

ENVIRONMENT

PRE-CONTEXT

GLOBAL PLASTIC TREATY

THE HINDU, PG.NO: 14.

News: "Why can't the world agree on a plastic ban?"

"Global plastics production is projected to reach 736 million tons by 2040, a 70% increase from 2020" — **OECD Report.**

Global Plastic Pollution Treaty Highlights:

- Led by **United Nations**.
- **Legally binding treaty to address the global scourge of plastic pollution** has opened in Busan, South Korea.
- **Issues:**
 - The treaty **lacks a universally agreed-upon definition for the term 'plastic'**.
 - **Is there a limit** on the amount of plastic companies can produce?
 - **Resolve whether to end the use of hazardous chemicals in plastics** and whether these steps will be mandated or merely encouraged.
 - To promote design of plastic products so they can be **recycled and reused**.
 - There is demand for a treaty that tackles the root causes of the crisis rather than just managing plastic waste.
 - **Overlooks** the key **issue of limiting production**.

India's Proposals:

- India proposed **creating a dedicated multilateral fund** with distinct contributions from other financial transfers.
 - The **fund will be governed by a subsidiary body** that facilitates:
 - **Technology transfer from developing to developed countries** for achieving a just transition towards sustainable plastic production and consumption.
- India said it will not back 'use' of plastic alternatives.

India and Plastic:

- India **banned single-use plastic** in 2022.
- Nearly **24 million tonnes of plastic** packaging have been introduced into India since 2022, despite its limited mechanical **recycling capacity of 9.8 million tonnes** — **Centre for Science and Environment investigation.**

Similar Conventions:

- **Basel Convention:** aims to reduce the movement of **hazardous waste** between nations
- **Stockholm Convention:** seeks to eliminate or restrict the production and use of **Persistent Organic Pollutants (POPs)**.
- **Rotterdam Convention:** promotes shared responsibilities in the international trade of certain **hazardous chemicals and pesticides**.

"We are not demonising plastic. It helps our planes and cars get lighter, but we have to get rid of polluting plastic" — **Climate & Environment Ambassador, of EU.**

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TECHNOLOGY

PRE-CONTEXT

TUNGSTEN MINING

THE HINDU, PG.NO: 14.

News: "The row over tungsten mining near Madurai."

About Mines and Minerals (Development and Regulation) Act 1957:

- **Schedule 1:**
 - **Energy/ Hydrocarbon Minerals:** Coal and Lignite.
 - **Atomic Minerals:**
 - Rare earths, containing uranium and Thorium.
 - Phosphorites containing uranium.
 - Beach sand minerals etc.
 - **Metallic and Non Metallic Minerals:**
 - **Metallic:** Bauxite, Chrome ore, Copper ore, Gold, Iron ore, Lead, Manganese ore, Zinc.
 - **Non-Metallic:** Asbestos, Precious stones.
 - **Critical and Strategic Minerals.**
 - Critical minerals are essential for our country's economic development and national security.
 - Eg. such as **lithium, graphite, cobalt, titanium and rare earth elements (REE)**.
 - Identified by **Ministry of Mines**.
- **Schedule 2:**
 - Deals with **rates of Royalty of Minerals** payable to govt.
- **Schedule 3:**
 - Rates of **Dead rent** (A fixed charge a leaseholder must pay the state, regardless of mining operations or mineral production).
- **Schedule 4:**
 - Introduced in 2015, This schedule lists minerals for which **auction-based mining leases are mandatory.**
 - **Iron ore, bauxite, limestone, manganese ore, and other.**

Power to grant Mineral licence:

- **Central Govt: Major Minerals under first schedule:** Coal and Lignite, Atomic Minerals, Critical minerals.
- **State Govt: Minor minerals** like building stones, gravel, ordinary clay, ordinary sand (not used for prescribed industrial purposes), and other minerals declared as minor minerals.

About Tungsten:

- **Rare, hard, heavy metal notable for its extremely high melting point (~3,422 °C) and tensile strength.**
- It is primarily obtained from the minerals **wolframite and scheelite**.
- **India has limited tungsten reserves**, found primarily in states like **Rajasthan (Degana) and south of Deccan plateau**.
- Classified as a **Critical Mineral** by the Govt of India.

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GEOGRAPHY

PRE-CONTEXT

TROPICAL CYCLONE

THE HINDU, PG.NO: 21.

News: "Wrath of the slow cyclone."

Tropical Cyclone Formation:

- Large sea surface with temperatures higher than 27° C to form and sustain themselves.
 - Bay of Bengal: has higher SSTs due to its semi-enclosed nature and shallower depths, making it more conducive to cyclogenesis.
 - Arabian Sea: Historically less active than the Bay of Bengal but has shown increased cyclonic activity in recent years due to rising SSTs.
- Presence of the Coriolis force enables cyclone rotation: typically present at least 5° latitude away from the equator.
 - India's geographic location (approximately 8°N to 37°N) is within the latitude range.
- Low vertical wind shear: i.e the change in wind speed and direction with altitude. High wind shear disrupts the vertical structure of a developing cyclone.
- Atmospheric instability: where warm, moist air near the surface can rise and cool to form clouds and precipitation.
- Divergence of air at the upper levels of the atmosphere: allows rising air from below to be efficiently evacuated, promoting strong updrafts.

Colour-Coded weather warning system by IMD:

- Green: No action required. normal weather conditions.
- Yellow: Wait and watch. favourable conditions for severe weather.
- Orange: Alert. Be prepared; severe weather is likely.
- Red: Take action. severe weather is occurring; take immediate action to protect life and property.

Naming cyclones:

- Cyclones are named when they reach the cyclonic storm stage (wind speed ≥ 62 km/h).
- Names are selected from a list contributed by countries in the region, including India, Bangladesh, Myanmar, and others.
 - Cyclone name 'Fengal' was proposed by Saudi Arabia.

About Project Mausam:

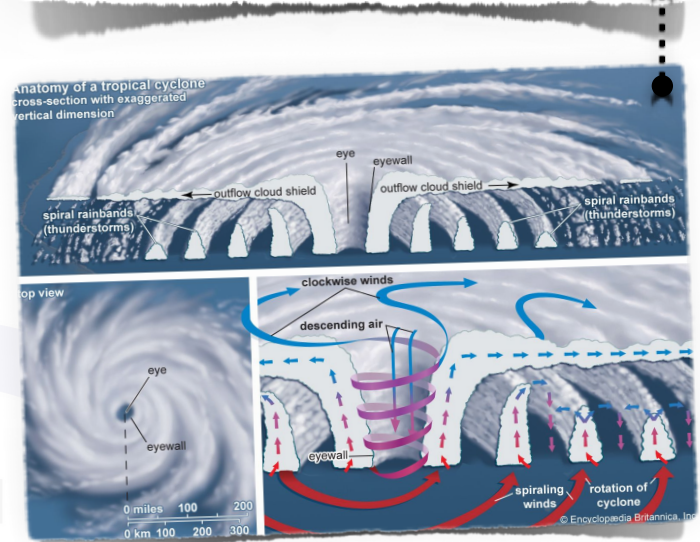
- Implemented by: Ministry of Earth Sciences.
- Enhances India's weather and climate research while addressing extreme weather events and the impacts of climate change.
- Key areas of focus:
 - Improved weather observations and understanding.
 - Accurate and timely forecasts for monsoons, air quality, cyclones etc.
- Critical Components:
 - Next-generation radars and satellite systems with advanced sensors.
 - High-performance supercomputers.
 - Enhanced Earth system models.
 - GIS-based automated Decision Support System for real-time data.

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P.T.O

PYQs

- GS III 2022: Tropical cyclones are largely confined to South China Sea, Bay of Bengal and Gulf of Mexico. Why?
- GS III 2013: Account for the The recent cyclone on the east coast of India was called "Phailin".
- GS III 2014: How are the tropical cyclones named across the world? India Meteorological Department.



TECHNOLOGY

PRE-CONTEXT

MALARIA

THE HINDU, PG.NO: 13.

News: "Preventing malaria using genetically modified parasites."

- About Malaria:
- Caused by:
 - Parasites: Plasmodium falciparum, P. vivax, P. ovale, P. malaria.
 - Vector: parasite infected female Anopheles mosquitoes.
 - These mosquitoes typically breed in clean, stagnant water bodies.
- Common Symptoms: High fever with chills, headache, sweating, nausea, and vomiting.
- Epidemiology:
 - Sub-sharan Africa, South and South East Asia.
 - India: parts of the North-East, Central, and Eastern regions of the country.
- India's Initiatives:
 - National Vector Borne Disease Control Programme.
 - National Framework for Malaria Elimination 2016–2030.
 - National Strategic Plan (NSP) for Malaria Elimination 2017–2022.
- Malaria related developments:
 - RTS,S (Mosquirix) vaccine has been piloted in certain African countries.
 - Genetic modification of mosquitoes that slow the growth of malaria-causing parasites in the gut thereby preventing transmission of malaria to humans.
 - Genetic modification of parasites causing malaria.

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ECONOMY

PRE-CONTEXT

TEXTILE SECTOR

THE HINDU, PG.NO: 12.

News: "India must seize the opportunity to boost textile exports".

Status of textile sector:

- **Potential:**
 - **Textile and apparel industry, worth \$150 billion in India.**
 - In 2022, India was the **third largest textile exporter** globally, with a 5.5% share.
- **Employment:**
 - **Second largest manufacturing capacity**, with a robust capability across the value chain.
 - About **10.5 crore people are employed** by the textile and garment units, directly and indirectly. compared to 5.5 million in the IT sector.
 - **Textile factories often employ 60-70% women**, empowering those who might otherwise be confined to unpaid work.
- **Contribution:**
 - The sector's **contribution to GDP is close to 2.5%** (FY21) and 10% of total manufacturing GVA in 2023.
 - Home to **80% of MSMEs**.

Causes for decline:

- **Geopolitical developments:** wars, supply chain issues etc.
- **Slump in demand** in buying countries due to global slowdown.
- The **imposition of a 10% import duty** on cotton has made Indian cotton more expensive compared to international prices.
 - As a result of the above, **Tamil Nadu**, which has the largest spinning capacity in the country, saw the **closure of nearly 500 textile mills in the last two years**.
- **Job losses in manufacturing sector due to imports of Chinese goods:** ~2 million jobs were lost in the textile and toy industries between 2015 and 2020—**FICCI 2021**.

PM MITRA:

- **Ministry:** Textiles.
- **Type:** Centrally **Sponsored** Scheme.
- **Aim:** **5F vision:** Farm to Fibre to Factory to Fashion to Foreign.

Features:

- **PM MITRA parks: 1000+ acres** of land with an integrated **value chain of everything at once place** spinning, weaving, processing etc.
- **Bring down the logistics cost** Eg. **Cotton of Maharashtra is processed in Tamil Nadu** due to lack of spinning equipment in Maharashtra.
- Intended to generate **1 lakh direct and 2 lakh indirect Employment** per park.
- Park sites will be selected on **objective criteria**.

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PYQs

GS I 2013: Analyze the factors for highly decentralised cotton textile industry in India.

TECHNOLOGY

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CYBERCRIMES

THE HINDU, PG.NO: 6.

News: "Key suspect in Laos 'cyber slavery' cases arrested from Kolkata".

Cybercrime methods (most common):

- **Cyber Slavery:** Offenders target innocent individuals and lure them by giving fake promises to offer them employment or alike and force them into executing cyber fraud.
- **Social Engineering Attacks: Manipulating** people into revealing confidential information.
- **Ransomware Attacks: Malicious software** that locks data until a ransom is paid. 53% increase in the ransomware incidents in 2022—**CERT-In report**.
- **Phishing:** Tricking individuals into revealing sensitive information **via fake emails or messages**. 150 million phishing emails sent globally every day.
- **Identity Theft: stealing personal information** to impersonate someone for financial gain.
- **Cyberstalking and Harassment: Using the internet to stalk**, harass, or bully individuals.
- **Denial of Service: Blocking access to websites.**
- **Cyber Espionage:** using **stealthy IT malware to spy** on both corporate & military data.
- **Digital arrest scam:** fraudsters target individuals or businesses, posing as law enforcement or government officials, victims are **threatened with a digital arrest warrant**.

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Thank you!