

## Ministry of Health and Family Welfare (MoHFW) notified revised pharma manufacturing rules

- MoHFW notified the revised rules to **ensure good manufacturing practices (GMP)** and requirements of premises, plant, and equipment for pharmaceutical products.
  - Revised rules are **notified under Schedule M of the Drugs and Cosmetics Rules, 1945** and will be called **Drugs (Amendment) Rules, 2023**.
  - Schedule M **prescribes GMP for pharmaceutical products** and includes **requirements of facilities and their maintenance, personnel, manufacture, control and safety testing**, storage and transport of material, written procedures and records, traceability, etc
- Key highlights of the revised rules**
  - Include new categories of drugs:** pharmaceutical products containing hazardous substances such as sex hormones, steroids, cytotoxic substances; biological products; radiopharmaceuticals; phytopharmaceuticals; and investigational pharmaceutical products for clinical trials for humans.
  - Implementation:** 6 and 12 months for large manufacturers (over Rs 250 crore turnover) and MSMEs (less than Rs 250 crore turnover) respectively.
  - Provision for informing the licensing authority **about drug recall** (presently no such mechanism for informing).
  - Other changes introduced:** A pharmaceutical quality system, quality risk management, a computerised storage system for all drug products etc.

### About GMP

- GMP ensures that **products are consistently produced and controlled** according to set quality standards.
- WHO has established detailed guidelines for GMP.**
- In India, **GMP system was first incorporated in 1988 in Schedule M of Drugs and Cosmetics Rules, 1945**, and were revised in **2018**, bringing them on par with **WHO standards**.

## India should be a Pioneer of Standards: Minister for Consumer Affairs, Food and Public Distribution

- Speaking at **77<sup>th</sup> Foundation day of Bureau of Indian Standards (BIS)** Minister also **highlighted recent progress related to standards in India** stating:
  - Mandatory jewellery hallmarking covers 343 districts and 90% jewellery that people are buying is hallmarked.**
  - About **156 Quality Control Orders (QCOs) of 672 products** are being processed.
- Standards Development is the process of creating and establishing agreed-upon **guidelines or criteria to ensure quality and operability** of various products or services.
- Significance of standardization:**
  - Supports economic growth** and enhances competitiveness. Fosters
  - technological development and supports innovation.** Addresses health,
  - safety and environmental concerns.**
- Standards Development process in India** is largely government led with BIS acting as **National Standard Body**.
  - Established under BIS Act 2016.**
  - Involved in harmonious development of activities of **standardization, marking and quality certification.**
  - Administered by **Ministry of Consumer Affairs, Food and Public Distribution** with its Minister being President of BIS.
- Other initiatives for standards development:**
  - Standards National Action Plan (SNAP)
  - Indian National Strategy for Standardization (INSS)
  - Quality Council of India (QCI) and its Scheme for Accreditation of Standards Developing Organizations (SDOs) One Nation
  - One Standard Scheme of BIS

### Some certification of BIS

ISI	<ul style="list-style-type: none"><li>Used for <b>standard industrial products</b> in India.</li><li><b>Mandatory for some products</b> like electronics and voluntary for others.</li></ul>
BIS Hallmark	<ul style="list-style-type: none"><li>Hallmarking system for the <b>sale of precious metal like gold and silver jewellery</b> which certify the purity of the metal.</li></ul>
ECO Mark	<ul style="list-style-type: none"><li>For labelling of <b>environment friendly products.</b></li></ul>

## “The Role of E-fuels in Decarbonising Transport”, report released by IEA

- Report analyses **emerging e-fuel technologies** in terms of needed cost reductions, resources and infrastructure investments to achieve a **10% share of e-fuels in aviation and shipping by 2030**.
- E-fuels, like **e-methane, e-kerosene and e-methanol**, are all fuels in gas or liquid form that are produced from **renewable or decarbonised electricity**.
  - ⊕ E-fuels are **low-emission fuels** since their hydrogen is produced using low-emission electricity and carbon inputs are obtained in way that leads to **low life-cycle greenhouse gas emissions**.
  - ⊕ **Possible Benefits:**
    - ◆ **Reduced emissions**
    - ◆ **Diversification of decarbonization options.**
    - ◆ Decreased demand for critical minerals needed for battery manufacturing.
- **Policy recommendations of the report:**
  - Strengthen transport GHG reduction targets** to stimulate market for e-fuels,
  - Provide support to stimulate E-fuel demand** by Integrating e-fuels into blending mandates.
  - Address challenges and foster investment**
- **Steps taken by India to promote E-fuels:**
  - National Green Hydrogen Mission:**
    - ◆ Development of green hydrogen production capacity of at least 5 MMT (Million Metric Tonne) per annum.
    - ◆ Abatement of nearly 50 MMT of annual greenhouse gas emissions
  - Permitting **Foreign Direct Investment (FDI) up to 100 percent** under the automatic route for renewable energy projects.
- Urea gold will support the other initiative of government in the sphere of **Environmentally Friendly Fertilizers (EFFs)**. Urea gold is a **Sulphur-Coated Urea (SCU)**.
  - It is a **non-organic slow-release fertilizer** and is generally prepared by coating preheated urea granules with molten sulphur. **Sulphur coating** ensures a more **gradual release of nitrogen**.
    - ◆ It **prolongs** the urea action, thus helping plants to stay greener for longer time.
    - ◆ It will increase efficiency and reduce frequent application of fertilizer, thus enhancing soil health.
  - As per **Indian Council of Agricultural Research (ICAR)** study, use of SCU leads to **reduction in urea consumption** by 25%.
- **EFFs** are fertilizers that can reduce **environmental pollution** from nutrient loss by retarding, or even controlling, the release of nutrients into soil.
  - EFFs also include organic fertilizers such as Biocompost, Vermicompost, etc.
- **Initiatives for EFFs in India:**
  - PM PRANAM** (Programme for Restoration, Awareness, Nourishment, and Amelioration of Mother Earth) Scheme
  - ⊕ Development of **Nano Urea and Neem Coated Urea**
    - ◆ **Pradhan Mantri Kisan Samruddhi Kendras (PMKSK)** will facilitate these fertilizers.
  - ⊕ **GOBARDHAN** (Galvanizing Organic Bio-Agro Resources Dhan), helps in preparing organic manure.

## Maldives govt suspends three ministers for derogatory remarks against Indian PM

Maldives is crucial for India's Neighbourhood first policy (Maldives has India First policy). However, recently, certain divergences have been seen.

Recent Divergences in India-Maldives Relations:

The President of Maldives chose Turkey, not India after assuming office as his first foreign destination, unlike past Presidents.

Maldives' new President has formally requested India to withdraw military personnel from the islands under "India Out" campaign.

The Maldives did not participate in NSA-level Colombo Security Conclave along with India, Sri Lanka and Mauritius.

The Maldives has decided not to renew the hydrography cooperation agreement with India after its expiry in June, 2024.

India and Maldives Relations:

**Bilateral Trade Relations:** In 2021 India became Maldives' third-largest trade partner.

**Security & Defence:** They have a 'Comprehensive Action Plan for Defence' and joint military exercise Ekuverin.

India is building a new coast guard base at Uthuru Thilafalhu (UTF) atoll.

India has also conducted Operation Cactus, 1988 (to thwart a coup in Maldives) and Operation Neer 2014 (to help curb a water crisis).

**Infrastructure Projects:** India is working on the Greater Male Connectivity Project.

**Tourism:** In 2023, India is the leading source market for Maldives due to Open skies agreement.

## India's first solar observatory Aditya-L1 successfully placed in a halo orbit around Lagrangian point (L1)

ISRO is only the third space agency to station a spacecraft at the L1.

The other two are NASA and the European Space Agency.

ISRO's Telemetry Tracking and Command Network (ISTRAC) has achieved this feat after conducting complex manoeuvring.

Aditya-L1 is placed in an empty space unlike other satellites that are put into orbits around physical bodies like Earth, Moon, etc.

Also, halo orbit is almost perpendicular to the line joining the Earth and the Sun unlike close orbits around celestial bodies which are either circular or elliptical.

Aditya-L1 was launched in 2023 with Polar Satellite Launch Vehicle (PSLV) C57 to study Sun.

It will make observations for 5 years.

It carries seven payloads.

Objectives:

- Corona Heating and Solar Wind Acceleration;

- Initiation of Coronal Mass Ejection (CME), flares and near-earth space weather;

- Solar wind distribution and temperature anisotropy etc.

About Lagrange points:

- At these points, gravitational pull of two large masses precisely equals the centripetal force required for a small object to move with them.

Thus, objects sent there tend to remain stationary (ensuring a continuous, unobstructed view of the sun).

There are five Lagrange points.

## Graphene

Researchers in Georgia have created the world's first functional semiconductor made from graphene.

For the first time, graphene has showed band gap property.

Band Gap is a crucial electronic property that allows semiconductors to switch on and off.

About Graphene:

It is a two-dimensional single-atom-thick layer of carbon atoms bonded in a hexagonal honeycomb lattice structure.

It is extracted from graphite and displays unique physicochemical properties like:

- High surface area, excellent thermal conductivity, etc.

- Other Applications: Energy (Solar cell, Fuel cell, Super computers etc); Sensor, Bio-sensor; Biomedical (diagnostic, drug delivery etc.), etc.

## Harike and Gharana wetland

A significant number of migratory birds have arrived in Harike and Gharana wetland recently.

About Harike wetland:

It is north India's largest wetland situated at the confluence of Satluj and Beas rivers in Punjab.

It came into existence in 1953 due to the construction of a barrage on River Sutlej (Man-made).

It is also a Ramsar site.

Gharana Wetland:

The Wetland is located on the Indo-Pak border in Jammu district.

It is situated along the Central Asian Flyway.

It is Important Bird Area (IBA), declared by BirdLife International (UK) and the Bombay Natural History Society.

## SVAMITVA Scheme

- SVAMITVA ((Survey of villages and mapping with improvised technology in village areas) Scheme won the Best Innovation Award for Innovation Sandbox presentation during Public Policy Dialogues-2024.
- About Scheme:**
  - Scheme Type:** Central Sector Scheme
  - Ministry:** Ministry of Panchayati Raj (MoPR)
  - Objective:** To establish clear **ownership of property in rural areas**, with **issuance of legal ownership cards** to the property owners.
    - It uses **drone technology** for **mapping land parcels**.
  - Significance of scheme:** Facilitating **monetization of properties**, enabling bank loans and comprehensive village-level planning, mitigating disputes.

## Camptothecin (CPT)

- Researchers at IIT Madras and Mandi have **metabolically engineered Nothapodytes nimmoniana plant cells to increase production** of anti-cancer drug CPT.
- About CPT**
  - It is an important anti-cancer **drug lead molecule for high-value drugs** like irinotecan and topotecan.
  - Extracted majorly from Camptotheca acuminata** (native to China), and **Nothapodytes nimmoniana** (native to western ghats in India). **High demand for CPT** for pharmaceutical industries has **made the plants endangered**.
  - Drawbacks:** water insolubility, low targetability, and toxicity to normal tissue.

## Proba-3 mission

- ISRO will launch the **European Space Agency's (ESA) pioneering Proba-3 mission** in 2024.
- About Proba-3 mission:**
  - Objectives:** It will create a **144-meter-long solar coronagraph**, an instrument that will allow scientists to study the Sun's corona. It is world's first **precision formation flying mission**.
  - In it, pair of satellites will fly together maintaining a fixed configuration as a 'large rigid structure' in space to prove formation flying technologies.
  - It will **mimic an artificial eclipse in space**, providing a continuous view of the corona.

## Saudi Arabia (Capital: Riyadh)

- India and Saudi Arabia signed an agreement on annual Haj pilgrimage.
- Political features:**
  - Located in the Middle East or West Asia.
  - It is the largest country in the **Arabian Peninsula**.
  - Bordering nations:** Jordan, Kuwait, Iraq, UAE, Qatar, Oman and Yemen
  - Bordering water bodies:** Persian Gulf, Red Sea
- Geographical features:**
  - Deserts:** **Rub Al-Khali** (world's largest continuous sand desert - part of larger Arabian Desert), Al Nafud, etc.
  - Highest Mountain Peak:** Jabal Sawda
  - Largest country with no permanent rivers.

## Bio-Imaging Bank (BIB)

- Mumbai's Tata Memorial Hospital (TMH), has established a 'Bio-Imaging Bank' for cancer.
  - Through it, the hospital is utilizing **deep learning and artificial intelligence (AI)** to craft a cancer-specific tailored algorithm that aids in **early-stage cancer detection**.
- BIB aims at creating a robust repository encompassing **radiology and pathology images**.
  - It will be linked with **clinical information, treatment specifics**. This will be also used for **training, validation, and rigorous testing of AI algorithms** for early detection of cancer.

## Indian Scientific Expedition to Antarctica (ISEA)

The **MV Vasily Golovnin**, an expedition vessel chartered by India, embarked on its journey to Antarctica for the **43<sup>rd</sup> ISEA Voyage**.

It is part of the **Indian Antarctic Program (1981)**.

- Under it, research base stations **DakshinGangotri (1983)**, **Maitri (1988)** and **Bharati (2012)** have been established.
  - As of today, Maitri and Bharati are fully operational.
- It is implemented by **National Centre for Polar and Ocean Research (NCPOR)**.

It also comprises members from few partner countries of **Colombo Security Conclave (CSC)**.

- CSC (2011)** is a **maritime security grouping**.
  - Members:** **India, Sri Lanka, Maldives** and **Mauritius**
  - Bangladesh and Seychelles are observer members.

## World Economic Situation and Prospects 2024

The report is published by the **United Nations Department of Economic and Social Affairs (UN DESA)**.

**Key Findings related to India:**

- The UN revised **India's Gross Domestic Product (GDP) growth forecast for the 2024 calendar year to 6.2% from 6.7%**.
- India remains the **fastest-growing large economy in the world**.
- Investment in South Asia, particularly in India, remained strong in 2023**.
- India is the country seen as a **key alternative manufacturing base**.
- In 2022, **FDI flows to India rose by 10 per cent**, making it the **third largest host country** for announced greenfield projects.