



DAILY CURRENT AFFAIRS 12-03-2026

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Malawi

Syllabus: Prelims Bits - Mapping

Context:

- **India dispatched 1,000 metric tonnes of rice to Malawi** to assist the country in addressing **food insecurity caused by drought linked to the El Niño phenomenon.**
- The assistance reflects **India's humanitarian support and South-South cooperation with African nations.**

Location

- **Region:** Southeastern Africa
- **Nature:** Landlocked country
- **Located along:** East African Rift Valley

Borders

- **East, South & Southwest:** Mozambique
- **North & Northeast:** Tanzania
- **West:** Zambia



Capital

- Lilongwe

Physiography

- The country forms a **long, narrow strip along the East African Rift Valley**.
- Terrain consists of **rift valley plains, plateaus, and highlands**.

Important Plateaus

- Nyika Plateau
- Shire Highlands

Highest Peak

- **Sapitwa Peak** in **Mount Mulanje** (near Mozambique border)

Major Water Bodies

Lakes

- **Lake Malawi (Lake Nyasa)**
 - One of **Africa's largest lakes**
 - Occupies **over one-fifth of Malawi's total area**
 - Part of the **Great Rift Valley lake system**

Rivers

- Shire River (major outlet of Lake Malawi; flows into Zambezi); Rukuru River; Dwangwa River; Lilongwe River; Bua River

Waterfalls

- **Likhubula Falls** (in Mulanje region)

Natural Resources

Malawi possesses several **mineral resources**, including:

- Coal; Limestone & Lime; Graphite; Black granite; Aquamarine; Tourmaline
- Ruby; Sapphire; Bauxite; Marble

Climate & Agriculture Context

- Climate largely **tropical with wet and dry seasons**.
- Agriculture heavily dependent on **rainfall**, making the country **vulnerable to drought and El Niño effects**.
- Key crops: **Maize (staple), tobacco, tea, sugarcane, groundnuts**.

Anavaran Portal

Syllabus: Prelims Bits

Context:

- Recently, the **deforestation alert system “Anavaran”** operated by the **Forest Survey of India** has been **stopped/suspended**.
- The system earlier provided **frequent alerts on forest cover loss** to states for **rapid field verification and action**.

About Anavaran Portal

- **Launch:** Operational since **January 2024**.
- **Purpose:**
 - Detect **deforestation and forest degradation** in near-real time.
 - Send **location-specific alerts every 15 days** to state forest departments.
 - Enable **targeted ground inspections and enforcement**.
- **Users:** State forest departments and monitoring agencies.

Technology Used

Platform

- Built on **Google Earth Engine**.
- Allows **large-scale processing of satellite imagery using cloud computing**.

Satellite Data Sources

Sentinel-2

- Optical satellite imagery used for:
 - Detecting **vegetation cover changes**
 - Identifying **clear-cutting or forest disturbance**

Sentinel-1 (SAR)

- Uses **Synthetic Aperture Radar (SAR)**.
- Advantage:
 - Works **even through clouds and during monsoon seasons**.
 - Ensures **continuous monitoring of forest cover**.

Key Features of the Anavaran System

- Near-real-time deforestation monitoring

- Machine learning algorithms for change detection
- 15-day alert cycle
- Location-specific alerts for precise field inspection
- Integration of optical + radar satellite data

Forest Survey of India (FSI)

Establishment

- Founded on **1 June 1981**.
- Created by restructuring the **Preinvestment Survey of Forest Resources**.

Parent Ministry

- Works under the **Ministry of Environment Forest and Climate Change**.

Origin of PISFR

- Started in **1965** by the Government of India with support from:
 - **Food and Agriculture Organization**
 - **United Nations Development Programme**

Mandate of FSI

- Assessment and monitoring of forest resources in India
- Forest cover mapping using remote sensing
- National Forest Inventory (NFI)
- Training, research, and extension services

State of Forest Report (SFR)

- Published **biennially since 1987**.
- Provides detailed data on:
 - Forest cover
 - Tree cover
 - Growing stock
 - Carbon stock
- Uses:
 - Remote sensing satellite imagery
 - Field-based National Forest Inventory (NFI).

National Highways Green Cover Index

Syllabus: Prelims Bits

Context:

- Recently, the **National Highways Authority of India (NHAI)** released the **first National Highways Green Cover Index (NH-GCI)** to assess vegetation cover along India's national highways.
- The index was prepared in coordination with the **National Remote Sensing Centre (NRSC)** of the **Indian Space Research Organisation (ISRO)**.

About the National Highways Green Cover Index

- **Initiative:** Launched by **NHAI** to monitor and improve plantation efforts along national highways.
- **Objective:**
 - Provide a **scientific and quantitative assessment of green cover** along National Highways.
 - Support **sustainable highway development and ecological restoration**.
- **Focus Area:**
 - Measures vegetation within the **Right of Way (RoW)** of highways.

Methodology Used

- **Satellite-based monitoring:** Uses high-resolution satellite data provided by **NRSC-ISRO**.
- **Key Indicator:**
 - **Normalized Difference Vegetation Index (NDVI)** derived from satellite imagery.
- **Scientific Basis:**
 - NDVI detects **chlorophyll content**, which indicates the presence and health of vegetation.
- **Measurement Approach:**
 - Green cover assessed for **every 1-km highway segment**.
 - Includes vegetation:
 - On **both sides of the road**
 - **Median plantations**
 - Other vegetation within the **RoW corridor**.

Coverage of the First Assessment

- Total highway length analysed: ~ 30,000 km.
- Geographical spread: 24 States.
- Time period of data: July – December 2024.

Significance

- **Evidence-based planning:** Enables **data-driven plantation strategies** along highways.
- **Monitoring & accountability:** Helps **compare and rank highway stretches** based on green cover.
- **Cost-effective monitoring:** Satellite-based system reduces the need for extensive field surveys.
- **Environmental benefits:**
 - Improves **carbon sequestration**.
 - Enhances **roadside biodiversity and microclimate regulation**.
- **Policy support:** Facilitates **targeted interventions for plantation management** under green highway initiatives.

Office of Speaker

Syllabus: GS-2: Indian Polity – Office of Speaker.

Context:

The recent no-confidence motion moved by the Opposition against Om Birla has reignited the debate over the constitutional position and accountability of the office of the Speaker of the Lok Sabha.

Constitutional & Legal Framework

- **Article 93:** Provides for the election of the Speaker and Deputy Speaker of the Lok Sabha.
- **Article 178:** Corresponding provision for the State Legislative Assemblies.
- **Powers:** The Speaker is the conventional head of the House, the custodian of its privileges, and the final interpreter of the Rules of Procedure.
- **The Tenth Schedule (Anti-Defection Law):** Grants the Speaker judicial power to decide on the disqualification of members.

Key Areas of Concern

The "neutrality" of the office is currently under scrutiny due to several recurring issues:

A. Partisan Conduct & Political Affiliation

Unlike the UK, where a Speaker resigns from their political party to ensure absolute neutrality, Indian Speakers remain active members of their parties. This often leads to:

- Bias in time allocation for debates.
- Selective "switching off" of microphones during opposition protests.
- Delayed action on disqualification petitions to favor the ruling dispensation.

B. The "Money Bill" Controversy

The Speaker has the final authority to certify a bill as a Money Bill (**Article 110**).

- **The Issue:** Critics argue this power is being misused to bypass the Rajya Sabha (where the government may lack a majority) for non-financial legislations (e.g., the Aadhaar Act, PMLA amendments).

C. The Tenth Schedule (Judicial Role)

The Speaker acts as a tribunal under the Anti-Defection Law.

- **The Conflict:** As a political appointee, the Speaker often faces a "conflict of interest" when deciding the fate of defecting MLAs/MPs, leading to long delays or hurried decisions based on political convenience.

Landmark Judicial Interventions

The Judiciary has increasingly stepped in to check the "absolute" powers of the Speaker:

- **Kihoto Hollohan Case (1992):** The SC ruled that the Speaker's decision under the 10th Schedule is subject to **judicial review**, as they function as a tribunal.
- **Nabam Rebia Case (2016):** The SC held that a Speaker cannot decide on disqualification petitions if a resolution for their own removal is pending.
- **KeishamMeghachandra Singh Case (2020):** The SC suggested that Parliament should consider creating a **permanent independent tribunal** (led by a retired judge) to decide disqualification cases instead of the Speaker.

Proposed Reforms

To restore the dignity of the Chair, experts suggest the following:

Reform Area	Description
UK Model	Adoption of the "Once a Speaker, Always a Speaker" tradition where the person resigns from the party upon election.

Reform Area	Description
Automatic Vacation	The law should require the Speaker to formally resign from their political party to ensure de jure neutrality.
Fixed Timelines	Amending the Constitution to mandate that disqualification petitions must be decided within a fixed period (e.g., 3 months).
Independent Tribunal	Shifting the adjudicatory powers of the 10th Schedule to the Election Commission or an independent body.

Conclusion

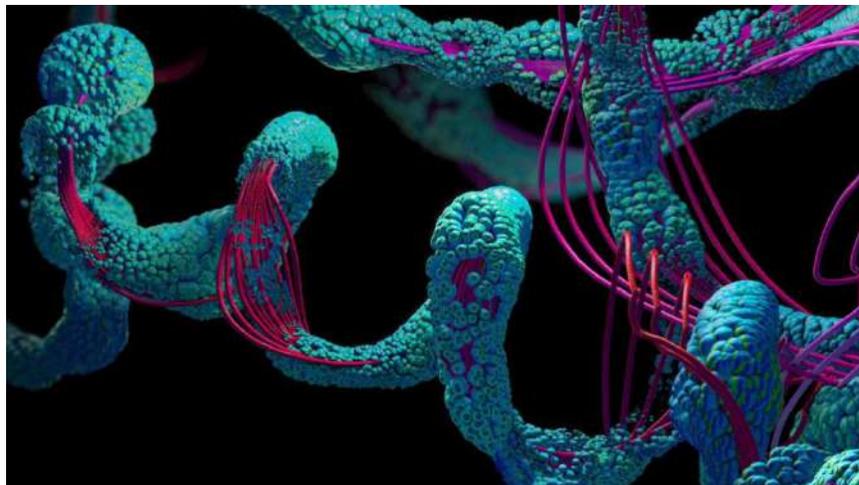
The Speaker's office is central to the health of parliamentary democracy. For the House to function as a deliberative body rather than a platform for the executive's will, the Speaker must be "above the fray." Reform is not just a legal necessity but a moral one to prevent the "politicization of the Chair."

Scientists Rewire Bacteria To Build Designer Protein

Syllabus: Science and Technology – Biotechnology.

Context:

- Researchers have developed a method to **genetically engineer bacteria so that they can produce customised or “designer” proteins on demand.**
- The approach uses **synthetic biology and genetic engineering** to expand the natural ability of microbes to manufacture proteins.
- Such engineered microbes could help in **drug development, vaccines, industrial enzymes and advanced biomaterials.**



What are Proteins?

- **Proteins** are complex biomolecules made of **chains of amino acids**.
- They perform key functions in living organisms:
 - Enzymatic catalysis
 - Structural support (collagen, keratin)
 - Immune defense (antibodies)
 - Hormonal regulation (insulin)

Amino Acid Basis

- Proteins are formed from **20 standard amino acids encoded by the genetic code**.
- The **sequence of amino acids determines protein structure and function**.

What are “Designer Proteins”?

- **Designer proteins** are **artificially engineered proteins** created by modifying genetic instructions.
- Scientists change the **DNA of microorganisms (such as bacteria)** to produce proteins with **desired properties or functions**.

Characteristics

- Contain **modified or non-natural amino acids**
- Tailored **structure and biochemical properties**
- Can perform **novel functions not found in natural proteins**

How Scientists Rewired Bacteria

Step-wise Process

- **Genetic Engineering**
 - Scientists modify bacterial DNA using **synthetic biology tools**.
- **Expanded Genetic Code**
 - The normal genetic code is **expanded to include non-standard amino acids**.
- **Metabolic Engineering**
 - Bacteria are engineered to **produce these unusual amino acids internally**.
- **Targeted Protein Synthesis**
 - The bacteria insert the new amino acids into proteins at **specific positions**, creating customised proteins.

Role of Synthetic Biology

Synthetic biology combines:

- Genetic engineering
- Molecular biology
- Bioengineering

Objective

- To **design and construct new biological systems or redesign existing ones.**

Key Idea

- Treat microorganisms as **“cell factories”** that can produce useful molecules such as proteins, chemicals, or medicines.

Significance of the Breakthrough

Medical Applications

- Development of **new vaccines and immunotherapies**
- Production of **targeted drugs**
- Potential treatment of diseases caused by abnormal proteins.

Industrial Applications

- High-efficiency **industrial enzymes**
- **Biomaterials** with novel properties
- Green manufacturing through **microbial biofactories**

Research Applications

- Understanding **protein structure and function**
- Creation of **new biochemical pathways**

Advantages

- **Precision:** Proteins can be engineered with exact molecular properties.
- **Scalability:** Bacteria multiply rapidly → large-scale production.
- **Cost-effective:** Cheaper than traditional chemical synthesis.

Challenges / Concerns

- **Biosafety and ethical issues** in genetic manipulation.
- Risk of **uncontrolled release of engineered microbes.**
- Regulatory issues related to **bioengineered organisms.**