

# NEWS TODAY

## A comprehensive global study on Persistent Organic Pollutants (POPs)

The study was implemented by the **UN Environment Programme (UNEP)** and funded by the **Global Environment Facility (GEF)**.

- It was conducted to **monitor the status of 30 POPs** listed under the **Stockholm Convention** as of 2021.

### Key Findings:

- There is decline in use of **12 POPs** due to **the regulatory actions taken globally since 2004**.
  - ⊕ Use of **DDT (dichloro-diphenyl-trichloroethane)**, a synthetic insecticide has decreased in human milk samples by over 70% since 2004.
- Replacement POPs due to their similar properties (e.g., **per-and polyfluoroalkyl substances (PFAS)**) were detected **at high levels**.

### About POPs

- POPs are **chemical substances (carbon based)** that **persist in the environment**. They are pesticides, industrial chemicals, or unwanted by-products of industrial processes.
  - ⊕ They resist **photolytic, biological and chemical** degradation. E.g. Dieldrin, Endrin, Heptachlor, etc.
- **Key physical and chemical properties-**
  - ⊕ **Often halogenated and characterised by low water solubility**
  - ⊕ **Highly lipid soluble** (this facilitates bio-accumulation in living organisms)
  - ⊕ **Semi-Volatile in nature** (enabling them to move long distances in the atmosphere before deposition occurs)
- **Impacts of POPs:** POPs are linked to cancer, liver damage, decreased fertility, and increased risk of asthma and thyroid disease due to their **endocrine disrupting properties**.

### About Stockholm Convention

- An **international legally binding** agreement on POPs.
- Adopted in 2001 and entered into force in 2004.
- **India ratified** the Stockholm Convention in **2006**.
- ⊕ **Ministry of Environment, Forest and Climate Change (MoEFCC)** had notified the **'Regulation of POP Rules, 2018'** under the provisions of **Environment (Protection) Act, 1986**.
- GEF is the designated **interim financial mechanism** for the Convention.

## Train accident in West Bengal draws attention to the Railway Safety in India

Collision between Passenger Express and a goods train occurred due to signalling error, as per reports.

- In the recent years many rail accidents have taken place such as collision of Bengaluru-Howrah Superfast Express and goods train in 2023.

### Status of Railway Accidents

- A steep decline in the number of **consequential train accidents** has been witnessed from 473 in 2000-01 to 48 in 2022-23.
  - ⊕ **Consequential train accidents** are those that have serious repercussions in terms of loss of human life or injury, damage to railway property or interruption to rail traffic.

### Major causes of Rail Accidents

- **Derailments:** E.g., Bikaner-Guwahati Express derailment in 2022.
- **Unmanned Railway Crossings:** Second major cause of rail accidents after derailments.
- **Other:** Fire incidents in trains (e.g. short circuiting in electrical wirings), Signaling Errors (By local pilots), etc.

### Measures taken for Safety

- **KAVACH**, an **Automatic Train Protection system** prevents trains from passing the Red signal along with activating automatic train braking system.
- **Rashtriya Rail Sanraksha Kosh (RRSK)** for replacement/renewal/upgradation of critical safety assets.
- **Electrical/Electronic Interlocking Systems**, computer based system that prevents more than one train from running on the same track.

### Challenges in curbing Rail accidents

- **Congestion on railway tracks** (same track for passenger and goods trains)
- **Technical glitches and system failures** (including poor signalling system)
- **Other:** Lack of **sufficient funds** (for switching over to LHB (Linke Hofmann Busch) coaches) etc.

### Committees on Rail Safety

- **Justice Khanna or Railway Safety Review Committee, 1998:** Led to the creation of a safety department in Indian Railways with officers and staff drawn from all disciplines.
- **High Level Safety Review Committee under the chairmanship of Dr. Anil Kakodkar, 2012:** Recommended switching over from the Integral Coach Factory (ICF) design coaches to the much safer LHB design coaches.

## World Crocodile Day 2024: 50th year of India's Crocodile Conservation Project

India launched its **Crocodile Conservation Project** in Odisha's **Bhitarkanika National Park** in 1975 with the assistance of **United Nations Development Programme (UNDP)** and the **UN's Food and Agriculture Organisation (FAO)**.

### Crocodiles

- Crocodiles are largest surviving species of the **vertebrate class Reptilia**.
- **Habitat:** Except for one saltwater species, crocodiles live **mainly in freshwater swamps, lakes and rivers**.
- **Behaviour:** Nocturnal animals and are poikilothermic (regulate their body temperature only to limited degree).
- There are **three main species of crocodiles in India (see table)**.
- **Major threats:** Habitat destruction, egg predation, illegal poaching, dam construction, sand mining etc.

Species		Description	Natural Habitat
<b>Estuarine or saltwater crocodile</b> ( <i>Crocodylus porosus</i> )		<ul style="list-style-type: none"> <li>➤ <b>Largest living reptile</b> on earth.</li> <li>➤ <b>IUCN: Least Concern</b></li> <li>➤ <b>Schedule I of Wildlife Protection Act, 1972 (WPA)</b></li> <li>➤ <b>CITES: Appendix I</b></li> </ul>	➤ Found in <b>only three locations:</b> Bhitarkanika, Sundarbans and Andaman and Nicobar Islands.
<b>Mugger or marsh crocodile</b> ( <i>Crocodylus palustris</i> )		<ul style="list-style-type: none"> <li>➤ Broad snouts, dig burrows or holes for nesting purposes.</li> <li>➤ <b>IUCN: Vulnerable</b></li> <li>➤ <b>Schedule I of WPA</b></li> <li>➤ <b>CITES: Appendix I</b></li> </ul>	➤ It is present in <b>15 Indian States</b> including much of the Ganga River drainage.
<b>Gharial</b> ( <i>Gavialis gangeticus</i> )		<ul style="list-style-type: none"> <li>➤ Named Gharial due to a <b>bulbous knob</b> at the end of their long narrow snout.</li> <li>➤ Primarily <b>eats fish</b>.</li> <li>➤ <b>IUCN: Critically Endangered</b></li> <li>➤ <b>Schedule I of WPA</b></li> <li>➤ <b>CITES: Appendix I</b></li> </ul>	➤ <b>Inhabit freshwater rivers:</b> Chambal, Girwa, Ghagra, Son and Gandak.

### Bhitarkanika National Park

- Located in Odisha, it is **India's second largest mangrove ecosystem** after the Sunderbans.
- It is a **Ramsar site**.
- It is essentially a network of **creeks and canals** which are inundated with waters from rivers **Brahmani, Baitarani, Dhamra and Patasala**.
- Home to **largest congregation of Saltwater Crocodile** along with water monitor lizard, pythons, hyenas etc.

## Gandhi Sagar Wildlife Sanctuary (GSWS) being developed as Second home for Cheetahs

Madhya Pradesh (MP) government has announced that it has completed the preparation for the Cheetah's translocation to GSWS.

- Translocation is under the **Project Cheetah** through which the first slots of 20 Cheetahs were **introduced in Kuno National Park (KNP)** from **Namibia and South Africa**.

### About GSWS

- Located along the border between **MP and Rajasthan**, spanning over **368.62 sq. km**.
- **River Chambal** flows through the sanctuary and **Gandhisagar dam** lies within the sanctuary.
- **Flora and Fauna:** Arjauna and Jal jamun trees along with Panther, Nilgai, Chinkara, wolf, etc.

### Factors behind selecting GSWS as Cheetahs Home

- **Topography:** Due to the rocky terrain and exposed sheetrock, the topsoil is shallow.
  - ⊖ Topography also includes hills, plateaus, and river catchment areas.
- **Ecosystem:** GSWS has **savanna ecosystem** comprising open grasslands interspersed with **dry deciduous trees** and shrubs. However, Chambal valley is evergreen.

### Challenges

- An **insufficient prey** base is still an issue in **GSWS**, much like it has been in **(KNP)**.
- **Leopard** population in **GSWS** will pose a threat to cheetahs, they will compete for the same prey, and possibly even clashing with each other in wild encounters.

### Project Cheetah

- **Launched** in 2022
- World's **first intercontinental large wild carnivore translocation project** and is a part of the **Project Tiger**.
- **Aim:** To reintroduce at least 50 Cheetahs in various protect areas of the country in five years
- **Implementing agency:** National Tiger Conservation Authority (NTCA)

### About Cheetah

- **World's fastest Mammal** and the **only large carnivore to be extinct in India** (1952)
- Unlike other big cats (lions, tigers, leopards, and jaguars) cheetahs don't roar.
- **Two Species of Cheetah's exists**
  - ⊖ **African Cheetah** (IUCN Status- Vulnerable)
  - ⊖ **Asiatic Cheetah** (IUCN Status- Critically Endangered)

## UN Sustainable Development Solutions Network (SDSN) released Sustainable Development Report 2024

Published by SDSN since 2016, report **reviews progress made each year on Sustainable Development Goals (SDGs)** by 193 UN Member States.

- Established in **2012**, SDSN works **under the UN Secretary-General** and promotes integrated approaches to implement SDGs and Paris Agreement, through education, research, policy analysis, and global cooperation.

### Key Highlights of Report

- **On average, only 16% of the SDG targets are on track** to be met globally by 2030.
  - ⊕ SDG2 (Zero Hunger), SDG11 (Sustainable Cities and Communities), SDG 14 (Life Below Water), SDG 15 (Life on Land) and SDG 16 (Peace, Justice and Strong Institutions) are particularly off track.
- SDG progress **varies significantly across countries** with **Nordic countries leading**, BRICS countries making significant progress and **Poor & Vulnerable countries lagging** far behind.
  - ⊕ **Finland is ranked first**, followed by Sweden and Denmark.
  - ⊕ **India is ranked 109<sup>th</sup>** out of 166 countries, with **on track performance in Poverty reduction and Quality Education** targets while **decreasing progress in Sustainable Cities and Climate Action** targets.
- **New Index of Support to UN-based Multilateralism (UN-Mi)**: It ranks countries based on their engagement with the UN System.
  - ⊕ **Barbados ranks highest, India at 139<sup>th</sup> place** while USA ranks last.

### Recommendations by UNSDSN

- **Sustainable Development agenda** should remain the **core of global cooperation** to 2050 and should be properly financed.
- **Strengthen UN agencies** along with **systematic monitoring** of UN-based multilateralism.
- **Enhancing multilateral governance** of technological risks and ensure **universal access to vital technologies and R&D capacities**.
- **Establish UN Parliamentary Assembly** and **reform UN Security Council** through adding **India as permanent member** and adoption of procedures to override a veto.

## SIPRI Yearbook 2024: Armaments, Disarmaments, and International Security released

Established in 1966, Stockholm International Peace Research Institute (SIPRI) is an **independent international institute** based in Sweden.

### Key Highlights on Nuclear Armament

- Nine nuclear-armed states – US, Russia, UK, France, China, India, Pakistan, North Korea, and **Israel** – **continued to modernize their nuclear arsenals**.
- **Of total 12,121 nuclear warheads, almost 90% belongs to USA and Russia**.
- **Global reductions of operational warheads** appear to have stalled with China **expanding its nuclear arsenal**.
- India slightly expanded its nuclear arsenal to 172 in **2023, surpassing Pakistan's** nuclear arsenal for first time.
  - ⊕ **Along with Israel, India mainly uses Plutonium as fissile material** in nuclear weapons.

### Challenges to nuclear disarmament

- War in Ukraine has negative impact **on bilateral and multilateral** engagement on nuclear arms control and raises the concern of nuclear disaster.
- Worsening Russian-US Strategic Relations: Russia suspended its membership of 2010 Treaty on Measures for the Further Reduction and Limitation of Strategic Offensive Arms (New START) and withdrew its ratification of Comprehensive Nuclear Test-Ban Treaty (CTBT).
- Israel-Hamas War: It undermined efforts to initiate Iran's cooperation with IAEA and engaging Israel in Conference on the Establishment of a Middle East Zone Free of Nuclear Weapons and Other Weapons of Mass Destruction.

### Measures taken for Nuclear Disarmament

- **Treaty on the Prohibition of Nuclear Weapons 2017**: It prohibits development, testing, production, acquisition, possession, or use of nuclear weapons.
- **Treaty on the Non-Proliferation of Nuclear Weapons (NPT) 1968**: It aims to prevent the spread of nuclear weapons, promote cooperation in peaceful uses of nuclear energy and achieve nuclear disarmament.
- **Comprehensive Test-Ban Treaty (CTBT), 1996**: It prohibits nuclear weapon tests in the atmosphere, outer space and under water.

## Also in News



### 5G Intelligent Village and Quantum Encryption Algorithm

Department of Telecommunication has invited calls for proposals on **5G Intelligent Village** and **Quantum Encryption Algorithms** to catalyze innovation in the telecom sector.

- These proposals shall be funded by **Telecom Technology Development Fund (TTDF)**.

#### 5G Intelligent Village Initiative

- It aims to address **critical pillars such as agriculture, education, healthcare, governance, and sustainability**.
- It responds to the pressing need for equitable technological advancement by harnessing the transformative power of **5G technology to uplift rural communities**.

#### Quantum Encryption Algorithm (QEA)

- It aims to develop **India specific QEA** that will represent a cutting-edge approach to securing digital communication channels by leveraging the principles of quantum mechanics.



### Direct Seeding of Rice (DSR)

Punjab Government is **actively promoting DSR** technique.

#### About DSR (Tar Wattar Technique)

- It is a **modern rice cultivation technique** where rice seeds are directly sown into the field, as **opposed to traditional method** of growing seedlings in a nursery, then transplanting into flooded fields.

#### ➤ Significance:

- ⊕ **It enables faster planting and maturing of the crop** as the need for transplanting is eliminated.
- ⊕ **Reduces the water consumption and labour** as compared to traditional transplantation method.
- ⊕ Effective in **controlling stubble burning** and also **helps in reducing Methane emission**.

- **Challenges:** Weed management, Higher seed requirement, non-uniform crop establishment etc.



### Biological Hazards

International Labour Conference (ILC), annual meeting of International Labour Organization's (ILO) member states, takes the first step towards **international regulation of biological hazards at work.**

#### About Biological Hazards (Biohazards)

- **Biohazards are of organic origin** or conveyed by biological vectors, including pathogenic microorganisms (virus, bacteria, Fungi, etc.), toxins and bioactive substances.
- ⊖ People working in **healthcare, agriculture, and laboratory settings** are at greatest risk.
- **Factors driving biohazards' development** are shifts in atmospheric and weather conditions, heat-related risks, and overuse of antimicrobials.
- **Measures taken:** ILO Conventions 155 and 187, and India's Occupational Safety, Health and Working Conditions Code, 2020.



### Chenab Rail Bridge

**First trial train run** has been conducted on **Chenab Rail Bridge** in Reasi district of Jammu and Kashmir.

- **Bridge** is part of **Udhampur Srinagar Baramulla Rail Link (USBRL) project.**

#### Chenab Rail Bridge (Chenab Arch Bridge)

- **World's highest railway bridge** on the Himalayan ranges.
  - ⊕ 359 meters (around 109 feet) above the Chenab river, and 35 meters taller than Paris' Eiffel Tower.
- Can **resist high-velocity winds up to 260 kmph**, extreme temperatures, earthquakes, etc.

#### Chenab River (aka Chandrabhaga)

- Formed by the **confluence of the Chandra and Bhaga rivers** in the Lahaul-Spiti, Himachal Pradesh.
- Flows southwest into Pakistan, meeting Jhelum, Ravi and finally the Sutlej.



### EU's Nature Restoration Plan (NRP)

European Union approves **NRP**, first of its kind.

- It is a continent-wide and comprehensive law that forms part of the **EU's European Green Deal** ( aims for net zero emissions of greenhouse gases by 2050).

#### Key Features

- **Aim:** Contains **binding** restoration targets for long-term recovery of nature in EU's land and sea areas.
  - ⊕ It seeks to recover at least **20% of the EU's land and sea areas by 2030**, and ultimately **all ecosystems in need of restoration by 2050.**
- **Focus areas:** Covers the existing legislation (for wetlands, forests, grasslands, etc.), pollinating insects, forest ecosystem, etc.
- **Implementation:** Through **National Restoration Plans** of the EU countries.



### Bitumen

India plans large-scale bio-bitumen production from biomass and **agricultural waste.**

#### About Bitumen

- A black substance produced through **distillation of crude oil.**
    - ⊖ India currently imports about half of its annual requirement of bitumen.
  - Also known as **Asphalt.**
  - It is known for its **adhesive properties.**
  - **Applications:** Paving roads, water proofing etc.
- #### About Bio-bitumen
- A form of bitumen manufactured from **organic elements.** E.g. Bio-char, bio-oil, etc.
  - It can be used as an **addition to bitumen** or to **reduce the quantity of bitumen in the binder mixture.**
  - **Benefits: Reduced imports**, address the issue of **stubble burning**, result in **substantial savings on foreign exchange**, boosting Bio-economy etc.



### Ultrasound Technology

Scientists have successfully mapped brain activity using Functional Ultrasound Imaging (fUSI).

- fUSI is an emerging technique that offers **sensitive, large-scale, high-resolution neural imaging.**

#### About Ultrasound technology:

- It uses **high-frequency (above 20 kHz)** sound waves to view body's **internal organs.**
- It **does not use any radiation**, making it a safe and effective tool.
- **Working:** Based on **Piezoelectric effect** (specific materials produce an electric charge proportional to applied mechanical stress)
- **Applications:** Ultrasound imaging in diagnostic medicine, Ultrasound in underwater acoustics (Sonar), Non-destructive testing of various materials, Welding and Cleaning.



### Mercury Island

A documentary film on conservation of the Mercury Island was premiered in 18th Mumbai International Film Festival.

#### About Mercury Island

- A **small rocky island (in Atlantic Ocean)** off the **diamond coast of Namibia.**
  - Recognised as **Important Bird Areas (IBAs)** by **Bird Life International.**
  - It is **one of three important coastal seabird-breeding islands** along the Coast.
- Note:** New Zealand also has a group of islands named Mercury Islands

## Personality in News



### Laxman Satpathy (1916-2001)

Laxman Satpathy's birth anniversary was observed recently.

#### About Laxman Satpathy

- **Born in the Princely State of Sonpur** in British India (now in Odisha).

#### Contributions

- One of the **forefront leaders of Sonpur Prajamandal Movement.**
  - ⊕ Inspired by **Gandhiji's call for non-cooperation**, he and his brother Ram Satpathy **raised their voice against the ruler of princely state of Sonpur.**
- **Launched underground activities**, which took **severe turn during Quit India movement (1942).**
- He along with other Prajamandal leaders was **instrumental in merger of Sonpur with Odisha (January, 1948).**

#### Values

- **Courage, Determination, Leadership** etc.

