

Today's Prelims Topics

Chemical Dust Suppressants

Context

A CPCB-commissioned pilot study found that **chemical dust suppressants reduce particulate matter more effectively**, showing **50–60% higher efficiency** compared to water (25–30%).

What Are Chemical Dust Suppressants?

- They are **compounds applied to soil, road surfaces, or construction sites** to bind loose particles and prevent them from becoming airborne.
- They form a **thin, adhesive layer** that keeps dust down for several hours.
- **Common Types Used:**
 - **Chloride-based salts:** *Calcium chloride (CaCl₂)*, *Magnesium chloride (MgCl₂)*
 - These are hygroscopic—pull moisture from the air, keeping the surface damp.
 - **Lignin sulfonate:** A by-product of the paper industry; works as a natural binder for soil particles.
 - **Asphalt emulsions:** Provide a semi-permanent crust on unpaved or construction surfaces.
 - **Bio-additives:** Typically plant-based polymers that help bind dust.
- **How They Work:**
 - Increase surface moisture retention.
 - Form a stabilizing crust over dust-prone surfaces.
 - Reduce the frequency of re-suspension of PM10 and PM2.5.

Health Concerns

While more effective than water, chemical suppressants carry **potential public health risks** if overused, poorly diluted, or unregulated:

- **Respiratory Irritation:** Fine chemical residues can irritate the airways, particularly in sensitive populations (children, elderly, those with asthma).
- **Skin and Eye Irritation:** Direct exposure to chloride salts or chemical additives can cause mild irritation during application.
- **Exposure from Residue Breakdown:** Once traffic or heavy footfall breaks the chemical layer, particles containing salts or additives may become airborne.
- **Toxicity from Misuse:** High concentration or frequent application may expose workers and communities to harmful contaminants.

Environmental Concerns

NEERI cautions that these chemicals are **not harmless**. Unregulated use could lead to the following environmental impacts:

- **Soil Quality Degradation:** Chloride salts alter soil structure, increasing salinity.
 - Can reduce soil fertility and disturb microbial balance.
- **Groundwater Contamination:** Salts and chemical additives can leach into groundwater.
 - Long-term accumulation poses risks to drinking water sources.
- **Vegetation Damage:** High chloride levels cause leaf burn, stunted growth, or plant death.
 - Particularly harmful near roadside green belts or agricultural fields.
- **Run-off during Rainfall:** Leads to contamination of stormwater drains and wetlands.

- Asphalt emulsions may introduce hydrocarbons into the environment.
- **Disruption of Local Ecologies:** Alters soil chemistry and impacts small organisms (worms, insects).

Source: [Indian Express](#)

Exercise Ekuverin

Context

The 14th edition of the Joint Military Exercise EKUVERIN has commenced at Thiruvananthapuram, Kerala.

Exercise EKUVERIN

- It is an **annual bilateral joint military drill** conducted between the **Indian Army and the Maldives National Defence Force**.
- The term “Ekuverin” translates to “**Friends**” in Dhivehi; the exercise was initiated in **2009**.
- **Aim:** Enhance interoperability for counter-insurgency and counter-terrorism missions, undertake coordinated humanitarian assistance and disaster relief (HADR) exercises, and train together in semi-urban, jungle, and coastal operating environments.

Source: [PIB](#)

Sanchar Saathi App

Context

The Department of Telecommunications has mandated that all new smartphones must come with the Sanchar Saathi app pre-installed.

About Sanchar Saathi App

- It was introduced in 2025, aims to improve transparency and strengthen security across mobile communication networks.
- **Key Features:**

- **Chakshu Module:** Allows users to report potentially fraudulent calls, SMS, or WhatsApp messages, including scams related to KYC updates.
- **IMEI-Based Tracking and Blocking:** Provides a facility to locate and block lost or stolen mobile devices anywhere in the country through their IMEI numbers.
- **Device Authenticity Verification:** Enables users to check whether a mobile handset they purchase is legitimate.
- **Flagging Masked International Calls:** Helps identify international calls that are disguised as domestic ones using numbers beginning with +91 and followed by 10 digits.
- **ISP Identification:** Lets users find their Internet Service Provider by entering a PIN code, specific address, or the ISP’s name.

Source: [The Hindu](#)

Masala Bond

Context

The Enforcement Directorate investigated the Masala Bonds issued by the Kerala Infrastructure Investment Fund Board (KIIFB).

What is meant by Masala Bond?

- They are rupee-denominated debt instruments sold in overseas markets by Indian entities to raise capital.
- It was launched in 2014 by International Finance Cooperation (IFC)
- **Investor Eligibility:** Those residing in countries that are members of the Financial Action Task Force (FATF) and the International Organisation of Securities Commissions (IOSCO).

Source: [The Hindu](#)

GLP-1 Drugs

Context

The World Health Organization (WHO) issues global guideline on the use of GLP-1 medicines in treating obesity.

About GLP-1 Drugs

- **Glucagon-like peptide-1 receptor agonists (GLP-1RAs)** are a class of medications that treat type 2 diabetes and obesity.
 - They work by: Increasing insulin secretion, Slowing stomach emptying and Reducing calorie intake.
- **GLP-1 receptor** is a protein that plays a key role in regulating blood glucose levels, insulin secretion and other physiological functions in the human body.
- **Obesity stats:**
 - Globally 1 in 8 people is living with obesity. **890 million adults and 160 million** adolescents affected by it.
 - India ranks **3rd** globally in obesity, **after USA and China**.
 - 44 million women and 26 million men have obesity in India.

Source: [The Hindu](#)

Parana Valles

Context

Scientists have mapped large river drainage systems on Mars, including Paraná Valles.

What is Parana Valles?

- It is a large network of ancient valleys located in the **Margaritifer Sinus quadrangle** of southern Mars.
- It stretches for about **329 km**, and is part of a highly integrated drainage network.

- These valleys were carved by **running liquid water**, based on their dendritic (tree-like) river and erosion patterns.

Source: [PHY](#)

Polygamy in India

Context

Assam has passed the Assam Prohibition of Polygamy Bill, 2025.

What is Meant by Polygamy?

- Polygamy refers to a marital arrangement in which a person has more than one spouse at the same time.
- In India, it generally takes the form of **polygyny (a man having multiple wives)**, while **polyandry (a woman with multiple husbands)** is extremely rare and largely confined to a few tribal communities such as **Hatti (Himachal Pradesh)**, **Jaunsari (Majority Uttarakhand)**, **Kinnaura (Himachal Pradesh)**.
- **Laws Related in India:**
 - **Hindus, Sikhs, Jains, Buddhists:** Polygamy is *illegal* under the Hindu Marriage Act, 1955. A second marriage while the first is still valid is void and punishable under IPC Sections **494–495** (bigamy).
 - **Christians and Parsis:** Both communities are governed by their respective laws (Indian Christian Marriage Act, 1872 and Parsi Marriage & Divorce Act, 1936), which mandate **monogamy**.
 - **Special Marriage Act, 1954** (civil/secular marriages): Polygamy is **not permitted**.
 - **Bhartiya Nyaya Sanhita: Section 82** of BNS deals with marrying again during the lifetime of a husband or wife, punishable with up to seven years' imprisonment and a fine.

- **Muslims:** Under Muslim Personal Law, a Muslim man may marry **up to four wives**, provided he treats them equally; however, this allowance does not apply if he marries under the Special Marriage Act.
- **Tribal communities:** Some Scheduled Tribes follow customary practices that may include polygamy, but these vary and are not governed by codified personal laws.

Source: [Indian Express](#)

- **Improve customer protection standards** and strengthen grievance-redress mechanisms to ensure trust and transparency.

Meaning of Financial Inclusion (FI): As defined by the World Bank, FI ensures that individuals and businesses can access affordable and appropriate financial products and services that meet their needs in a responsible and sustainable manner.

Source: [Economic Times](#)

National Strategy for Financial Inclusion (NSFI)

Context

Reserve Bank of India releases National Strategy for Financial Inclusion (NSFI): 2025-30

About NSFI: 2025-30

- It sets out five core goals—called *Panch-Jyoti*—supported by 47 targeted action points to deepen and strengthen financial inclusion across India.
- **Panch-Jyoti Goals:**
 - **Enhance access** to and usage of an equitable, affordable, and suitable range of financial services to **promote financial safety and security for households and micro-enterprises.**
 - **Implement a gender-responsive approach** to advance women-led financial inclusion and adopt differentiated strategies to build financial resilience among underserved and vulnerable groups.
 - **Integrate livelihoods, skill development, and related support systems** with financial inclusion efforts to improve economic outcomes.
 - **Use financial education** as a means to encourage **responsible financial behaviour and discipline.**

Global Indices for Reforms and Growth (GIRG) Framework

Context

The Government of India launched the **Global Indices for Reforms and Growth (GIRG)** initiative.

About GIRG Framework

- It is designed to **track India's standing on selected global indices**, identify performance gaps, and support evidence-based policy improvements.
- It monitors **26 global indices** grouped under four themes—**economy, governance, development, and industry**—which are published by **16 international organisations.**
- A total of **17 nodal ministries** have been designated to oversee and improve India's performance on specific indices relevant to their sectors.
- The **Development Monitoring and Evaluation Office (DMEO)** of NITI Aayog coordinates the initiative by validating data, reviewing index methodologies, and supporting reforms.
- The framework enhances **policy transparency**, strengthens **data-driven governance**, improves

India's global competitiveness, and promotes
both cooperative and competitive federalism.

Source: [Economic Times](#)

