UPSC Daily Current Affairs| Prelimbits 03-07-2025

Model Rules for Felling of Trees in Agricultural lands

Prelims: Current events of National and International Importance | General issues on Environmental ecology

Why in news?

Recently, the Union Ministry of Environment, Forest and Climate Change has issued the 'Model Rules for Felling of Trees in Agricultural Lands'.

- **Objectives** – To establish a *streamlined regulatory framework* by providing simplified procedures for registering agroforestry lands and managing tree harvesting and transit.
- To *encourage greater participation* and open up opportunities for farmers and other stakeholders to ***adopt agroforestry practices***.
- To *support ease of doing business* for those involved in tree-based farming systems.

> ***Agroforestry*** *is the interaction of agriculture and trees, including the agricultural use of trees. It offers multiple benefits including, enhancing rural livelihoods, improving soil health, conserving biodiversity, increasing tree cover, water conservation, contributing to climate resilience, while reducing pressure on natural forests.*

- **Rules for applicants** – They are required to register their plantations on the ***National Timber Management System (NTMS) portal***, which is being developed.
- They can periodically update the plantation information and upload geotagged photos of the plantation to ensure traceability.
- Applicants wishing to harvest trees from registered plantations can apply online through the NTMS.

> ***Applicant*** *refers to any individual, institution, organization owning agricultural lands seeking to register under this rule. "Tree" includes palms, stumps, brushwood and canes.*

- **Implementing agency** - ***State Level Committee***, was established under the Wood-Based Industries (Establishment and Regulation) Guidelines, 2016
- It will empanel agencies for verifying applications for felling of trees from agricultural lands.
- **Role of verifying agencies** – They will *carry out site inspections* and based on their verification reports, tree felling permits will be issued for agricultural lands.
- **Role of the Divisional Forest Officers** – They will *oversee the performance* of these agencies through periodic supervision and monitoring.
- **Significance** – By promoting domestic timber production through agroforestry, the approach seeks to
  - Close the demand-supply gap
  - Support wood-based industries with locally sourced raw materials and to boost exports

Reference

PIB| Issuance of Model Rules for Felling Trees in Agricultural Land

Related News – Need of Agroforestry

National Turmeric Board

***Prelims**: Economic Development; Current events of national and international importance*

Why in news?

Recently, Union Home Minister and Minister of Cooperation had inaugurated the headquarters of the National Turmeric Board (NTB) in Nizamabad, Telangana.

- **Established in** - 2025.
- **Headquarters in** – Nizamabad, Telangana.

> *Nizamabad has been known as the **turmeric capital** for decades, and farmers here have been cultivating turmeric for centuries, yet it*

has not reached global markets.

- **Objectives** – To establish a *complete chain for turmeric* packaging, branding, marketing, and export.
- To ensure that the maximum value of turmeric reaches its farmers.
- To *promote the consumption* of turmeric in international markets and to publicize the medicinal properties of Indian turmeric in potential markets.
- **Supporting institutions**
  - **National Cooperative Exports Limited (NCEL)** – It is to benefit farmers involved in exports
  - **National Cooperative Organics Limited (NCOL)** – It is for those engaged in organic farming.
- **Functions** – It will ensure that the *quality and safety standards* of Indian turmeric meet global benchmarks.
- It will arrange appropriate packaging, and provide *training and skill development* to farmers on how to harvest turmeric to avoid any export-related obstacles.
- Further, research and development on the health benefits of turmeric will be conducted to showcase it to the world.

Status of Turmeric in India

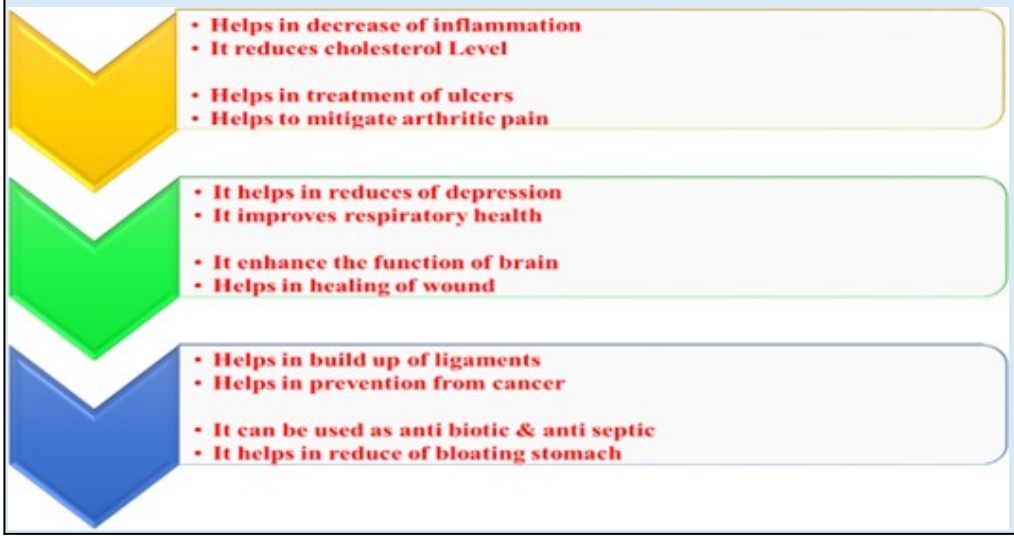
Turmeric

• It is also called as '*Golden Spice*'

• **Properties** - It is *anti-viral, anti-cancer, and anti-inflammatory* and is known as wonder drug due to its medicinal properties.

• **Composition** - It has various essential vitamins and minerals like beta carotene, ascorbic acid (Vitamin C), pyridoxine (Vitamin B6), niacin (Vitamin B3), calcium, flavonoids, fibre, iron, potassium and zinc.

• **Uses**



- India is the *largest producer, consumer and exporter* of turmeric in the world.
- **Trade** – India has *more than 62% share of world trade* as of January 2025.
- **Exports** – During 2023-24, 1.62 lakh tonnes of turmeric and turmeric products valued at 226.5 million USD was exported.

  India has set a target of achieving one billion dollars in turmeric exports by 2030.

- **Farmer's income** – In 2025, turmeric farmers received a price of 18,000 to 19,000 rupees per quintal for turmeric.

Reference

PIB| Establishment of Headquarters of National turmeric Board

Indian Universities in QS World University Rankings

Why in News?

Recently the latest edition of rankings of higher education institutions across the world was released by Quacquarelli Symonds, a higher education analytics firm.

- **QS rankings** – The ranking of universities is published annually and is evaluated based on several parameters including,
  - **Academic reputation** – Global perception of teaching and research quality
  - **Research impact** – Citations per faculty, International Research Network
  - **Diversity** – International students & faculty (introduced in this year's rankings}
  - **Student outcomes** – Employer Reputation, Job placement.
  - **Learning environment** – Student-faculty ratio, academic infrastructure
  - **Sustainability** – Environmental responsibility
- **2026 edition** – In the 2026 edition the analytics firm evaluated 8467 institutions and ranked top 1500 institutions.
- For the first time, over 50 Indian universities feature in the QS World

University Rankings 2026 Top 1,500 list.

- This marks significant progress from just 11 universities in 2015, reflecting growing global competitiveness of Indian higher education.
- **World university rankings** – The Massachusetts Institute of Technology (MIT), United States, secured top position for 14th straight year.
    - Imperial College London secured 2nd position and
    - Stanford University secured 3rdposition

Performance of Indian Universities

- Total Indian Universities in Top 1500 – 54 Institutions.
- **New entrants** - 8 universities, including,
    - Ashoka University, Haryana
    - Shiv Nadar Institute of Eminence, Greater Noida
- **Top performers**:
    - **IIT Delhi** – 123
    - **IIT Bombay** – 129
    - **IIT Madras** – 180
    - **IIT Kharagpur** – 215
    - **IISc Bengaluru** – 219
- Indian universities are adapting to global benchmarks, improving comparability with international peers.
- **Student-faculty ratio** - Indian Average is **19:1** which is lower that Global Competitiveness Benchmark: (**10-15):1**
- **Research output** – Historically low focus on original research in Indian universities, unlike global trends.
- **Positive shift** seen in IITs, IISERs, and private universities post National Education Policy (NEP) 2020, which emphasises research in higher education.
- **Industry linkages** – IITs, IIMs have long prioritised placements.
- Now, even large public universities are focusing on student employability, crucial for ranking success.

Reference

The Hindu| Indian Universities in QS World University Rankings

Indian Scientists Develop New Material for Supercapacitors

Why in news?

Recently, in joint research by the Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru, and Aligarh Muslim University (AMU), have developed an advanced material that significantly improves supercapacitor performance.

- **Supercapacitor** – It is also known as ultra-capacitor, is a capacitor having a capacitance **value much greater** than that of an ordinary capacitor.
- **Working principle** – Same as ordinary capacitors which store energy by separation electrical charges.
- But Supercapacitors use electrodes with larger surface area and ion-permeable membrane (separator) instead of traditional dielectric.
- Generally, a supercapacitor has electrodes that are coated with active carbon as electrode material.
- The supercapacitor uses a separator between its electrodes instead of a dielectric material (Used in normal capacitor).
- The separator is an **ion permeable membrane** that can provide both insulation and exchange of ions from electrolyte between the electrodes.
- Supercapacitors are known for rapid charge/discharge cycles.
- **Limitation** – Limited energy storage capacity compared to batteries due to lower energy density.
- **Lanthanum-doped silver niobate ($AgNbO_3$)** – Lanthanum-doped Silver Niobate ($AgNbO_3$) is used as an advanced electrode material for supercapacitors by Indian researchers.
- **Role of lanthanum doping** – By introducing lanthanum (rare-earth element) into silver niobate nanoparticles, scientists improved electrical conductivity and reduced particle size.
- **Higher energy density –** The reduced particle size which increases the surface area available for charge storage and improves the energy density, which means the supercapacitor can store more energy per unit volume or weight.
- It also achieved 118% energy retention even after repeated use and,
- 100% coulombic efficiency, meaning no energy loss during charging or discharging cycles.
- **Successful real-world demonstration** – A prototype asymmetric supercapacitor made with the material was able to power an LCD display, demonstrating its practical potential for consumer electronics and energy systems.

Reference

DD News| Indian scientists develop new material for supercapacitors

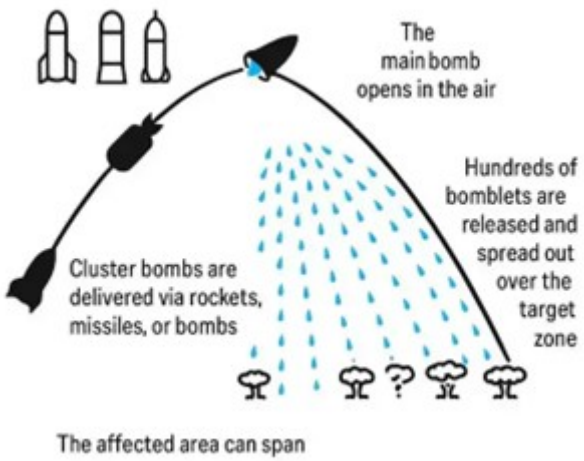
Clustered Bombs

Prelims: Current events of National and International Importance | Science and technology -Defense

Why in News?

Iran's use of cluster munitions in a missile strikes recently injured dozens and marked the first confirmed deployment of the controversial weapon in the ongoing conflict with Israel.

- ***Cluster munitions*** are weapons that are designed to release a container mid-air, scattering explosive submunitions or 'bomblets' over a wide area.
- Depending on the model, they can disperse anywhere from a few to over 600 bomblets over a large area and are typically delivered via aircraft or missiles.
- **Working** - Cluster bombs are delivered via rockets, missiles, or bombs. Upon deployment, the main bomb opens in the air.
- Hundreds of bomblets are released and spread out over the target zone. The affected area can span several football fields.



- **Impacts** - Not all submunitions explode on impact, leaving behind unexploded ordinance (UXO), for years.
- The majority of this - are *free falling*, meaning that they are not individually guided towards a target.
- Unexploded ordnance poses a serious threat to civilians. Clearance operations are costly, slow, and often hazardous.
- **Usage -** According to the International Committee of the Red Cross (ICRC), they were first deployed during ***World War II.***

- Their development accelerated during the Cold War era, when they were stockpiled in large numbers.
- These weapons were primarily designed to neutralize spread-out military targets such as tanks or troops over wide battlefields.
- **Regulation** - The ***2008 Convention on Cluster Munitions*** prohibits the use, production, stockpiling, and transfer of these weapons.
- To date, key nations like Iran, Israel, the United States, and Russia — have refused to join the agreement.
    - In 2023, USA sent clustered munitions to Ukraine to use against Russia. Kyiv has accused Russia of deploying the same weapons in return. Like Iran and Israel right now.
    - **India** did not sign the treaty.

Reference

Business Standard| clustered bombs