Today's Prelims Topics

ECINET

Context

The **Election Commission of India (ECI)** is set to launch **ECINET**.

What is ECINET?

- It is a **unified digital platform** designed to streamline and enhance electoral services.
- **Aim:** To **simplify user experience and improve accessibility** to electoral services.
- **Features:**
    - It will integrate and streamline over 40 of ECI's existing mobile and web applications into one unified portal such as Voter Helpline, Voter Turnout, cVIGIL, Suvidha 2.0, ESMS, Saksham, and KYC App.
    - Users can access **all electoral-related activities** and **data**, including polling station locations, voter turnout, reporting violations, and more, from a single portal.
    - Only authorized ECI officials can input data, ensuring accuracy and authenticity.

Source:

- PIB: ECI to soon launch a single-point App for stakeholders

Genome-Edited Rice Varieties

Context

Union agriculture minister Shri Shivraj Singh Chouhan announced two genome-edited rice varieties developed in India.

More in News

- India becomes the **first country** in the world to develop genome-edited rice varieties.

Two Genome-Edited Rice Varieties

Variety Name	Developed By	Parent Variety	Key Traits
DRR Rice 100 (Kamala)	ICAR-IIRR, Hyderabad	Samba Mahsuri (BPT 5204)	Increases 19% yield, 20 days earlier maturity (~130 days), stronger stalk, climate resilience.
Pusa DST Rice 1	ICAR-IARI, New Delhi	MTU 1010 (Cottondora Sannalu)	Increases 9.66–30.4% yield in saline/alkaline soils.

- **Technology Used:** Genome-editing using CRISPR-Cas.
  - It enables scientists to make targeted changes in the native genes of living organisms, creating new and desirable traits **without introducing foreign DNA.**
- **Approach Used:** Site-Directed Nuclease 1 (SDN1) and Site-Directed Nuclease 2 (SDN2).
  - They are exempt from the stringent bio-safety regulations under Rules 7-11 of the Environment (Protection) Act, 1986.

Source:

- PIB: Two Genome-Edited Rice Varieties Developed in India

Tulbul Navigation Lock Project

Context

The suspension of the Indus Waters Treaty (IWT) has revived hopes for the completion of a stalled project to rejuvenate the Jhelum-fed Wular lake.

More in News

- The Tulbul Navigation Lock Project remains stalled due to Pakistan's objections under the Indus Waters Treaty.

About Tulbul Navigation Lock Project

- **What is it?:** It is a **barage-cum-navigation lock** located at the mouth of **Wular Lake** on the **Jhelum River** in **Baramulla district**, Jammu and Kashmir.
- **Objectives:**
    - To **regulate water flow** from Wular Lake into the Jhelum River during winter (lean season) to ensure **year-round navigation** between **Srinagar and Baramulla**.
    - Also helps in **flood control**, **irrigation**, and **hydropower generation** downstream.
- **Background:**
    - **Initiated by India in 1984**, construction was halted in **1987** due to **Pakistan's objections** under the **Indus Waters Treaty (IWT), 1960**.
    - Pakistan claimed it violates the IWT, which governs water sharing over the Indus River system between India and Pakistan.

- **Wular Lake Importance:**
    - One of the **largest freshwater lakes in Asia**.
    - Acts as a **natural flood reservoir** for the Jhelum River.
    - Contributes nearly **60%** of **Jammu and Kashmir's fish production.**

Source:

- [Indian Express: Indus Waters Treaty suspension revives hopes for completion of stalled J-K lake project]

Stratospheric Airship Platform

Context

India successfully conducted the maiden flight trial of the Stratospheric Airship Platform developed by DRDO.

About Stratospheric Airship Platform

- It is a **lighter-than-air, high-altitude airship** designed to operate in the **stratosphere (~17 km altitude)** for extended surveillance and observation missions.
- **Developed By**:
  - **Aerial Delivery Research and Development Establishment (ADRDE)**, Agra
  - Under the **Defence Research and Development Organisation (DRDO**
- **Key Features**:
  - Operates at **~17 km altitude** in the stratosphere
  - Capable of **long-duration airborne surveillance**
  - Carries **payloads for ISR (Intelligence, Surveillance, Reconnaissance)**
  - Completed a **62-minute endurance test flight**
- **Applications**:
  - **Military ISR**: Persistent surveillance of borders and strategic zones
  - **Earth Observation**: Coastal monitoring, disaster response, atmospheric sensing
  - **Communication Support**: Acts as a **relay platform** for communication in remote areas
  - **Environmental Monitoring**: Tracks climate and pollution data
- **Strategic Significance**:
  - Provides a **low-cost alternative to satellites**
  - Enhances **India's indigenous surveillance capabilities**
  - Demonstrates **dual-use potential** (military + civilian applications)
  - Places India among the few countries with **stratospheric airship technology**

Source:

- PIB: DRDO conducts maiden flight-trials of Stratospheric Airship Platform

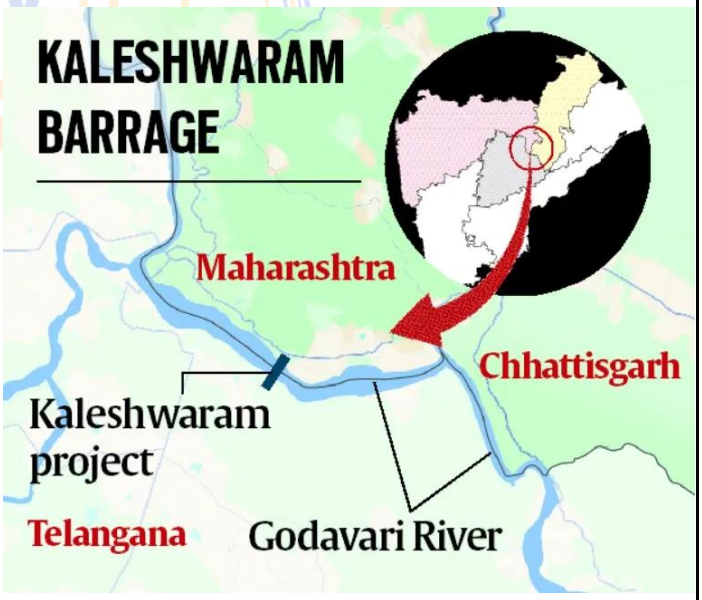
News in Shorts

Mithridatism

- Mithridatism is the **practice of building immunity or tolerance to a poison by ingesting** or exposing oneself to gradually increasing, **non-lethal doses** of that poison over a prolonged period.
- The term comes from **Mithridates VI Eupator Dionysius**, the King of Pontus (an ancient kingdom on the Black Sea coast of modern-day Turkey) who ruled from about 120 to 63 BC.
- Comparable to **vaccination**, where the body is exposed to weakened pathogens to build immunity.
- **Modern Context:**
    - No longer practised due to the development of **vaccines** and **antivenoms**, which are safer and more effective.
    - A modern case: **Timothy Friede**, an American who exposed himself to over **200 snakebites** and **700 venom injections** over 18 years to develop immunity and assist research.
- **Scientific Advancement**:
    - A 2024 study in *Cell* found that **antibodies from Friede's blood**, when combined with the drug **varespladib**, protected mice from 13 types of snake venom.
    - This represents progress toward **broadly neutralising antivenom drugs**, especially crucial in countries like India, where snakebite-related deaths are high.

Kaleshwaram Lift Irrigation Project (KLIP)

- **News?** The recently released final report by the National Dam Safety Authority (NDSA) has laid bare a series of design, construction operational flaws on Kaleshwaram Lift Irrigation Project (KLIP).



- **What it is:**
    - **World's largest multi-stage lift irrigation project**.
    - Located on the **Godavari River** in the state of **Telangana**.
- **Objective:** To **lift water** (instead of using gravity) using **pumps and surge pools** for irrigation, drinking, and industrial use.
- **Launch:** Inaugurated on June 21, 2019
- **Coverage:**
    - Spans over **500 km**, covering **13 districts** of Telangana.
    - Features a **canal network** of approximately **1,800 km**.
- **Importance:**
    - Aims to **transform agriculture** in Telangana by ensuring water availability even in dry regions.
    - **Supports urban and industrial growth** through reliable water supply.
    - Addresses **drought-prone areas** and improves **livelihoods** in rural Telangana.

Editorial Summary

Demise of Foreign Aid in India

Context

India's attitude towards foreign aid has evolved from active acceptance in the post-Independence era to increasing self-reliance. While official aid has diminished, NGOs have remained significantly dependent on foreign contributions for their developmental and advocacy roles.

Evolution of India's Foreign Aid Policy

- **1950s–60s**: Peak of official aid from Western countries; focused on state-led development.
- **Post-1991**: Economic reforms reduced dependency; India now prioritizes **FDI**, **technology transfer**, and **global partnerships**.
- **Recent Years**: Sharp decline in **Official Development Assistance (ODA)** and restrictions on **NGO funding**.

Role of NGOs and Foreign Aid

- NGOs fill gaps in **social service delivery**, act as **watchdogs**, and promote **democratic participation**.
- Heavily reliant on **foreign aid**, especially when **government grants are limited and inflexible**.
- CSR funding (post-2013) offers some support but **is not a full substitute**.

Restrictive Regulatory Framework

- **Foreign Contribution Regulation Act (FCRA), 1976** introduced to monitor foreign aid to NGOs.
- Multiple **amendments (2010, 2011, 2020, 2023, 2024)** have made rules **stricter**, leading to **cancellation of many FCRA registrations**.
- Justified on grounds of national security, anti-conversion activities, and foreign influence on dissent movements.

Implications of Declining Aid

- **Negative Impact on NGOs**: Loss of funding, halted projects, and job losses in the voluntary sector.
- **Governance Deficit**: NGOs' watchdog and advocacy roles are weakened.
- **Global Disconnect**: Reduced exposure to international best practices and innovation.

Conclusion

While the shift towards self-reliance and reducing foreign influence is understandable, **overregulation** of foreign aid—especially to NGOs—can undermine **social sector progress** and **democratic accountability**. A **balanced approach** that ensures transparency without stifling civil society is the need of the hour.

Source: The Hindu: Demise of Foreign Aid in India

What Made US Science Great

Context

The article critiques recent U.S. policies under President Donald Trump that threaten the pillars of American scientific innovation. It highlights the implications of these shifts and offers lessons for countries like India seeking to strengthen their scientific and innovation infrastructure.

Key Elements of the American Innovation System

- **Public-Funded University Research:** Major innovations (e.g., lasers, CRISPR, internet) emerged from **government-funded research in universities**.
    - Stable overhead support ensured **institutional infrastructure** for research.
- **Merit-Based, Peer-Reviewed Grant Systems:** Emphasized **fairness and innovation**, minimizing cronyism.
    - Institutions like NIH ensured **young researchers** could thrive regardless of connections.
- **Openness to Global Talent:** 30% of U.S. Nobel Laureates were **foreign-born**.
    - Immigration contributed significantly to America's **scientific leadership**.

Threats to This Model

- **Cuts to Research Overheads:** Undermines the **post-WWII research bargain** with universities.
- **Political Interference in Grants:** Undermines **scientific autonomy**, risks promoting **ideological conformity**.
- **Anti-Immigration Sentiments:** Discourages global talent; could lead to **brain drain** from the U.S.
- **Ideological Targeting of Universities:** Measures to curb "woke activism" stifle **academic freedom** and **creativity**.

Implications for India

Lessons

- Avoid excessive **politicization of research funding**.
- Ensure **autonomy of universities and research institutions**.
- Create **transparent, merit-based funding mechanisms**.
- Embrace **global collaboration and talent**.

Opportunities

- India can fill gaps in **emerging global research areas** (e.g., climate science, vaccines).
- Strengthening its own **research ecosystem** could enhance India's global competitiveness.

Conclusion

America's internal challenges present both a **cautionary tale** and an **opportunity** for India. By safeguarding **scientific independence**, ensuring **inclusive talent policies**, and increasing **public investment in R&D**, India can transform itself into a global innovation hub.

Source: Indian Express: What Made US Science Great