released** when sunlight is **not available**.
- **Very few foods have vitamin D naturally**. The foods with the most are **fatty fish** (like salmon and tuna), **liver, mushrooms, eggs, and fish oils**.
- The amount of vitamin D one needs each day depends on his/her age.
- **Why is Vitamin D so important?**
  - Vitamin D **promotes calcium absorption** and **helps maintain adequate levels of calcium and phosphorus in the blood**, which is necessary for healthy bones and teeth.
  - **Without sufficient vitamin D, bones can become thin, brittle, or misshapen.**
  - Vitamin D has other roles in the body, including **reduction of inflammation** as well as **modulation of** such processes as **cell growth, neuromuscular and immune function, and glucose metabolism**.
- **Vitamin D Deficiency:**
  - A lack of vitamin D can lead to **bone diseases such as osteoporosis or rickets**. Osteoporosis is a disease in which your bones become weak and are likely to fracture (break).
  - **With chronic and/or severe vitamin D deficiency, a decline in calcium and phosphorus absorption** by your intestines **leads to hypocalcemia** (low calcium levels in your blood).



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

# CROSS & CLIMB ROHTAK

Institute of Research Based Learning & Competition



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

## Current Affairs - 13 November 2025

- This leads to **secondary hyperparathyroidism** (overactive parathyroid glands attempting to keep blood calcium levels normal).
- Both hypocalcemia and hyperparathyroidism, if severe, can cause symptoms, including muscle weakness and cramps, fatigue, and depression.
- Anyone can have vitamin D deficiency, including infants, children and adults.
- Vitamin D deficiency may be more **common in people with higher skin melanin content (darker skin) and who wear clothing with extensive skin coverage, particularly in Middle Eastern countries.**

### PROTECTION OF PLANT VARIETIES AND FARMERS' RIGHTS AUTHORITY



Protection of  
Plant Varieties  
and Farmers'  
Rights Authority,

- It is a **statutory body** established on **11 November, 2005** under the Protection of Plant Varieties and Farmers' Rights Act, 2001.
- It works under the **Ministry of Agriculture & Farmers' Welfare**, Government of India.
- **Objectives:**
  - **Grant intellectual property rights** to plant breeders for their innovations in developing new plant varieties
  - **Recognise and reward farmers** and communities who conserve traditional varieties and biodiversity
  - **Promote the protection of farmers' rights** to save, use, sow, resow, exchange, share, and sell farm-saved seed of registered varieties
  - **Encourage research and innovation** in plant breeding and agriculture
  - **Maintain the National Register of Plant Varieties (NRPV)** and ensure the documentation and conservation of valuable germplasm resources
- **Structure of the Protection of Plant Varieties and Farmers' Rights Authority**
  - The **Chairperson** is the Chief Executive of the Authority.
  - **Members:** It has **15 members**, as notified by the **Government of India (GOI)**.



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

# CROSS & CLIMB ROHTAK

Institute of Research Based Learning & Competition



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

## Current Affairs - 13 November 2025

- **Eight** of them are **ex-officio members** representing various Departments/ Ministries,
- **Three** from SAUs and the State Governments
- **One** representative each for **farmers, tribal organizations, seed industry and women organizations** associated with agricultural activities are **nominated by the Central Government.**
  - The Registrar General is the ex-officio **Member Secretary of the Authority.**
- **Functions of the Protection of Plant Varieties and Farmers' Rights Authority**
  - **Registration of new plant varieties**, essentially derived varieties (EDV), extant varieties;
  - **Compulsory cataloging facilities** for all variety of plants;
  - **Preservation of plant genetic resources** of economic plants and their wild relatives;
  - Maintenance of the National Register of Plant Varieties and National Gene Bank
- **Headquarter:** New Delhi.

### EXPORT PROMOTION MISSION



- It is a flagship initiative to strengthen India's export competitiveness, particularly for **MSMEs, first-time exporters, and labour-intensive sectors.**
- **Features of Export Promotion Mission:**
  - It will provide a comprehensive, flexible, and digitally driven framework for export promotion.
  - **Time Period and Funding:** 25,060 crore for FY 2025–26 to FY 2030–31.
  - It marks a strategic **shift from multiple fragmented schemes to a single, outcome-based, and adaptive mechanism.**



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

# CROSS & CLIMB ROHTAK

Institute of Research Based Learning & Competition



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

## Current Affairs - 13 November 2025

---

- **Collaborative framework:** It involves the **Department of Commerce, Ministry of MSME, Ministry of Finance,** and other key stakeholders.
- It **consolidates key export support schemes** such as the **Interest Equalisation Scheme (IES)** and **Market Access Initiative (MAI)**, aligning them with contemporary trade needs.
- Under EPM, priority support will be extended to sectors impacted by recent global tariff escalations, such as **textiles, leather, gems & jewellery, engineering goods, and marine products.**
- **Implementing Agency:** The Directorate General of Foreign Trade (DGFT)

### Sub-schemes Under Export Promotion Mission

- **NIRYAT PROTSAHAN:**
    - It focuses on improving access to affordable **trade finance** for **MSMEs** through a range of instruments such as **interest subvention,** export factoring, collateral guarantees etc.
  - **NIRYAT DISHA:**
    - It focuses on **non-financial enablers** that enhance market readiness and competitiveness, including export quality and compliance support, assistance for international branding etc.
- 

### JAPAN SHOWS THE WAY TO REDUCE CHINA'S RARE EARTH CONTROL

- In 2010, after a collision involving a Chinese fishing boat and Japanese coast guard vessels, China halted rare earth exports to Japan.
- This created panic in Japan's automobile industry, which relied heavily on rare earth magnets and imported nearly 90% of these minerals from China.
- Though the dispute was later resolved, rare earth prices skyrocketed tenfold within a year, exposing Japan's extreme vulnerability and triggering its long-term push for supply chain resilience.



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

# CROSS & CLIMB ROHTAK

Institute of Research Based Learning & Competition



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

## Current Affairs - 13 November 2025

### Japan's Multi-Pronged Strategy for Rare Earth Security

- Japan responded to China's 2010 export halt by stockpiling rare earths, boosting recycling, and rapidly diversifying supply chains.
- It invested in mines in Australia and Vietnam and achieved **60% independence in critical minerals and fossil fuels by 2022.**
- Japan continues to import rare earths from China mainly for advanced materials but is now **building resilient networks**, forming global partnerships, and encouraging recycling and alternative technologies.

### Japan's Self-Reliance Package: Reducing Dependence on China



- Japan's strategy includes cutting rare earth usage through new technologies, developing alternative materials, expanding recycling infrastructure, investing in overseas mines, and maintaining strategic reserves.
- This multi-layered policy approach shows that no single solution can reduce vulnerability; instead, long-term planning, diversification, and strategic stockpiles are essential.

### Implications for India: Limited Immediate Impact but Long-Term Challenges

- China's restrictions will not severely affect India now, but India needs a refreshed strategy as demand rises.
- India possesses significant rare earth reserves of about 6.9 million tonnes, mainly in Odisha, Andhra Pradesh, Tamil Nadu and Rajasthan.
- **Despite being among the world's top five holders**, India's output remains very small — only 2,700 tonnes of rare earth oxides in 2023, compared to China's 2,24,000 tonnes.
- Although India has strong potential, especially for mineral and defence applications, exploration has been slow and conservative.
- Recent reforms now aim to boost private sector participation in exploring and extracting critical minerals, signalling scope for future expansion.



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

# CROSS & CLIMB ROHTAK

Institute of Research Based Learning & Competition



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

## Current Affairs - 13 November 2025

---

### FINE-TUNE THE AI LABELLING REGULATIONS FRAMEWORK

- A viral AI-generated video of Finance Minister Nirmala Sitharaman endorsing a fake investment scheme led to a ₹66 lakh fraud, highlighting the dangers of deepfake technology.
- In response, the government has proposed amendments to the **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021**, requiring large social media platforms to label AI-generated or synthetic media.
- While these changes are an important step toward combating misinformation, experts warn that effective enforcement will be challenging and will need collaboration among platforms, regulators, and civil society.
- This article highlights the need to **fine-tune India's proposed AI-labelling regulations** amid rising cases of AI-generated deepfakes and fraud.
- It explains the **limitations of current labelling rules**, the importance of **graded compliance for platforms and creators**, and the urgent need for **stronger verification systems and independent oversight** to protect users from harmful synthetic media.

### Challenges in Defining and Labelling Synthetic Media

- **Synthetic media**, created or altered using algorithms or editing tools, is difficult to regulate because not all such content is harmful.
- With reports suggesting that **over half of online content is now AI-generated**, the government's push for labelling aims to ensure accountability.
- However, the **draft rules' requirement** — labels covering **10% of visual space or 10% of audio duration** — raises practical issues.

### Conclusion

- As synthetic media grows, clear labelling will help users identify manipulated content without guessing.
  - With nuanced rules, India's IT framework can ensure people receive **credible, authentic information**.
-