

WEEKLY NEWS

May 12-18, 2024

Armoured Sailfin Catfish



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Humboldt, No Longer a Glacier



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HIGHLIGHTS

- Xeno-transplantation
- Consumer Protection Act (CPA)

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Armoured Sailfin Catfish

● Why in News?

- ⇒ **Introduction of ASC (Rakashi or Devil Fish) in India:** Originally introduced for its unique appearance and ability to clean algal growth in tanks and aquaria, the species has proliferated significantly in Indian waters.

● Background

- ⇒ **Native Region:** South America.
- ⇒ **Family:** Largest catfish family.

● Method of Study

- ⇒ **Environmental DNA (eDNA) Approach:** Organismal DNA released into the environment from cellular material shed by organisms (e.g., skin, excrement). This method is reliable, accurate, and low cost, making it effective for mapping the spread of invasive species.

● Invasive Species (IS)

- ⇒ **Definition:** As per the Wildlife Protection Act, 1972 (amended in 2022), IS are **non-native species** whose introduction or spread poses a **threat to wildlife** or its **habitat**.

● Threats Posed by Invasive Species

- ⇒ **Ecological Impact:** Changes in food chains, disturbances in ecological balances, and competition with native species for resources.
- ⇒ **Human and Economic Impact:** Risks to human health, threats to food security and livelihoods, and economic loss of at least USD 1.288 trillion from 1970 to 2017 (IUCN).



● **Way Forward**

- ➔ **Monitoring and Control:** Utilize eDNA approaches for ongoing monitoring of invasive species and implement management strategies to control their spread.
- ➔ **Awareness and Education:** Raise awareness about the risks and impacts of invasive species and educate stakeholders on preventive measures and early detection techniques.
- ➔ **Policy and Regulation:** Strengthen policies and regulations to prevent the introduction and spread of invasive species and enhance international collaboration to address transboundary invasive species issues.



Hot Testing of ISRO's PS4 Engine

● Why in News?

- ➔ **Successful Hot Testing by ISRO:** ISRO successfully conducted hot testing of the PS4 engine, the fourth stage of the PSLV, which was manufactured using Additive Manufacturing (AM) technology.
- ➔ **Developed by:** The **Liquid Propulsion Systems Centre (LPSC)**, ISRO.
Benefits: The use of AM technology resulted in savings of raw material and production time.

● Additive Manufacturing (AM) / 3D Printing

- ➔ **Definition:** Technology that constructs a three-dimensional object from a digital 3D model by adding material layer by layer. It is the opposite of subtractive manufacturing, which creates objects by cutting away material from a solid block.
- ➔ **Materials Used:** Thermoplastics, metals and metal alloys, ceramics, and biomaterials such as bioinks.

● Key Applications of AM Technology

- ➔ **Healthcare:** Custom implants, tumour models, surgical instruments.
- ➔ **Aerospace and Defence:** Components like airframes, landing gears, drones.
- ➔ **Electronics:** Wearable devices, robots, RFID devices.
- ➔ **Other Industries:** Construction, consumer goods (including clothing, furniture, automotive).



● **Advantages of AM Technology**

- ⇒ Lower inventory.
- ⇒ Reduced production time.
- ⇒ Ability to create complex and custom designs.
- ⇒ Minimal wastage.
- ⇒ Capability to create objects with functionally-graded materials.

● **Challenges of AM Technology**

- ⇒ **Cost:** Initial investment in equipment is substantial.
- ⇒ **Technical Issues:** Slow production speed, quality concerns, lack of international standards.
- ⇒ **Other Issues:** Workforce shortage, lack of material availability, challenges in design integration.

● **Steps Taken by Government**

- ⇒ **National Strategy for Additive Manufacturing (2022):** Released by the Ministry of Electronics and Information Technology (MeitY).
- ⇒ **3D Printing Lab:** Established by the National Institute of Electronics & Information Technology, Aurangabad.
- ⇒ **National Centre for Additive Manufacturing (2023):** Set up by MeitY in collaboration with the Government of Telangana.

● **Way Forward**

- ⇒ **Investment in Technology:** Continue **investment in AM technology** to overcome initial costs and technical challenges.
- ⇒ **Standardization and Quality Control:** Develop international standards and **improve quality control** measures.
- ⇒ **Training and Education:** Address **workforce shortages** by providing training and education in AM technology.
- ⇒ **Material Development:** Enhance the **availability and diversity of materials** suitable for AM.
- ⇒ **Research and Collaboration:** Encourage **research and collaboration** between government, industry, and academic institutions to drive innovation in AM technology.

Ultra-Processed Foods

● Why in News?

- ➔ **30-Year U.S. Study Findings:** A long-term study in the U.S. found that consuming ultra-processed foods (UPF) is associated with a higher risk of early death, particularly linked to products like ready-to-eat meats, sugary drinks, dairy desserts, and processed breakfast foods.
- ➔ **Clarification:** Researchers noted that not all UPF should be universally restricted but supported limiting certain types for long-term health.

● Study Methodology

- ➔ **Assessment Tool:** Researchers used the **Alternative Healthy Eating Index-2010 (AHEI) score**, developed by Harvard School of Public Health, to assess overall dietary quality. AHEI assigns ratings to foods and nutrients predictive of chronic disease.

● About Ultra-Processed Foods (UPF)

- ➔ **Definition:** UPFs are extensively processed food products containing significant amounts of additives like preservatives, artificial flavors, and emulsifiers.
- ➔ **Nutritional Profile:** Often high in fat, sugar, and salt (HFSS) and low in vitamins, protein, and fiber. Examples include snacks, sodas, and ready-to-eat meals.
- ➔ **Health Issues:** Increased consumption of UPFs may lead to hypertension, renal failure, obesity, fatty liver disease, metabolic syndrome, cardiovascular diseases, etc.

● UPF Consumption Trends in India

- ➔ **Market Growth:** The UPF sector in India witnessed a compounded annual growth rate of 13.4% between 2011 and 2021 and is expected to grow further (WHO).



● **Challenges in Curbing UPF Consumption in India**

- ➡ **Lifestyle and Diet Changes:** Changing lifestyles and dietary patterns.
- ➡ **Regulatory Gaps:** Absence of a clear definition and coverage of HFSS food.
- ➡ **Advertising Regulations:** Lack of comprehensive advertisement and marketing regulations.

● **Indian Initiatives to Curb UPF Consumption**

- ➡ **Dietary Guidelines:** Revised (2024) dietary guidelines for Indians by the Indian Council of Medical Research.
- ➡ **Eat Right India Campaign:** An initiative by the Food Safety and Standards Authority of India (FSSAI) to ensure safe and wholesome food.
- ➡ **Trans Fat Regulations:** FSSAI limits trans fatty acids (TFA) in food products to 2% by mass of the total oils and fats.
- ➡ **Taxation Measures:**
 - Aerated beverages** in India are taxed at **28% GST** and an **additional 12%** compensation cess.
 - High-fat sugar salt (HFSS)** foods in India are taxed at a **12% Goods and Services Tax (GST)** rate.
 - Kerala** introduced a **'fat tax'** in 2016.

● **Way Forward**

- ➡ **Public Awareness:** Increase public awareness about the health risks associated with UPFs.
- ➡ **Regulatory Framework:** Develop clear definitions and comprehensive regulations for HFSS foods.
- ➡ **Advertising and Marketing:** Implement stricter regulations on the advertisement and marketing of UPFs.
- ➡ **Promote Healthy Alternatives:** Encourage the consumption of less processed, nutrient-dense foods.
- ➡ **Research and Monitoring:** Continue research on the health impacts of UPFs and monitor consumption trends.



India and Iran signed Long Term Bilateral Contract

● Why in News?

- ➔ **Contract Signing:** India signed a 10-year contract for the development of the Shahid Beheshti Port Terminal at Chabahar Port.
- ➔ **Impact:** This agreement aims to enhance regional connectivity and facilitate trade and investment opportunities between India, Iran, and Afghanistan.

● About Chabahar Port

- ➔ **Location:** Situated in Sistan and Baluchestan province on the Makran coast in southeastern Iran, on the Gulf of Oman, outside the Strait of Hormuz.
- ➔ **Unique Feature:** It is the only deep-sea port in Iran with direct ocean access.
- ➔ **Terminals:** The project includes two terminals: Shahid Beheshti and Shahid Kalantari.
- ➔ **International North-South Transport Corridor (INSTC):** Chabahar Port is part of the INSTC, a 7,200-km-long multi-mode transport project linking the Indian Ocean and Persian Gulf to the Caspian Sea via Iran, extending to northern Europe via Saint Petersburg in Russia.

● Significance of Chabahar Port for India

- ➔ **Strategic Counterbalance:** Provides a counterbalance to Pakistan's Gwadar Port and China's Belt and Road Initiative.
- ➔ **Regional Access:** Facilitates access to Afghanistan and Central Asia.
- ➔ **Proximity:** Located 550 nautical miles from Kandla Port in Gujarat, India.
- ➔ **Trade Potential:** Shorter route unlocks India's trade potential with European countries.

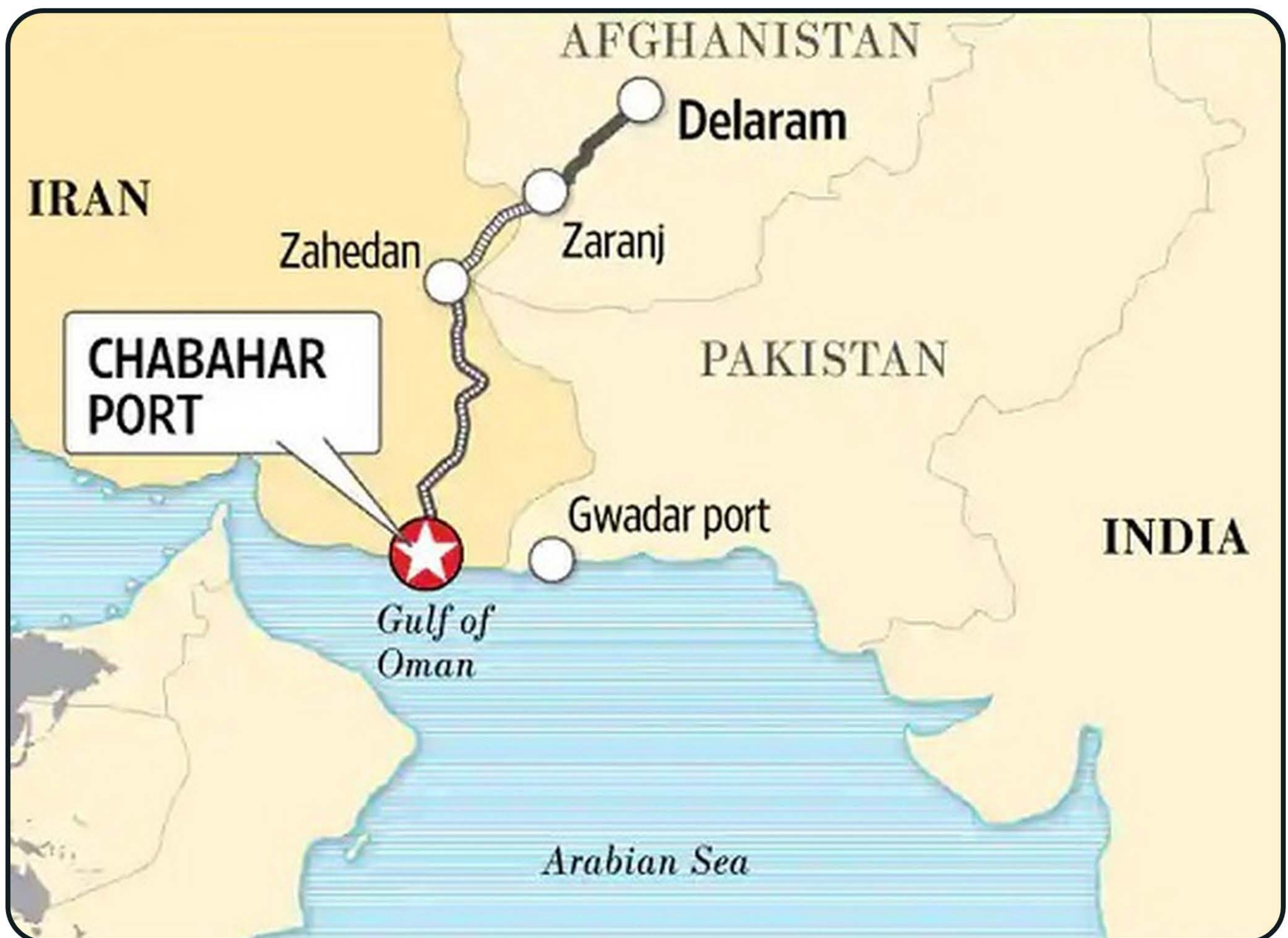


● **Challenges in Execution of Chabahar Project**

- ➔ **US Sanctions on Iran:** Affects equipment suppliers and partners necessary for the project's completion.
- ➔ **China's Involvement:** Proposed involvement of China in Chabahar's duty-free zone hampers India's interests.

● **Way Forward**

- ➔ **Diplomatic Efforts:** Strengthen diplomatic efforts to mitigate the impact of US sanctions.
- ➔ **Strategic Partnerships:** Build and maintain strategic partnerships to counterbalance Chinese influence.
- ➔ **Infrastructure Development:** Focus on timely completion and effective management of port infrastructure.
- ➔ **Regional Cooperation:** Enhance cooperation with regional partners to maximize the economic and strategic benefits of the port.



Humboldt, No Longer a Glacier

● Why in News?

- ➔ **ICCI Report:** According to the **International Cryosphere Climate Initiative (ICCI)**, Humboldt, Venezuela's last standing glacier in the **Andes**, has shrunk to a size that no longer qualifies it as a glacier.

● About ICCL and Cryosphere

- ➔ **ICCI:** A network of experts and researchers collaborating with governments and organizations to preserve the Earth's cryosphere.
- ➔ **Cryosphere Definition:** Includes **snow and ice on land**, ice caps, glaciers, permafrost, and sea ice.
- ➔ **Glacier Definition:** An accumulation of ice and snow that slowly flows over land.

● Glacier Melting

- ➔ **Causes:** Melting at a fast rate due to **global warming** and the warming of ocean water.
- ➔ **Affected Regions:** Both Alpine glaciers (e.g., Hindu Kush Himalaya) and ice sheets (e.g., Antarctica) are impacted.

● Impacts of Glacier Melting

- ➔ **Sea Level Rise:** NASA estimates that if all glaciers and ice sheets melted, global sea levels would rise by more than 60 meters, leading to increased coastal erosion and elevated storm surges.
- ➔ **Biodiversity Loss:** Walrus are losing their homes, and polar bears are spending more time on land, causing higher rates of conflict between people and bears.
- ➔ **Disasters:** Increased frequency of glacial lake outbursts (GLOFs) in regions like the Himalayas.
- ➔ **Other Impacts:** Reduction in water availability in rivers like the Ganges, and impacts on economic activities such as fishing and navigation.



● **Steps Taken to Protect Glaciers**

➡ **Global Initiatives**

Hindu Kush Himalayan Monitoring and Assessment Programme (HIMAP): Launched by the International Centre for Integrated Mountain Development (ICIMOD).

UNESCO's World Glacier Monitoring Services.

International Year of Glacier Preservation (2025): Declared by the United Nations.

➡ **Indian Initiatives**

National Mission for Sustaining Himalayan Ecosystem: Part of the National Action Plan on Climate Change (NAPCC), launched in 2008.

Research Station 'Himansh': Established in the Chandra basin (Himachal Pradesh) in 2016.

● **Way Forward**

➡ **Strengthening Policies:** Enhance and implement policies aimed at mitigating global warming.

➡ **International Collaboration:** Foster global cooperation and support for initiatives like HIMAP and UNESCO's glacier monitoring services.

➡ **Research and Monitoring:** Invest in research and monitoring infrastructure to track the health of glaciers and the cryosphere.

➡ **Public Awareness and Education:** Increase public awareness and education on the importance of glaciers and the impacts of their melting.



Watch the Explained Video on YouTube 



United Nations Resolution on Palestine

● Why in News?

- ➔ The recent UN resolution recognizes Palestine as qualified to join the UN but does not grant it full membership.
- ➔ **India voted in favor** of the resolution, showcasing its stance on the issue.

● Process for Admission of New Members to the UN

- ➔ **1. Charter Commitments:** State submits an application to the Secretary-General, accepting Charter commitments.
- ➔ **2. UN Security Council (UNSC) Approval:** Requires affirmative votes from 9 out of 15 UNSC members, with no veto from any of the 5 permanent members.
- ➔ **3. UN General Assembly (UNGA) Vote:** If recommended by the UNSC, admission requires a two-thirds majority vote in the UNGA.
- ➔ **4. Effectiveness of Membership:** Membership becomes effective upon the adoption of the resolution.

● India-Palestine Relations

- ➔ India's historical support for Palestine dates back to 1974 when it recognized the **Palestine Liberation Organisation**.
- ➔ India was one of the first countries to recognize the State of Palestine in 1988.
- ➔ India's relations with Palestine are influenced by its relations with Israel.
- ➔ India's adoption of a **de-hyphenation foreign policy** allows it to independently engage with both Israel and Palestine.



● **De-hyphenation Foreign Policy**

- ➡ **Definition:** Dealing with two countries independently, irrespective of their adversarial relationship with each other.
- ➡ **Benefits:** Allows India to leverage its position in areas such as **defence, energy security, and trade**, without being constrained by the complexities of their relations.



Breakthrough in Brain Cancer Treatment

● Why in News?

- ➔ A groundbreaking vaccine, developed by scientists at the University of Florida, has entered its first-ever human clinical trial, targeting glioblastoma, a highly aggressive brain tumor.

● Challenges in Brain Cancer Treatment

- ➔ Brain cancer treatment presents significant challenges due to **poor response** to chemotherapy, **severe side effects** of radiotherapy, and the risks associated with surgery.

● About mRNA Vaccines

- ➔ **mRNA** (messenger Ribonucleic Acid) vaccines are genetic molecules containing instructions directing cells to produce proteins using their natural machinery.
- ➔ These vaccines deliver genetic material encapsulated in **lipid nanoparticles** to prompt protein production matching parts of pathogens known as antigens.
- ➔ The immune system recognizes these foreign antigens as threats, triggering the production of antibodies and T-cells, thus training the immune system to respond to future attacks.

● Overview of Other Vaccine Technologies

- ➔ **Live-attenuated vaccines:** Contain weakened live pathogens from bacteria or viruses. Example: measles, mumps, and rubella (MMR) Vaccine.
- ➔ **Inactivated vaccines:** Use deactivated live pathogens to induce immunity without causing disease. Example: Polio vaccines.
- ➔ **Viral vector vaccines:** Utilize harmless viruses to deliver genetic material to host cells. Example: Ebola vaccine.
- ➔ **Subunit vaccines:** Made from a fragment of a pathogen, excluding live pathogens, and can be produced from the original pathogen or recombinantly. Example: Pneumococcal vaccines.



Xenotransplantation

● Why in News?

- ➔ Rising Need for Organ Transplants: The gap between the number of transplantations needed by patients and the availability of donor organs has led to the exploration of xenotransplantation.

● About Xenotransplantation

- ➔ **Definition:** Any procedure involving the transplantation, implantation, or infusion of live non-human animal cells, tissues, or organs into a human recipient.

● Why Pigs are Used for Xenotransplantation

- ➔ **Similarity to Humans:** Pig's organ size, physiological metabolism, and immune system are similar to those of humans.
- ➔ **Organ Variety:** Organs such as the heart, liver, and lungs can be used for xenotransplantation.
- ➔ **Genetically-Modified Pig Heart:** In 2022, the first xenotransplantation of a genetically-modified pig heart was performed.
- ➔ **Cost-Effective Breeding:** Breeding pigs on farms is widespread and cost-effective.
- ➔ **Breed Variety:** Various pig breeds are available, providing opportunities to match harvested organs with specific needs of human recipients.

● Process of Xenotransplantation

- ➔ **Gene Editing Technology:** CRISPR-Cas9 is used to eliminate specific pig genes that produce sugars triggering immune responses.
- ➔ **Enhancing Compatibility:** Introduction of specific human genes to enhance the compatibility of organs (e.g., kidney, heart) with humans.



● **Benefits of Xenotransplantation**

- ➔ **Alternative Organ Supply:** Provides an alternative supply of organs for individuals with life-threatening diseases.
- ➔ **Reducing Organ Shortage:** Helps to reduce the shortage of transplantable organs.

● **Concerns**

- ➔ **High Organ Rejection Rate:** There is a significant risk of organ rejection.
- ➔ **Risk of Infection:** Potential risk of infections from animal organs.
- ➔ **Animal Welfare:** Ethical concerns regarding the use of animals for organ harvesting.

● **Way Forward**

- ➔ **Research and Development:** Invest in further research to improve the success rates and safety of xenotransplantation.
- ➔ **Regulatory Framework:** Develop comprehensive regulations to address ethical and safety concerns.
- ➔ **Public Awareness:** Increase public awareness about the potential benefits and risks of xenotransplantation.
- ➔ **Ethical Considerations:** Ensure ethical practices in the breeding and use of animals for organ transplantation.
- ➔ **Monitoring and Surveillance:** Implement robust monitoring and surveillance systems to track the outcomes and long-term effects of xenotransplantation.



Consumer Protection Act (CPA)

● Why in News?

- ➔ **Overruling of NCDRC Judgment:** The Supreme Court overturned a 2007 judgment by the National Consumer Disputes Redressal Commission (NCDRC), which ruled that services rendered by lawyers are covered under the CPA 1986 (re-enacted in 2019).
- ➔ **Request for Revisiting VP Shantna's Judgment:** The bench also requested the Chief Justice of India (CJI) to revisit VP Shantna's 1995 judgment, which held that doctors and medical professionals can be held liable under the CPA.

● About Consumer Protection Act (CPA)

- ➔ **Enactment:** The CPA 1986 was enacted to provide better protection of the interests of consumers and the establishment of consumer protection councils for the settlement of consumer disputes.
- ➔ **Replacement by CPA 2019:** CPA 2019 replaced the CPA 1986 and strengthened the provisions for consumer protection.

● Key Features of CPA 2019

- ➔ **Expanded Definition of 'Consumer':** Includes persons who buy/avail goods/services online/through electronic means.
- ➔ **Establishment of Central Consumer Protection Authority:** A central authority to promote, protect, and enforce consumer rights.
- ➔ **Streamlined Dispute Redressal Mechanism:** Enables mediation and alternative dispute resolution mechanisms, as well as e-filing of complaints.
- ➔ **Product Liability Action:** Allows for actions against manufacturers, service providers, etc., for product liability.
- ➔ **Prevention of Unfair Trade Practices:** Specific measures to prevent unfair trade practices in e-commerce and direct selling sectors.



● **Way Forward**

- ➔ **Clarification on Professional Services:** Establish clear guidelines on the inclusion or exclusion of professional services under the purview of the CPA.
- ➔ **Review of Judicial Precedents:** Revisit past judgments to ensure consistency and alignment with the objectives of consumer protection laws.
- ➔ **Enhanced Consumer Awareness:** Increase awareness among consumers about their rights and avenues for seeking redressal under the CPA.
- ➔ **Continuous Improvement:** Continuously review and update consumer protection laws to adapt to evolving consumer needs and market dynamics.



Geomagnetic Storms

● Why in News?

- ➔ A G-5 level geomagnetic storm has struck Earth, the first since the Halloween Storms of 2003.
- ➔ Triggered by multiple Coronal Mass Ejections (CMEs) directed towards Earth.

● Geomagnetic Storms

- ➔ **Definition:** Disturbances in Earth's magnetosphere.
- ➔ **Classification:** Ranges from G1 (Minor) to G5 (Extreme) based on intensity.
- ➔ **Cause:** Interaction of charged particles from the Sun with Earth's magnetic fields.

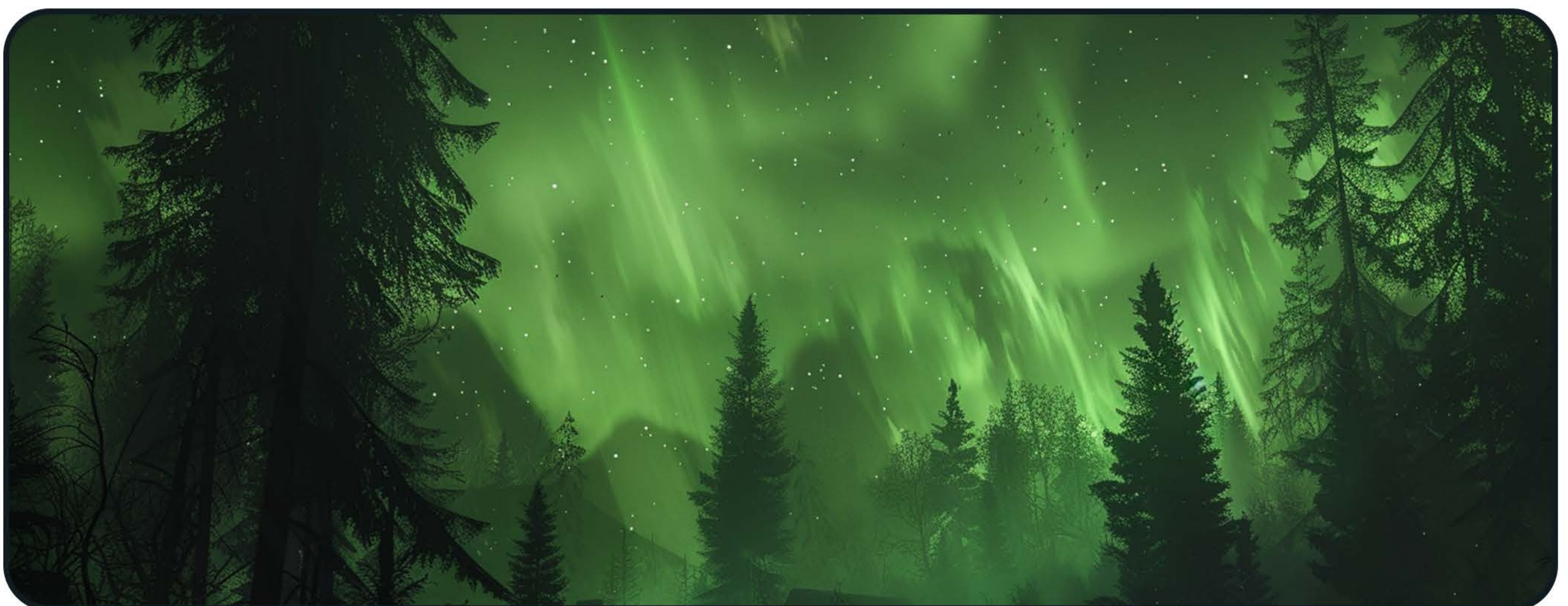
● Solar Explosions

➔ Coronal Mass Ejections (CMEs)

Large expulsions of plasma and magnetic fields from the Sun's corona.
Typically occur around sunspot groups.
Take 1 to 3 days to reach Earth.

➔ Solar Flares

Intense bursts of radiation associated with sunspots.
Largest explosive events in the Solar system.
Travel at the speed of light, taking about 8 minutes to reach Earth.



● **Potential Impacts**

- ➡ GPS and navigation system failures.
- ➡ Interruptions in shortwave radio communication over polar regions.
- ➡ Occurrence of intense auroras over much of the Earth.
- ➡ Damage to power grids.
- ➡ Disturbance in satellite orbits.



World Wildlife Crime Report 2024

● Why in News?

⇒ United Nations Office on Drugs and Crime (UNODC) released the World Wildlife Crime Report 2024.

● Wildlife Crime

⇒ **Definition:** Taking, possession, trade or movement, and consumption of wild animals and plants or their derivatives in violation of international, regional, or national laws.

● Key Findings

⇒ **Impacted Species (2015-2021):**

Most impacted animal species: Rhinoceroses.

Most impacted plant species: Cedars.

⇒ **Seizures:**

Largest numbers involved corals, followed by crocodilians and elephants.

Animal species seizures increased from 2015-2019, then declined in 2020 and 2021.

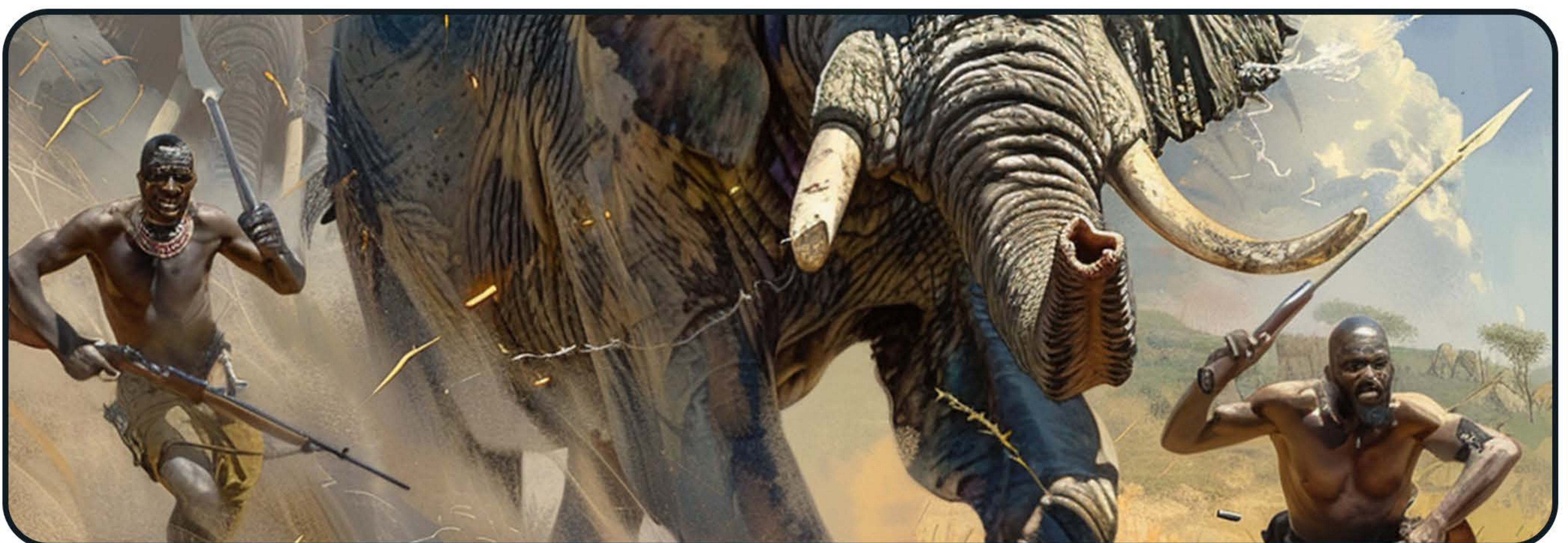
Plant species seizures sharply increased in 2020 and 2021.

● Factors Driving Wildlife Crime

⇒ Demand for medicine, pets, bushmeat, ornamental plants.

⇒ High profits from illegal trade of exotic animals, plants, and their parts (e.g., rhinoceros horn).

⇒ Corruption undermining government restrictions on wildlife trade and use.



● **Impact of Wildlife Crime**

➡ **Environmental:**

Overexploitation and reduced populations of wildlife species.
Increase in invasive alien species.
40% of seized fauna are threatened or near-threatened.

➡ **Economic:**

Money-laundering and illegal financial flows.

➡ **Social:**

Disease transmission risks from live animals, plants, wildlife meat.
Degradation of services such as food, medicines, energy.

● **Steps Taken to Combat Wildlife Crime**

➡ **Global:**

UNODC's Global Programme for Combating Wildlife and Forest Crime (2014).
UNODC, established in 1997 in Vienna (Austria), combats illicit drugs and organized crime.
Wildlife Crime Initiative addressing global poaching crisis.
Partnership between TRAFFIC (wildlife trade monitoring network) and World Wildlife Fund.

➡ **India:**

Wildlife (Protection) Act, 1972: Forfeiture of equipment, vehicles, or weapons used in wildlife offenses.
Wildlife Crime Control Bureau: Established under the Ministry of Environment and Forests to combat organized wildlife crime.



Purchasing Managers' Index (PMI)

● Why in News?

- ➔ India witnessed the 2nd-best improvement in operating conditions in three-and-a-half years.
- ➔ Manufacturing PMI fell to 58.8 in April from 59.1 in March, which was a 16-year high.

● About PMI

➔ Definition:

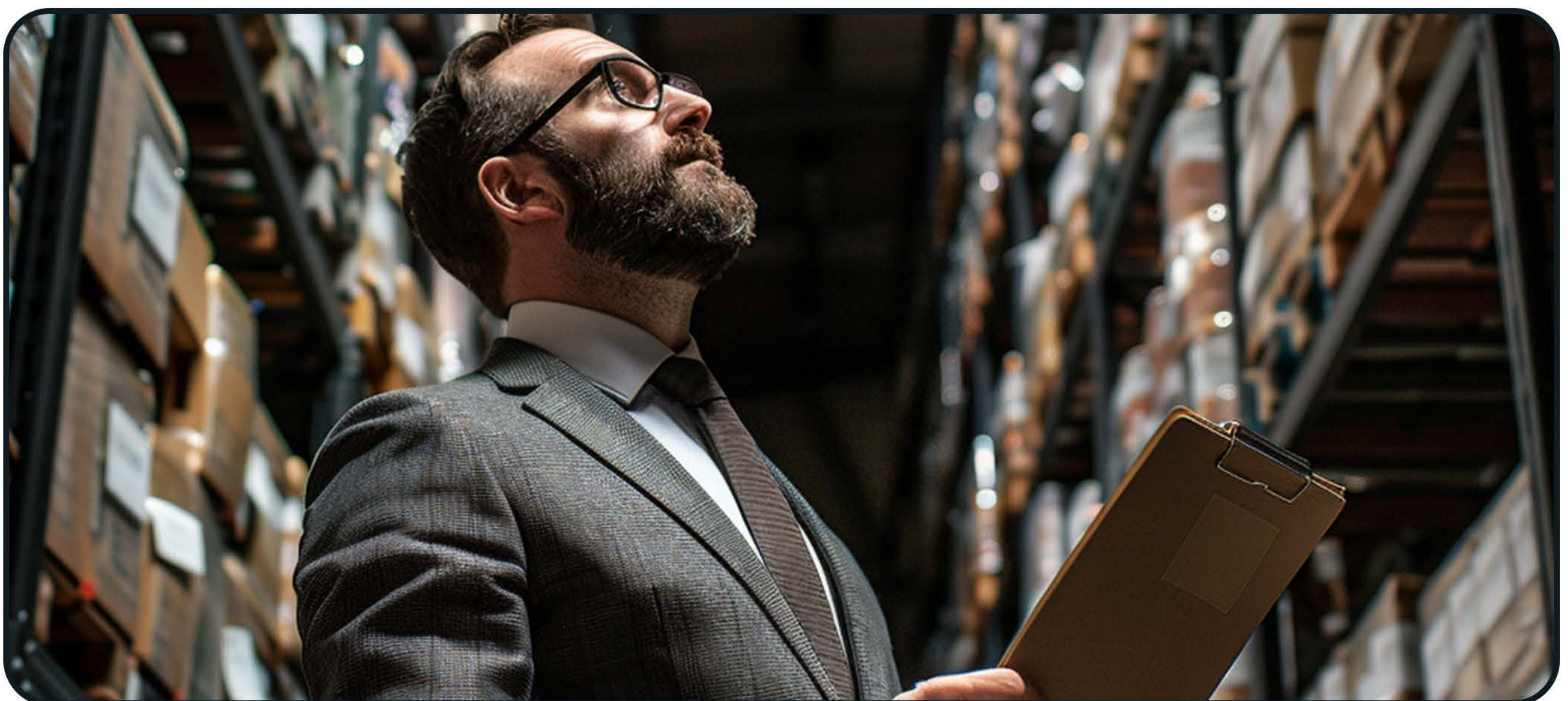
PMI is an economic indicator derived from monthly surveys of various companies. Measures activity at the purchasing or input stage. Does not capture informal sector activity.

➔ Types of PMI:

Manufacturing PMI
Services PMI

● Who Produces PMI for India?

- ➔ PMI was first started by the US-based Institute for Supply Management (ISM) in 1948.
- ➔ IHS Markit produces the PMI for India.
- ➔ The IHS Markit India Manufacturing PMI is derived from a survey of 500 manufacturing companies.



● **How is the Manufacturing PMI Derived?**

➡ Fact-based questions are sent to a large number of companies in the concerned sector.

➡ For manufacturing PMI, the questions are related to 5 key variables:

New Orders – 30%

Supplier's Delivery Times – 15%

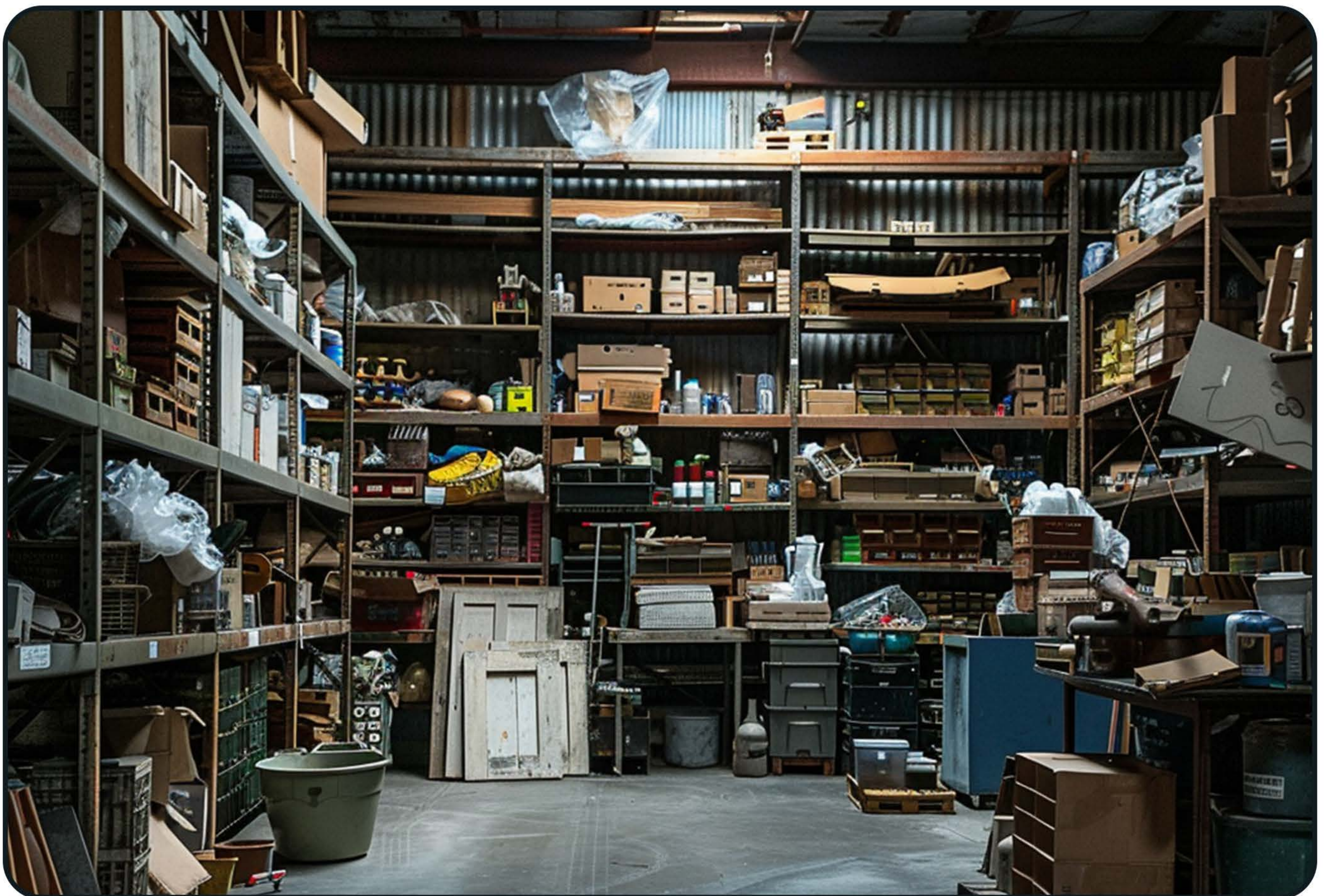
Output – 25%

Stock of items – 10%

Employment – 20%

➡ > 50 PMI – expansion in business activity

➡ < 50 PMI – contraction in business activity



Phasing Out Mercury Measuring Devices in Healthcare Project

● Why in News?

➡ UNEP launched a \$134-million initiative to phase out mercury measuring devices in healthcare.

● About the Project

➡ Aim

Phase out mercury thermometers and sphygmomanometers at a **rate of 20%** annually.

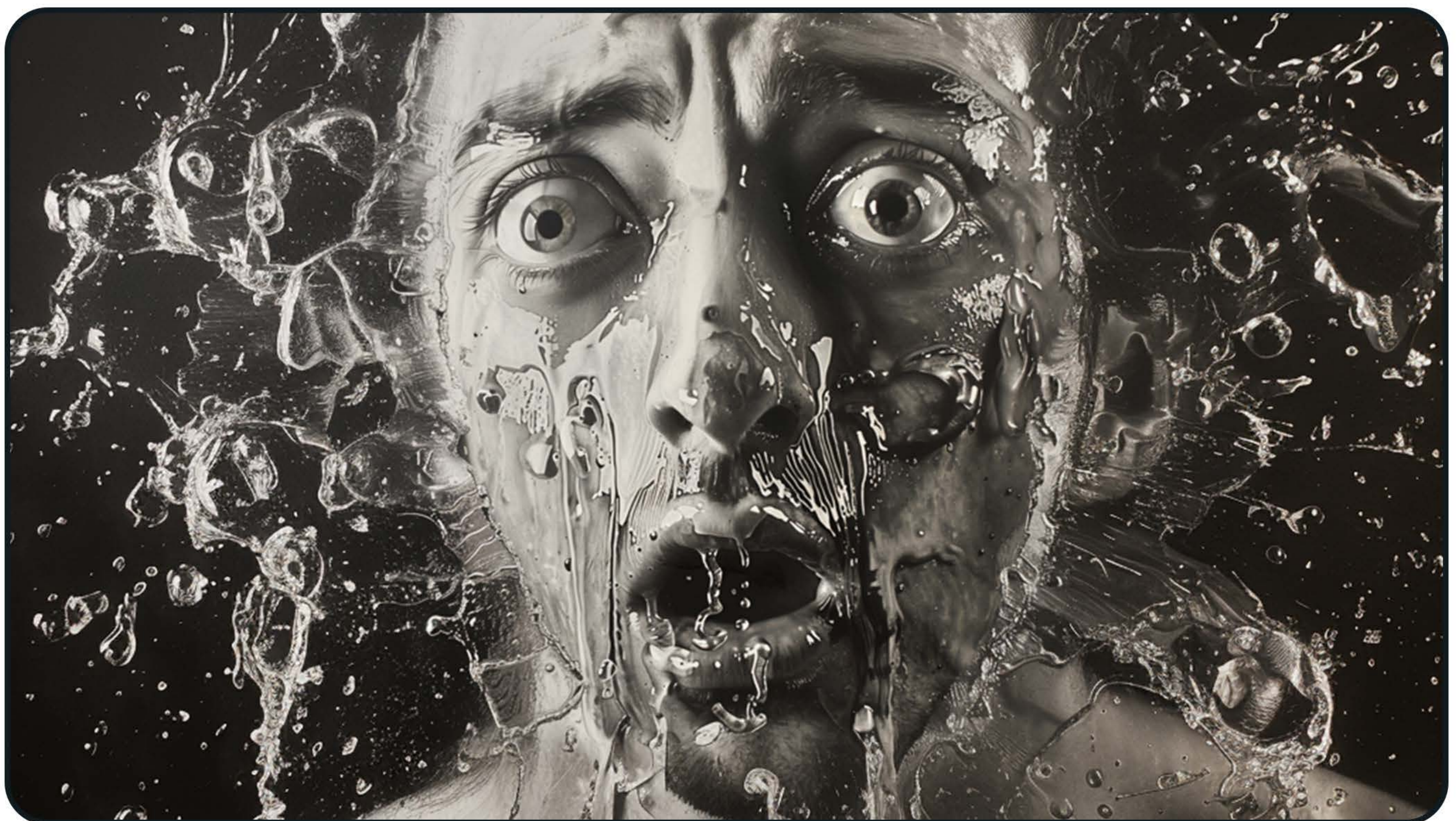
Reduce mercury spillages.

Encourage adoption of **accurate, affordable, and safe mercury-free** alternatives.

Improve management of mercury-containing medical waste.

➡ Member Countries

🇦🇱 Albania, 🇸🇩 Burkina Faso, 🇮🇳 India, 🇲🇪 Montenegro, 🇺🇬 Uganda



● **Funding and Execution**

- ➡ **Funding:** Global Environment Facility
- ➡ **Execution:** World Health Organization

● **About Mercury**

➡ **Characteristics**

Naturally occurring element in air, water, and soil.
The only metal in liquid state at room temperature.
Persistent, bio-accumulative, and toxic pollutant.
All humans are exposed to low levels of mercury.

➡ **Effects**

Toxic effects on the nervous, digestive, and immune systems, as well as lungs, kidneys, skin, and eyes.
Minamata disease: A chronic neurological disorder caused by methyl-mercury.

➡ **Sources of Mercury**

- Gold mining
- Coal-based thermal power plants
- Volcanic emissions



● **Minamata Convention on Mercury**

➡ **Overview**

Adopted in 2013 at **Kumamoto**, Japan; came into force in **2017**.

The first global **legally binding treaty** to protect health and the environment from mercury.

➡ **Purpose**

<i>Action</i>	<i>Description</i>
<i>Ban on new mercury mines</i>	<i>Prohibit the establishment of new mercury mining operations</i>
<i>Phase-out of existing mines</i>	<i>Gradually eliminate current mercury mining activities</i>
<i>Phase-out mercury use</i>	<i>Reduce and eventually eliminate mercury use in products and processes</i>

● **Significance**

➡ Named after the city in Japan, the epicenter of Minamata disease due to mercury poisoning.

➡ **India ratified** the Minamata Convention in **2018**.

● **Way Forward**

➡ Continued **global efforts** to reduce mercury pollution.

➡ Promote the **adoption of mercury-free medical devices**.

➡ **Strengthen international collaboration** to manage and mitigate mercury exposure.



Global Powers in the Indian Ocean Region (IOR)

● Why in News?

- ➔ **Growing Presence of Non-Resident Powers:** Countries like the US and Russia are increasing their presence in the Indian Ocean Region (IOR), signifying the region's growing strategic importance.

● Reasons for Enhanced Presence of Global Powers in IOR

- ➔ **Maritime Choke Points:** Vital choke points like the Strait of Hormuz and the Strait of Malacca are crucial for ensuring the free flow of trade, energy, and security.
- ➔ **Geostrategic Competition:** The Indo-Pacific has emerged as an integrated maritime theater due to the competing interests of major powers like China and other democracies advocating for a rules-based order.
- ➔ **Pursuance of Blue Economy:** The IOR, home to a third of the global population, offers substantial opportunities for sustainable economic and livelihood development, especially for littoral states heavily dependent on marine resources.

● Challenges in the IOR

- ➔ **Naval Aggressions from China:** China's naval activities pose a challenge to regional stability.
- ➔ **Dependency on External Powers:** Small countries in the region rely on external powers for security due to regional power imbalances, hindering optimal regional cooperation.
- ➔ **Re-emergence of Security Issues:** Issues like piracy and maritime terrorism are re-emerging, posing threats to maritime security.



● **Role of Indian Ocean Rim Association (IORA)**

- ➔ **Inclusive Multilateral Grouping:** IORA spans the entire Indian Ocean and offers a platform for inclusive diplomacy, empowering member states in negotiations.
- ➔ **Potential Counter to China-led Initiatives:** Alongside India’s SAGAR initiative, IORA could potentially counter China's influence in the Indian Ocean Region.



Indian Ocean Rim Association (IORA)

- **Establishment:** Formed in 1997 based on Nelson Mandela's vision.
- **Aim:** Strengthening regional cooperation and sustainable development within the IOR.
- **Membership:** Consists of 23 members within the IOR, including India.
- **Apex Body:** Council of Foreign Ministers (COM), meeting annually to address regional issues.
- **Priority Areas:** Covers six key areas including maritime safety & security, trade & investment facilitation, fisheries management, disaster risk management, tourism & cultural exchanges, and academic, science & technology.
- **IORA's Outlook on the Indo-Pacific:** A consensus document adopted in 2022, emphasizing adherence to international law, including the 1982 UNCLOS, and other relevant UN treaties.

● **Way Forward**

- ➔ **Enhanced Regional Cooperation:** Strengthen collaboration among IORA member states to address common challenges and promote sustainable development.
- ➔ **Diplomatic Engagement:** Continue diplomatic efforts to foster dialogue and cooperation among regional and global stakeholders in the Indian Ocean Region.
- ➔ **Security Collaboration:** Enhance maritime security cooperation to counter emerging threats and maintain stability in the region.



India-US Dialogue on Africa

● Why in News?

- ➔ **First Dialogue on Africa:** India and the US engage in a dialogue aimed at sharing ideas and exploring opportunities for institutional, technical, and bilateral synergies to collaborate in Africa.
- ➔ **Post-G20 Inclusion of African Union:** This dialogue comes after the inclusion of the African Union as a permanent member of the G20 during India's presidency, emphasizing Africa's increasing significance in global affairs.

● Significance of Africa for India

- ➔ **Strategic Importance:** Africa plays a vital role in India's maritime security and the protection of trade in the Indian Ocean Region, particularly from piracy.
- ➔ **Economic Opportunities:** Africa's vast natural resources and growing market provide significant demand-side and supply-side opportunities for Indian businesses.
- ➔ **Energy Security:** Collaboration in the renewable energy sector, such as through the International Solar Alliance, aligns with shared goals of sustainable development.
- ➔ **Multilateral Engagement:** Cooperation with African countries in multilateral forums enhances India's global influence and prospects of South-South cooperation.

● Challenges in India-Africa Relations

- ➔ **China's Influence:** China's growing influence in Africa through initiatives like the Belt and Road Initiative poses a challenge to India's interests in the region.
- ➔ **Security Concerns:** Persistent conflicts and political instability in parts of Africa pose risks to Indian investments, expatriates, and development projects.
- ➔ **Racial Tensions:** Instances of harassment and discrimination against African students highlight challenges in bilateral relations.



● **Initiatives by India to Engage Africa**

- ➔ **Kampala Principles (2018):** Indian PM outlined 10 guiding principles for India-Africa partnership, emphasizing equality and local partnerships.
- ➔ **Asia-Africa Growth Corridor:** Launched by India and Japan, this initiative aims to enhance cooperation with African countries.
- ➔ **Indian Technical and Economic Cooperation:** Provides capacity-building opportunities to professionals and students from African countries.
- ➔ **Humanitarian Assistance:** Operations like Op Sahayata and Op Vanilla demonstrate India's commitment to providing humanitarian assistance and disaster relief to African nations.

● **Way Forward**

- ➔ **Deepening Engagement:** Strengthen bilateral ties through enhanced dialogue and cooperation in areas of mutual interest.
- ➔ **Mitigating Challenges:** Address security concerns and racial tensions through diplomatic channels and promoting cultural exchanges.
- ➔ **Sustainable Development:** Continue collaborative efforts to promote sustainable development in Africa, focusing on economic growth, social welfare, and environmental sustainability.
- ➔ **Counterbalancing Chinese Influence:** Explore opportunities for strategic partnerships to counterbalance China's growing influence in the region.



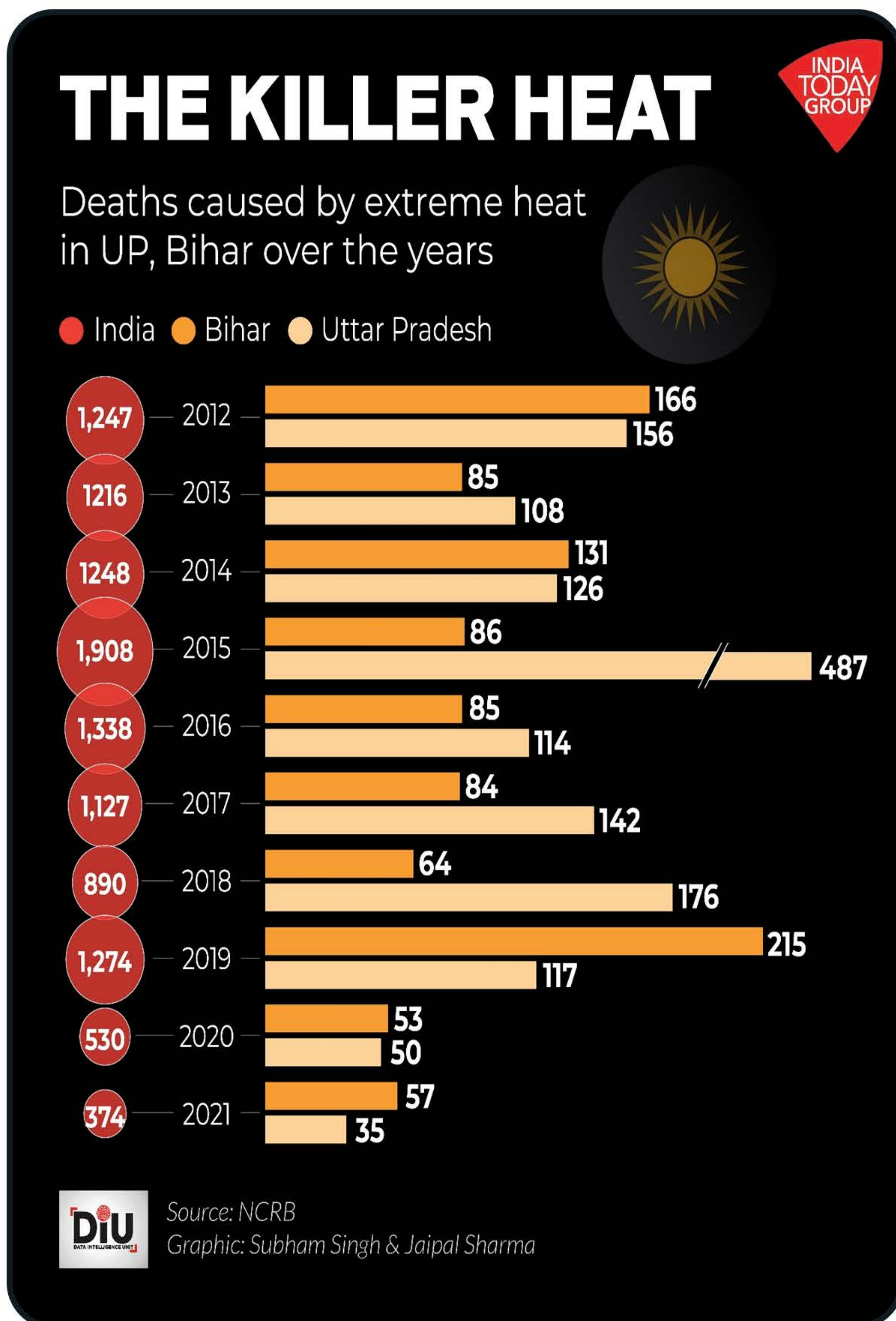
Heatstroke Guidelines

● Heatstroke

- ➔ **Definition:** A medical emergency caused by body overheating due to high temperatures and humidity or prolonged physical exertion in the heat.
- ➔ **Criteria for Heatstroke:** Body temperature of 40°C (104°F) or higher. Symptoms include delirium, seizures, or coma.

● Heatstroke Deaths in India

- ➔ According to an analysis of data from the National Crime Records Bureau, over 11,000 individuals in India succumbed to heat stroke between 2012 and 2021.



● **Key Highlights of the Guidelines**

➡ Prepared by the National Programme on Climate Change and Human Health (NPCCHH) and National Centre for Disease Control (NCDC).

➡ **Aims to:**

Help hospitals recognize criteria for labeling deaths as heat-related or due to heat stroke.

Promote evidence-based medical decision-making processes.

➡ **Autopsy decisions should consider:**

Circumstances of the death.

Age of the deceased.

Available resources.

➡ Collecting blood, urine, etc., for toxicological examination is highly desirable if the body's condition permits.






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