

NEWS TODAY

Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) releases Transformative Change Report

The Report is also known as **Assessment Report on the Underlying Causes of Biodiversity Loss and the Determinants of Transformative Change and Options for Achieving the 2050 Vision for Biodiversity.**

About Transformative Change

- **Definition:** Transformative Change is a fundamental system-wide shifts in **views** (ways of thinking), **structures** (ways of organizing & governing) and **practices** (ways of doing & behaving).
- **Four principles to guide transformative change:** equity and justice; pluralism and inclusion; respectful and reciprocal human-nature relationships; and adaptive learning and action.

Five Strategies for Transformative Change for Global Sustainability

- **Conserve, restore and regenerate places of value.** E.g., Community Forestry Programme in Nepal; Community-based Forest management in India.
- **Drive systematic change in sectors responsible for nature's decline.** Sectors like: agriculture and livestock, fisheries, forestry & urban development.
- **Transform economic systems for nature and equity.** E.g., Biodiversity management needs over **\$900 billion** yearly, but only **\$135 billion** is spent.
 - ⊕ **Over 50% of annual global GDP** (\$58 trillion) depends moderately to highly on nature.
- **Transform governance systems to be inclusive & accountable.** E.g., The Galapagos Marine Reserve exemplifies ecosystem-based governance.
- **Shift views to recognize human-nature interconnectedness:** Achieved through nature-based experiences, policy support, and integrating Indigenous knowledge to transform behaviors.

Global Challenges in Transformative Change

Technology Access

Barriers to clean technology and knowledge sharing.

Colonial Relations

Historical power dynamics affecting modern interactions.

Unsustainable Practices

Harmful consumption and production methods.

Economic Inequalities

Disparities in wealth and resources globally.

Policy Inadequacies

Insufficient policies and institutions to address current needs.

About IPBES

- **Established: 2012.**
- **Aim:** To strengthen the science-policy interface for biodiversity and ecosystem services for conservation and sustainable use of biodiversity, human well-being and sustainable development.
- **HQ:** Secretariat Located in Bonn, Germany.
- Independent intergovernmental body comprising **150 member Governments.**
 - ⊕ **India is a founding member.**
- It is **not a UN body** but **UN Environment Programme** provides secretariat services to IPBES.

The 2014-2016 Pacific marine heatwave wiped out four million of Alaska's seabirds

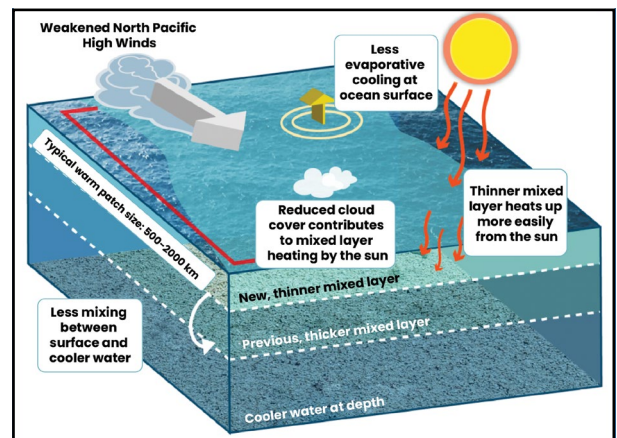
A new study reveals the **largest documented vertebrate die-off** linked to warming oceans, showing rapid and intense climate impacts.

About Marine Heat Waves (MHWs)

- **Definition:** A marine heat wave is an **extreme weather event**. It occurs when the **surface temperature of a particular region of the sea rises to 3 or 4 degrees Celsius** above the average temperature for at least **five days**.
 - ⊕ MHWs can last for **weeks, months or even years.**
- **Two Main Drivers of MHWs:**
 - ⊕ **Surface heat flux:** Heating from the atmosphere, which tends to occur when an atmospheric high-pressure system sits above a region of water for an extended period.
 - ◆ Surface heat flux tend to be **shallower and shorter in duration**
 - ⊕ **Advection:** movement of warmer waters into the region by ocean currents. It can be **deeper and longer** in duration

Impacts of MHWs

- **Ecosystem Disruption:** MHWs cause mass mortality of habitat-forming species like kelps and corals, disrupting ecosystem productivity.
- **Species Impact:** Upper-trophic-level species face reduced reproductive success, increased mortality, and mass die-offs.
- **Shifting Species:** Native species migrate to cooler waters, while invasive species like sea urchins and jellyfish thrive.
- **Toxic Blooms:** Higher temperatures and deoxygenation can lead to toxic algal blooms.
- **Extreme Weather:** Marine heatwaves contribute to extreme weather events like tropical storms and hurricanes.



Key observations of MHWs:

- The number of MHWs events has **doubled since 1982.**
- MHWs have increased by **up to four-fold** in the **tropical Indian Ocean**, aided by **rapid warming in the Indian Ocean and strong El Niños.**
- The **total number of days with marine heatwaves**, averaged over the entire globe, has increased by **50%** over the last century.

NTPC Limited partners with CCTE to explore thorium-based nuclear energy solutions

NTPC Limited signed a strategic pact with US-based **Clean Core Thorium Energy (CCTE)** to explore development and deployment of **ANEEL (Advanced Nuclear Energy for Enriched Life)**.

➤ NTPC, a **Maharatna company** under Government of India, is India's **largest power generator**.

About ANEEL

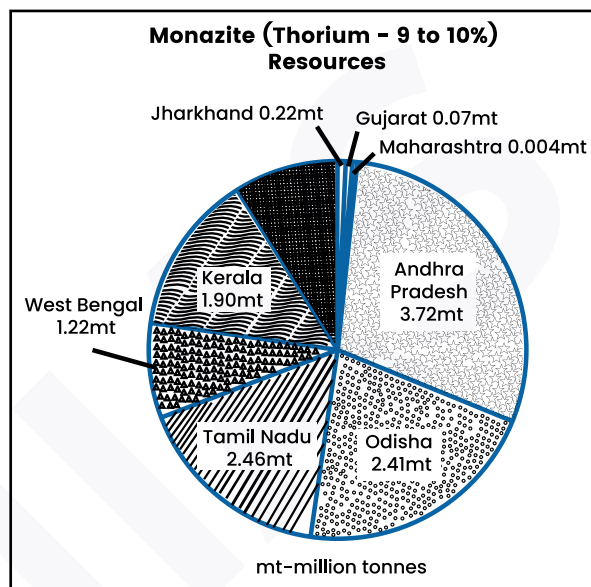
- **Developed by CCTE**, ANEEL is a **Thorium based fuel** for Pressurised Heavy Water Reactors (PHWRs).
- It **combines thorium** with small amounts of **enriched uranium**.

Expected Benefits of ANEEL Fuel:

- **Utilization of thorium as a fuel** in existing PHWR reactors, enhancing India's energy security using domestically available thorium.
- **Waste Reduction:** Through high burnup fuel performance, it reduces nuclear waste generation by over 85%.
- **Cost Savings:** Fewer fuel replacements reduce operational expenses.
- **Non-Proliferation:** Spent fuel is **non-weaponizable** due to thorium content.

About Thorium

- Thorium is a **naturally occurring radioactive metal**.
- Thorium exists in nature in a **single isotopic form – Th-232** – which decays very slowly.
- **Most common source of thorium is Monazite**, whose richest concentrations are found in placer deposits.
- **India has the largest thorium reserves in the world** (11.93 million tonnes of Monazite, containing **1.07 million tonnes** of thorium).
- **Thorium (Th-232) is not itself fissile** and so is not directly usable in a thermal neutron reactor.
 - ⊕ It **requires a fissile material** such as Uranium-233 or Plutonium-239 as a driver for chain reaction.



National Green Tribunal (NGT) issues notice to Centre over ozone levels exceeding limits in Delhi

The NGT took cognizance of the increasing levels of ground-level ozone, which is a key air pollutant and a precursor to smog.

About ground-level ozone (GLO) or Tropospheric Ozone

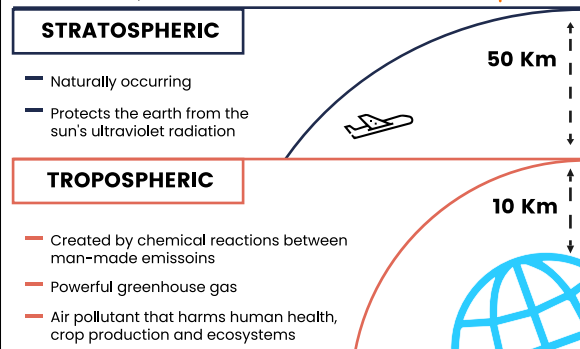
- **Ozone (O₃):** It's a variant of oxygen composed of **three oxygen atoms**.
 - ⊕ It occurs both in the **Earth's upper atmosphere** and at **ground level/Tropospheric Ozone** (See Image).
- **Genesis of GLO:** It's a short-lived secondary pollutant which is formed in the ground level through atmospheric reactions (Troposphere) in the presence of sunlight.
- **Responsible factors:** High temperature and emissions of Precursor pollutants. **E.g., Oxides of Nitrogen (NO_x) & Volatile Organic Compounds (VOCs)**.
 - ⊕ **Peak O₃ levels occur in summers.**
- **Sources of Precursor Pollutant:** Largely vehicular emission, fossil fuel power plants, oil refineries, the agriculture sector, etc.
- **Central Pollution Control Board (CPCB):** has set the following **National Ambient Air Quality Standards (NAAQS)** for GLO:
 - ⊕ **8-hour average:** 100 micrograms per cubic meter (µg/m³)
 - ⊕ **1-hour limit:** 180 µg/m³

Impacts of GLO

- **Health Impacts:** Globally, causes **1 million premature deaths annually**; also, aggravates asthma, bronchitis, etc.
- **Climate Impacts:** Acts as a **strong greenhouse gas**, contributing to warming.
- **Agriculture & Ecosystem Impacts:** Reduces crop productivity and carbon uptake by plants, impedes growth, etc.

TYPES OF OZONE

Depending on where it is found in the atmosphere, ozone can be either helpful or harmful



Steps taken to control the precursors of ozone, i.e. NO_x and VOC emissions:

- **BS VI Vehicles:** Reduced NO_x emissions by up to 87% for heavy vehicles and 70-85% for 2-wheelers.
- **Electric Mobility:** Under PM-E Drive to achieve zero vehicular emissions.
- **Revised Industrial Emission Standards:** Stricter NO_x and VOC standards for industries like fertilizers, thermal power plants etc
- **Vapor Recovery System (VRS):** Installed at Delhi-NCR petrol pumps to reduce VOC emissions during refueling.

Russia has declared a federal-level emergency after oil pollution along Black Sea coast

Oil spill was triggered by storm damaged oil tankers near **Kerch Strait** which released thousands of tons of heavy fuel oil, known as mazut, into the sea.

Oil Pollution

- Oil pollution includes the **accidental or deliberate, operational spills of oil** from ships, especially tankers, offshore platforms and pipelines.
- Oil discharges** to marine environment may also occur from **natural seeps, and land-based sources** such as untreated sewage and storm water, rivers, coastal refineries, oil storage facilities etc.
- Oil floats on saltwater and **spreads out rapidly across the water surface** to form a thin layer called **oil slick**.

Impact of Oil Pollution

Environmental Impacts:

- ⊕ **Threat to Biodiversity:** Marine mammals, Fishes, Turtles, Seabirds face threats like poisoning, hypothermia, drowning, damaged airways, loss of insulating ability etc.
- ⊕ **Impact Coastal and Marine Habitats:** Coral reefs risk smothering and toxicity; mangroves, marshes, and seagrasses suffer damage or death.

Socio Economic Impacts:

- ⊕ **Fisheries Sectors:** Polluted Fisheries impact livelihood.
- ⊕ **Health Risks:** Exposure through direct contact, inhalation, or consumption of contaminated seafood.

Remedial Measures for Cleaning Oil Spills

- Bioremediation:** Use of microorganisms to degrade contaminants For e.g., **Oilzapper and Oilivorous-S**.
- Booms and Skimmers:** Booms are physical barriers that slow the spread of oil while skimmers are boats that skim spilled oil from water surface.
- Sorbents:** Big sponges used to absorb oil.

Laws and Convention on Oil Pollution

International

- ⊕ International Convention for the Prevention of Pollution from Ships (MARPOL) 1978
- ⊕ OPRC (Oil Pollution Preparedness, Response, and Cooperation) 1990
- ⊕ International Convention on Civil Liability for Oil Pollution Damage 1992

National

- ⊕ The Merchant Shipping Act, 1958
- ⊕ The Environment (Protection) Act, 1986
- ⊕ National Oil Spill Disaster Contingency Plan, 1996 a

Impact Assessment Studies on Smart Cities Mission

Indian Institute of Management, Bangalore conducted two studies under the **SAAR-Sameeksha Series** of the Smart Cities Mission (SCM), highlighting improvements in education and women's safety.

- Under **SAAR (Smart Cities & Academia towards Action & Research) initiative**, launched in 2022, Smart Cities Mission has initiated **50 Impact assessment research studies** as "Sameeksha Series".

Impact of Smart Cities Mission

- Education:** 71 Smart cities established 9,433 smart classrooms in 2,398 government schools, leading to a **22% increase in student enrollment** from 2015-16 to 2023-24 in 19 cities.
 - ⊕ 41 cities like Raipur and Tumakuru built **Digital Libraries**, facilitating inclusive access to smart education.
- Women's Safety:** Over 59,802 **CCTV cameras and emergency call boxes** were installed in 93 Smart Cities, with real-time monitoring and evidence-based policing through Integrated Command and Control Centers (ICCCs).
 - ⊕ **Example: Nagpur saw a 14% decline in crime rates** post-implementation of surveillance systems.
- Environmental Improvements:** Cities created eco-parks (Bengaluru, Chandigarh), city forests (Indore), rejuvenated water bodies (Coimbatore, Mangaluru), and built green corridors.
- Skill Development:** Skill building centres such as a digital handicraft incubation centre in Tirupati have helped in improving income.
- Sanitation and Waste Management:** Indore and Kavaratti improved waste management through segregation and waste-to-energy projects.

About Smart Cities Mission

- About:** Centrally Sponsored Scheme launched by **Ministry of Housing and Urban Affairs** in 2015.
- Objective:** To enhance the quality of life in **100 selected cities** by providing efficient services, robust infrastructure, and a sustainable environment.
- Duration:** Initially set for 5 years, now **extended until 31 March 2025**.
- Approach:** Area-Based Development (Development as replicable models) and Pan City Projects (Technology Driven).

Also in News



PM-ABHIM

Delhi High Court has ordered the signing of an MoU between the Union Ministry of Health and Family Welfare and the Delhi Government for implementing **PM-Ayushman Bharat Health Infrastructure Mission (PM-ABHIM)**.

About PM-ABHIM

- Announced** in FY 2021-22 Budget with a financial outlay of **Rs. 64,180 crore** (2021-22 to 2025-26).
- It is a **Centrally Sponsored Scheme** with some Central Sector Components.
- Objective:** Fill critical gaps in **health infrastructure, surveillance, and health research** spanning both **urban and rural areas**.
- Key Components:** Rural Health & Wellness Centres; Urban Health & Wellness Centres; Block Public Health Units (BPHUs); Integrated Public Health Labs; Critical Care Hospital Blocks.



Fishing Cat

Wildlife Institute of India, Dehradun, is launching **India's first Fishing Cat Collaring Project** at Coringa Wildlife Sanctuary.

- Coringa Sanctuary is located in **Godavari estuary (Andhra Pradesh)**, where the **Coringa River** confluences into Bay of Bengal.

About Fishing Cat (Prionailurus viverrinus)

- A powerful feline, about twice the size of a house cat.
- Habitat:** Inhabit wetlands and mangroves.
 - ⊕ In India, found mainly in **Sundarbans, Himalayan foothills** along Ganga & Brahmaputra valleys, and **Western Ghats**.
- Diet & Behavior:** Nocturnal hunters that prey on fish, frogs, crustaceans, snakes, birds, and scavenged carcasses.
- Threats:** Destruction of wetlands, depletion of main prey-fish due to unsustainable fishing practices.
- Conservation Status:** **Vulnerable (IUCN Red List)**; Schedule I (WPA, 1972).



Exercise Surya Kiran

Indian Army contingent left for Nepal to take part in the 18th Battalion Level Joint Military Exercise, SURYA KIRAN.

- It is an annual Joint military exercise between India and Nepal conducted alternatively in two countries.
- Objective:** To enhance interoperability in jungle warfare, counter terrorism operations in mountains, and Humanitarian Assistance and Disaster Relief under United Nations Charter.
- Significance:** It highlights the strong friendship and trust between India and Nepal, fostering professional engagement and strengthening defense cooperation.



Real Effective Exchange Rate (REER)

According to RBI data, REER Index of Rupee touched a record 108.14 in November 2024, strengthening by 4.5% during 2024.

About Effective Exchange Rate (EER)

- EER measures the value of a currency against a basket of other currencies.
 - These grasp a country's international competitiveness in terms of its foreign exchange rates.
- Nominal EER (NEER) adjusts nominal bilateral exchange rates by applying weighted trade data of its trading partners.
 - Increase in NEER indicates appreciation of Rupee.
- Real EER (REER) takes into account price level differences between trading partners.
 - Increase in REER implies indicates a loss in trade competitiveness.



Ind-Aus ECTA

India-Australia Economic Cooperation and Trade Agreement (ECTA) marks two years of remarkable success.

Key developments:

- Bilateral merchandise trade surged from USD 12.2 billion (2020-21) to USD 26 billion (2022-23).
- Trade moderated to USD 24 billion in 2023-24, with India's exports growing 14% to Australia.

About Ind-Aus ECTA

- Ind-Aus ECTA entered into force 2022.
- 96% of imports from India are now tariff-free, set to reach 100% by 1 January 2026.
- Over 85% of Australian goods exports to India are tariff-free, increasing to 90% by 2026.
- Building upon this success, the India-Australia Comprehensive Economic Cooperation Agreement (CECA) is now in progress.



Quantum Teleportation

Researchers successfully teleported a quantum state of light over 30 kilometers of fiber optic cable.

- This breakthrough shows the potential for quantum and classical networks to share the same infrastructure.

About Quantum Teleportation

- It is a method for transferring quantum information between two points using entangled states & preserving their identities across distances.
 - This entanglement links two particles in a way that changes to one particle instantly affect the other, even over long distance.
- Significance:** It paves the way for a quantum internet, offering benefits like faster encryption, improved sensing, and global connectivity for quantum computers.



Kamarajar Port

Kamarajar Port records 154% surge in cargo handling capacity.

About Kamarajar Port (Tamil Nadu)

- Location:** Situated on the Coromandel Coast, 24 km north of Chennai Port, Chennai.
- Major Port status:** It is the 12th major port of India, and the first port in India which is a public company.
- It is the only corporatized major port and is registered as a company.
 - Declared a major port under the Indian Ports Act, 1908, in March 1999.
 - Incorporated as Ennore Port Limited under the Companies Act, 1956, in 1999.
 - Operates under the Landlord Port Model, characterized by a public-private partnership approach.

Other Ports in Tamil Nadu

- Chennai Port (formerly Madras Port):** This is the second largest container port in India and the largest port in the Bay of Bengal.
- Kattupalli Port:** It is a deep-water port.



Anti-Dumping Duty

Directorate General of Trade Remedies (DGTR) has recommended imposition of anti-dumping duty on import of Poly Vinyl Chloride (PVC) Paste Resin from China and five other countries.

- DGTR (earlier known as Directorate General of Anti-dumping and Allied Duties (DGAD)) was named in May 2018 as an integrated single window agency for providing comprehensive and swift trade defence mechanism in India.

Anti-Dumping Duty

- Anti-dumping duty is a tax measure to rectify the situation arising out of dumping of goods (export of goods at price lower than its normal value) and its trade distortive effect.
- Anti-Dumping Duties are enabled by Article VI of General Agreement on Tariffs and Trade 1994.

Places in News



South Korea (Capital: Seoul)

A Jeju Air plane flying from Bangkok to South Korea with 181 people on board crashed on landing, killing 179 people.

Political Features

- Geopolitical Location:** South Korea is located in East Asia, occupying the southern half of the Korean Peninsula.
- Boundaries:** Shares a heavily fortified land border with North Korea (north), divided along the 38th Parallel (Demilitarized Zone); surrounded by seas on the east, west, and south.
- Bordered by the Yellow Sea and Sea of Japan (East Sea).

Geographical Features

- Mountains:** Dominated by the Taebaek Mountain range along the eastern coast.
- Plains:** Western and southern regions have fertile plains.
- Islands:** Jeju Island is the largest, located in the Korea Strait.
- Rivers:** Han River and Nakdong River are prominent.



AHMEDABAD



BENGALURU



BHOPAL



CHANDIGARH



DELHI



GUWAHATI



HYDERABAD



JAIPUR



JODHPUR



LUCKNOW



PRAYAGRAJ



PUNE



RANCHI