

DAILY CURRENT AFFAIRS (DCA)

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NEPAL FLASH FLOOD DISASTER

Context

- Recently, a flash flood erupted in the **Lhende Khola and Bhote Koshi river system in Nepal**, highlighting **cascading risks** for downstream **Bihar and Uttar Pradesh**.
 - Bhote Koshi River valley** in Nepal is the main link between Kathmandu and Lhasa in Tibet.

About Flash Flood

- A **flash flood** is a sudden, rapid rise and overflow of water, usually occurring within a few hours of intense rainfall, cloudbursts, dam or embankment failure, or the sudden release of water from glaciers or landslide-dammed lakes.
- Their **short lead time and high velocity** make them particularly destructive unlike gradual riverine floods.
 - Steep terrain, narrow valleys and rapidly responding catchments amplify the hazard.
- It is among the **most challenging hydro-meteorological hazards** to forecast due to their **rapid onset, short hydrological response times, and limited warning**, particularly in mountainous and densely populated regions.

Recent Examples

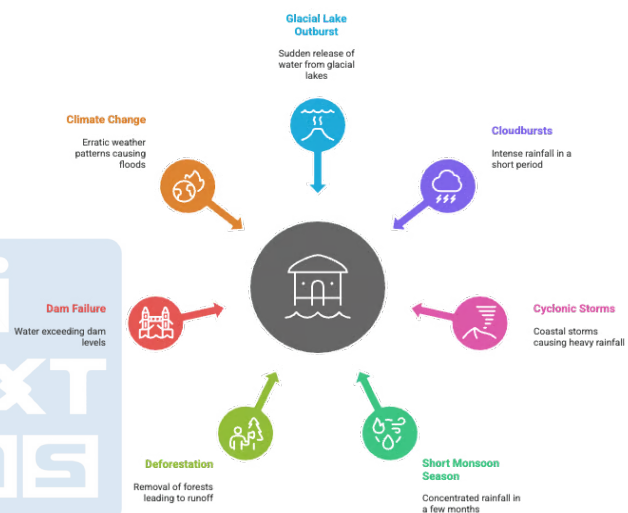
- Nepal's Flash Flood:** It appears to have resulted from a **complex combination of meteorological and geological factors**.
 - Intense rainfall associated with a **Western Disturbance and its interaction with prevailing weather systems** may have contributed to the disaster.
 - The sudden release of water and debris from a high-altitude glacial or unstable mountain area has been examined as a possible trigger, highlighting the growing fragility of the Himalayan ecosystem.
- India and the Himalayan region** have witnessed several destructive events, including the **Kedarnath disaster (2013)**, the **Chamoli flash flood (2021)**, recurrent floods and landslides in **Himachal Pradesh**, and recent cloudburst-driven disasters in Jammu & Kashmir.

Possible Reasons for Flash Floods

- Extreme Precipitation & Cloudbursts:** Short-duration, high-intensity rainfall can overwhelm drainage systems and mountain streams.

- Western Disturbances–monsoon Interaction:** Interaction between large-scale weather systems can intensify rainfall over the Himalayas.
- Climate Change:** A warmer atmosphere holds more moisture, increasing the likelihood of extreme precipitation, while glacier retreat and expanding glacial lakes raise GLOF risks.
- Geomorphology:** Young, fragile mountains, steep slopes and unstable sediments accelerate runoff and debris flows.
- Anthropogenic Factors:** Deforestation, unplanned construction, encroachment on floodplains and poorly designed infrastructure reduce natural absorption and obstruct drainage.

Factors Contributing to Flash Floods



India's Vulnerability

- India is highly exposed because of the **Himalayan arc, Northeast and Western Ghats**, alongside rapidly urbanising cities with inadequate drainage.
- Himalayan states** face a compound risk from cloudbursts, landslides and glacial hazards.
- Moreover, **transboundary rivers** such as the **Kosi and Gandak** carry upstream risks into densely populated plains, making cooperation with neighbouring countries crucial.

Impacts

- Flash floods cause **loss of life and livestock**, destruction of homes, roads, bridges and hydropower assets, and disruption of agriculture and livelihoods.
- They trigger secondary disasters such as landslides and debris flows, contaminate water supplies and disproportionately affect vulnerable communities.

- Repeated disasters can erode development gains and impose substantial fiscal costs.

Global Efforts & Initiatives

- The **Sendai Framework for Disaster Risk Reduction (2015–2030)** emphasises understanding risk, strengthening disaster governance and investing in resilience.
- The **WMO's Early Warnings for All** initiative seeks universal protection through effective multi-hazard warning systems.
- International cooperation in the **Hindu Kush Himalaya** is equally important for **data-sharing and glacial monitoring**.

India's Efforts & Initiatives

- India has strengthened disaster preparedness through the **Disaster Management Act, NDMA guidelines**, the **India Meteorological Department (IMD)** and **Central Water Commission (CWC)** forecasting systems.
- The **Flash Flood Guidance System (FFGS)** improves short-duration flood forecasting, while **satellite-based monitoring** and **Doppler weather radars** enhance situational awareness.
- Institutions such as the **Geological Survey of India** and **disaster-response agencies** contribute to hazard assessment and emergency response.

Way Forward

- India needs a **basin-based, multi-hazard approach** combining better weather forecasting, real-time river and glacial monitoring, risk-sensitive land-use planning and resilient infrastructure.
- Community-based **early warning systems** need to translate forecasts into timely evacuation.
- Crucially, Himalayan disaster management requires **transboundary data-sharing and cooperation**.
- Development in fragile mountain ecosystems should follow carrying-capacity assessments and ecological safeguards.
- Ultimately, shifting from post-disaster relief to **anticipatory action and climate-resilient development** is essential to reduce the growing threat of flash floods.

Source: IE

EASE OF DOING RESEARCH & DEVELOPMENT IN INDIA REPORT BY NITI AAYOG

Context

- The '**Ease of Doing R&D in India**' reported that **close to 80% of funding** under the Anusandhan National Research Foundation (ANRF), the **flagship research funding body, is concentrated in the IITs**.

Status of R&D in India

- Low Expenditure on Research and Development:** India's Gross Expenditure on Research and Development (GERD) has remained around **0.64% of GDP** for many years. This level is significantly lower than major economies:
 - Israel and South Korea spend more than 4% of GDP on R&D.
 - The United States and China spend above 2% of GDP on R&D.
 - The report notes that India's R&D expenditure has remained stagnant despite rapid economic growth.
- Dominance of Public Sector in R&D:** India's R&D funding is heavily dependent on **public funding** (with about 64% contribution), unlike the case in several leading innovation economies which have more than 60% of the R&D budget contributed by the private sector.

Major Challenges as per the Report

- Low Investment:** Inadequate investment limits scientific infrastructure, advanced technology development, innovation capacity and India's global technological competitiveness.
- Excessive Administrative and Compliance Burden:** Excessive bureaucracy reduces productive research time and slows scientific innovation.
- Rigid Procurement and Financial Rules:** Researchers encounter restrictions in procurement of specialized equipment, reallocation of funds, hiring project staff and international collaboration.
- Fragmented Governance and Lack of Coordination:** India's R&D ecosystem is spread across multiple ministries, departments and funding agencies operating independently.
 - This fragmented structure creates duplication of research efforts, delayed approvals and lack of integrated planning and data-sharing systems.

- **Weak Industry Participation:** India's R&D ecosystem is heavily dependent on government funding, while private-sector participation remains limited.
- **Human Resource Challenges and Brain Drain:** India faces shortages of skilled researchers, laboratory technicians and interdisciplinary experts despite producing a large number of STEM graduates.
 - ♦ It also highlights issues such as limited career progression, inadequate fellowships and migration of talented researchers abroad due to better opportunities and infrastructure.
- **Weak Commercialization of Research:** Although India produces scientific publications and laboratory-level innovations, conversion into patents, industrial technologies, startups and market-ready products remains limited.

Recommendations

- **Unified Project Management System (UPMS):** It is a system to streamline the planning, funding, monitoring, and evaluation of public R&D projects across Ministries and Departments.
- **Simplify Administrative, Financial and Procurement Procedures:** It recommends reducing the excessive compliance burden on researchers by introducing single-window digital systems and simplified approval procedures.
 - ♦ It also calls for greater flexibility in utilization of research grants and project funds.
- **Strengthen Industry–Academia Collaboration and Innovation Ecosystems:** It recommends building stronger partnerships between universities, industries, startups and government laboratories through research parks, innovation clusters, collaborative doctoral programs and joint industry-funded projects.
- **Improve Research Careers and Human Resource Systems:** There is a need to create attractive and stable career pathways for researchers by improving fellowships, compensation structures and long-term funding opportunities.
 - ♦ Increase the number of postdoctoral fellowships in S&T by 20% annually, for the next few years, to strengthen the national postdoctoral research ecosystem.
- **Establish Vigyan Nidhi,** a digital fellowship platform enabling direct benefit transfers and structured support for postdocs, mobility grants, and industry-linked research positions.
- **Integrated Research Governance:** It calls for better coordination among ministries and funding agencies through integrated databases, unified monitoring systems and streamlined governance frameworks to improve efficiency.

Government Initiatives

- **Research, Development and Innovation (RDI) Scheme:** Approved with a 1 lakh crore corpus, this scheme aims to energise private-sector R&D and deep-tech startups.
 - ♦ It offers long-term, low- or zero-interest loans, equity investments, and funds a new Deep-Tech Fund of Funds via the Anusandhan National Research Foundation (ANRF).
- **Anusandhan National Research Foundation (ANRF):** The ANRF established in 2023, provides high-level strategic direction for research, innovation, and entrepreneurship in science and technology.
 - ♦ The Foundation aims to mobilise funds amounting to 50,000 crore during 2023–28 through multiple streams, including the ANRF Fund, Innovation Fund, Science and Engineering Research Fund, and Special Purpose Funds.
- **Indian Space Policy, 2023:** It builds on the space reforms introduced in 2020, which opened the domain to non-governmental entities for end-to-end participation.
 - ♦ It aims to enhance space capabilities, promote a flourishing commercial space industry, and foster collaboration between public and private entities.
- **National Quantum Mission:** Allocated 6,003.65 crore for 2023–31, to advance quantum technologies through scientific and industrial R&D.
- **National Supercomputing Mission (NSM):** Launched in 2015, the initiative empowers universities, research institutions, and government agencies with state-of-the-art supercomputing systems connected through the National Knowledge Network.
- **India Semiconductor Mission (ISM):** Established in 2021, the mission seeks to build a robust ecosystem for semiconductor and display manufacturing.

- ♦ India has already approved 10 semiconductor projects across six states, including the first commercial Silicon Carbide fabrication facility in Odisha.
- **India AI Mission:** The IndiaAI Mission embodies the vision of “Making AI in India and Making AI Work for India.”
 - ♦ It is advancing rapidly, having already increased computing capacity from an initial target of 10,000 GPUs to 38,000 GPUs, ensuring accessible AI infrastructure for startups, researchers, and industries.
- **Atal Innovation Mission (AIM):** To foster innovation at the grassroots level by providing support to students, startups, and entrepreneurs.

Source: TH

THE HIGH COST OF INDIA'S PRIVATE HEALTH-CARE BOOM

Context

- The Parliamentary Standing Committee on Health and Family Welfare noted that the **average cost of hospitalisation** is 50,508 in a private facility, compared with 6,631 in a government facility.

Major Highlights

- For childbirth, **the average out-of-pocket medical expenditure** in private facilities is 37,630, against 2,299 in public facilities.
- **The committee has made 368 recommendations**, including **standardised package rates and mandatory pre-treatment cost estimates**.
 - ♦ **Basic room tariffs in metropolitan private hospitals** should not exceed the average tariff of three-star hotels that are nearby.
 - ♦ **Large corporate hospitals earning from medical tourism, foreign patients and high-net-worth individuals** should cross-subsidise poorer Indians and reserve beds for Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) beneficiaries at regulated rates.

Private Care in India

- **Public hospitals** cannot currently meet all demand for secondary and tertiary care. **Private hospitals therefore fill an important gap.**

- ♦ Land, equipment, intensive care units, digital systems, laboratories and trained personnel are expensive.
- Corporate hospital groups **increasingly compete for well-known specialists, sophisticated technology and premium infrastructure**. These can **improve quality, but also create a high-cost ecosystem**.
- **Revenue targets, procedure-linked incentives, higher occupancy expectations and higher revenue per bed** can gradually influence institutional behaviour.

Healthcare Sector of India

- **Healthcare Sector:** It comprises hospitals, medical devices, clinical trials, outsourcing, telemedicine, medical tourism, health insurance and medical equipment.
- India's healthcare delivery system is categorised into **two major components - public and private**.
- **Public Sector:** It comprises limited secondary and tertiary care institutions in key cities and focuses on providing basic healthcare facilities in the form of **Primary Healthcare Centers (PHCs) in rural areas**.
- **Private Sector:** The private sector provides the majority of secondary, tertiary, and quaternary care institutions with a major concentration in metros, tier-I, and tier-II cities.

Structure of Financing of Public Healthcare Sector in India

- In India, **states bear the responsibility for public health and sanitation**, including hospitals and clinics.
- **The Ministry of Health and Family Welfare** broadly takes responsibility for **formulating policy for public health**.
 - ♦ It provides **administrative and financial support to states** to operate public health facilities and infrastructure, and to **deal with specific health issues, such as maternal health and nutrition**.
 - ♦ It also **establishes and runs medical Institutes of National Importance** such as AIIMS as well as establishments in union territories including Delhi.
- **The Ministry comprises:** The Department of Health and Family Welfare, which is responsible for implementing public health schemes and regulating medical education,

- ♦ And the Department of Health Research which is responsible for conducting medical research.

Concerns with Low Public Expenditure on Healthcare

- This has resulted in **inadequate health infrastructure** including human resources, and slow improvement in key health indicators.
- **Limited Access to Healthcare Services:** Low public spending hampers accessibility to healthcare services, particularly in rural and remote areas where infrastructure is already lacking. This exacerbates health disparities between urban and rural populations.
- **Neglected Preventive and Primary Care:** A large portion of healthcare spending in India is directed towards tertiary care, neglecting preventive and primary healthcare services.
- **Higher Disease Burden:** Low public spending on healthcare contributes to a higher burden of preventable diseases such as communicable diseases, malnutrition, and maternal and child health issues.
- **Increased Out-of-Pocket Expenditure:** The lack of public healthcare infrastructure has led people to **use private health services more**, and that has **increased the financial burden on citizens**.

Recent steps Taken by the Government for Strengthening Healthcare Sector

- **National Health Policy 2017:** It outlines the government's vision to achieve the highest possible level of health and well-being for all and emphasizes preventive and promotive healthcare.
 - ♦ Equal treatment for modern medicine and traditional systems (Ayurveda, Yoga, Unani, Siddha, Homeopathy).
 - ♦ All India Institute of Medical Research was now promoting research on traditional medical systems and a comprehensive approach.
- **Ayushman Arogya Mandirs:** 1.75 lakh health centers functioning with 369 crore visits.
 - ♦ Focus on screening hypertension, blood pressure, and diabetes for people over 30 years.
- **National Digital Health Mission (NDHM):** Launched in 2020, NDHM aims to create a digital health ecosystem, including health IDs for citizens and the establishment of a national digital health infrastructure.

- **Health and Wellness Centers (HWCs):** The government is working towards transforming primary health centers into HWCs to provide comprehensive primary healthcare services, including preventive and promotive care.
- **Pradhan Mantri Swasthya Suraksha Yojana (PMSSY):** PMSSY aims to enhance tertiary care capacities and strengthen medical education in the country by setting up new AIIMS institutions and upgrading existing government medical colleges.
- **Research and Development Initiatives:** The government has been encouraging research and development in healthcare, including support for the development of vaccines, drugs, and medical technologies.
- **National Medical Commission (NMC) Act:** The NMC Act, passed in 2019, aims to bring reforms in medical education and practice by replacing the Medical Council of India (MCI) and promoting transparency and accountability.
- **Jan Aushadhi Scheme:** The Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) aims to provide quality generic medicines at affordable prices through Jan Aushadhi Kendras.

Way Ahead

- If government hospitals remain overcrowded, understaffed or difficult to access, citizens will continue to depend heavily on private providers.
 - ♦ One effective form of regulation is a **strong public health system that provides a credible alternative**.
 - ♦ Public hospitals must therefore become a genuine option, not merely the last resort for those who cannot afford private care.
- Primary health care needs **strengthening so that disease is prevented, detected and treated early**.
- **Insurance systems, including AB-PMJAY,** should reward appropriate care rather than simply higher volumes of procedures.
- **Clinical audits, evidence-based treatment protocols and transparent billing** can protect both patients and doctors from commercial pressures.

Conclusion

- The Parliamentary Committee is **right to focus attention on affordability** and to question whether the **current pattern of investment in private health care aligns with public interest**.
- The true measure of India's health-care progress will not be how much money flows into hospitals or what is the annual compounded growth rate in medical tourism, but **whether Indian citizens can enter them with confidence that they will receive what they need**.

Source: TH

SECURING SYNTHETIC DNA IN INDIA

In News

- Synthetic DNA has become central to advances in health, food security, climate and biotechnology, but its growing accessibility has created significant dual-use and biosecurity risks.

Synthetic DNA

- It is defined as artificially created genetic material that can be synthesized from digitized genome sequences and used to construct synthetic genomes.
- It expands the possibilities for the development of improved or entirely new biomolecular therapies, including enzymes, peptides, RNA catalysts, and DNA and RNA aptamers.

Applications of Synthetic DNA

- **Medicine and Therapeutics:** It promotes expeditious development of mRNA vaccines, tailored targeted gene treatments, CRISPR-based diagnostics, and synthetic monoclonal antibodies.
- **Agriculture & Food Systems:** It engineers climate-resilient crops, nitrogen-fixing non-legume plants to reduce fertiliser consumption, and lab-grown alternative proteins.
- **Industrial Biotechnology:** It aids in the bio-manufacturing of bioplastics, bio-fuels, specialised enzymes and high-value fine chemicals employing synthetic microbial factories.
- **Data Storage:** It assists in using high-density DNA molecules as long-term, ultra-compact digital data storage media that can survive for millennia.

Global control of synthetic DNA

- **Global control of synthetic DNA** has advanced from informal monitoring to more robust biosecurity mechanisms.
- The 2010 guidance from the US Department of Health and Human Services (HHS) emphasised customer and sequence screening as important protections, which led to the establishment of the IGSC and its voluntary harmonised methodology.
- European countries are slowly adding DNA screening to their national biosecurity programs and countries such as Nigeria, South Korea and China are also taking initiatives.
- IBBIS Common Mechanism (2024) will standardise worldwide screening and data sharing procedures, with support from programs at EBRC and RAND.
 - Today governance is frequently three fold: mandatory screening at the provider level; self-regulation within the sector; and safeguards at the device level (e.g. user authentication, local sequence screening, recording and alarms).

Importance for India

- **BioE3 Policy Alignment:** India's BioE3 (Economy, Environment and Employment) Policy is a transition to a high-performing bio-economy driven by synthetic biology.
 - BioE3 Policy is helping to strengthen India's position as a global powerhouse for biotechnology, supporting its rapidly growing bioeconomy. India's bioeconomy is estimated at US\$ 165.7 billion in 2024, projected to touch US\$ 300 billion by 2030.
- **Healthcare Self-Reliance:** Enabling local creation of affordable medications, APIs and rapid diagnostics for the Indian population.
- **Agri-Resilience:** Supports India's agrarian economy to withstand climate extremes (droughts, high salinity) and worsening soil fertility.
- **Decarbonisation:** Replace petrochemical processes with sustainable bio-based alternatives to assist India in reaching its Net-Zero emission targets.

Challenges and Concerns

- **Cyber-biosecurity threats:** The use of international providers for DNA screening may generate issues of control and access to sensitive biological data.
 - ♦ Technologies enabling vaccinations and medical achievements could also be leveraged to replicate lethal viruses or enhance destructive biological agents.
 - ♦ Hacking into DNA design software, synthesis-device firmware and cloud repositories might lead to data theft, manipulation, or malicious modification.
 - ♦ Cyberattacks could modify the DNA design files during synthesis, introducing malicious genetic material and avoiding typical screening processes.
- **Import dependence:** India's synthetic DNA requirements are largely met through imports, mainly from suppliers and distributors in the US and China, which could make it vulnerable to geoeconomic and supply chain risks.
- **Limited Screening:** It is reported that most of the DNA providers in India have very little rigorous sequence and client screening, hence creating biosecurity gaps.
- **Weak regulatory framework;** no national standard for checking DNA orders from commercial suppliers & importers.
 - ♦ India lacks a comprehensive database of Sequences of Concern (SOC) and robust AI-enabled solutions to detect potentially harmful or modified sequences.
 - ♦ Indian biosecurity certification and enforcement processes do not specifically include imported benchtop DNA synthesisers.
- **Limited training and skills:** Biosecurity is not taught well in university curricula, and many researchers and safety experts lack specific skills in screening.

Suggestions

- India has to shift from a fragmentary knowledge base to a coordinated synthetic-DNA biosecurity strategy, linking its domestic systems with global norms and the One Health idea.
- It should build a comprehensive database on human-animal-plant pathogens, set up a National DNA Synthesis Screening Cell and provide a two-step verification procedure for imported benchtop synthesisers.

- It should support industrial self-regulation through biosecurity certification and enhanced institutional oversight by integrating biosafety, biosecurity and dual-use ethics in education and by strengthening Institutional Biosafety Committees.
- India should engage in biosecurity diplomacy with allies like the US, EU and ASEAN to harmonise screening standards and develop secure DNA supply chains, while leading a regional network for early warning, information sharing and standardised screening.
- India needs a risk-based, technology-enabled and internationally coordinated biosecurity policy to deal with growing synthetic biology and dual-use dangers.

Source :ORF

NEWS IN SHORT

SARNATH ADDED TO UNESCO WORLD HERITAGE LIST

Context

- At the 48th Session of the World Heritage Committee in Busan, South Korea, the **Ancient Buddhist Site of Sarnath** was inscribed on the **UNESCO World Heritage List**.

About

- Sarnath was nominated **under criteria (iii) and (vi) of the UNESCO World Heritage List**.
 - ♦ **Criterion (iii)** recognizes Sarnath's enduring spiritual significance as one of the four principal destinations of Buddhist pilgrimage.
 - ♦ **Criterion (vi)** recognizes Sarnath's direct and tangible association with events in the life of the Buddha that hold outstanding significance for the Buddhist community.
- **With 45 sites in the List, India ranks 6th globally and 2nd in Asia Pacific Region** for the most number of World Heritage Sites.
- **The last addition or 'inscription' was in 2024**, with the **Maratha Military Landscapes** located **Maharashtra and Tamil Nadu**.

About Sarnath

- **Location:** It is situated near Varanasi, Uttar Pradesh.
 - ♦ It is one of the four major Buddhist pilgrimage sites (others: Lumbini, Bodh Gaya, Kushinagar).
- **Historical Importance:**
 - ♦ After attaining enlightenment at Bodh Gaya, Gautama Buddha **delivered his first sermon** at Sarnath (around 528 BCE).
 - ♦ This event is called **“Dhammachakrapravartana”** or “Turning of the Wheel of Dharma”.
 - ♦ It marked the **beginning of the Buddhist Sangha** (community of monks) and the establishment of the **principles of the Noble Eightfold Path**.
- **Monuments & Structures:**
 - ♦ **Dhamek Stupa:** It was built by Ashoka and commemorates the Buddha's first sermon.
 - ♦ **Chaukhandi Stupa:** It marks the spot where Buddha met his first disciples.
 - ♦ **Ashokan Pillar:** It was established by Emperor Ashoka; its lion capital is now the National Emblem of India.
 - ♦ **Monasteries & remains:** These are the ruins of ancient viharas, temples, and sculptures.
- **Ashoka's Contribution:** Emperor Ashoka visited Sarnath in **3rd century BCE**.
 - ♦ Built stupas, monasteries, and inscribed edicts promoting Dharma.
 - ♦ The Lion Capital of Ashoka from Sarnath was adopted as India's national emblem in 1950.

Significance

- World Heritage status would **reinforce India's identity as the birthplace of Buddhism** and enhance **cultural diplomacy with nations** such as Japan, Thailand, Sri Lanka, Myanmar, Cambodia, Vietnam, South Korea, Mongolia, etc.
- This recognition would further **support India's efforts to promote Buddhist heritage as a bridge for international engagement** and would also showcase India's expertise in heritage conservation.

Source: **PIB****UN COMMITTEE ON THE ELIMINATION OF RACIAL DISCRIMINATION (UNCERD)****In News**

- India has strongly rejected the “politically motivated and malicious” observations made by the UN Committee on the Elimination of Racial Discrimination (UNCERD) following its 11th periodic review in Geneva.

UN Committee on the Elimination of Racial Discrimination (UNCERD)

- It is an independent UN treaty body of 18 experts that monitors how countries implement the **International Convention on the Elimination of All Forms of Racial Discrimination (ICERD)**.
- ICERD was adopted in 1965 and came into force in 1969. It is supported by the OHCHR.
- Its main function is to review periodic reports submitted by State parties and issues Concluding Observations.
- It uses early warning and urgent action procedures to prevent racial or ethnic conflicts.

UNCERD and India

- India **signed ICERD in 1967 and ratified it in 1968**.
- **India's constitutional framework**, including Articles 14, 15, 16 and 17, along with laws such as the Protection of Civil Rights Act, 1955 and SC/ST (Prevention of Atrocities) Act, 1989, addresses discrimination.
- India maintains that caste-based discrimination is a matter of social stratification, addressed through its constitutional and legal framework, rather than racial discrimination under ICERD.

Source: **TH****INDIA'S SUGAR INDUSTRY****Context**

- India's sugarcane production has reached **500 MMT in 2025-26** as per the Third Advance Estimate of Production released by the Ministry of Agriculture & Farmers Welfare.

About

- India is the **world's second-largest sugarcane producer and the largest consumer of sugar in the world**.

- The largest sugar-producing countries are **Brazil, India, China, Thailand, and the U.S.**



- Uttar Pradesh and Maharashtra** are the top sugarcane-producing states in India.
- India exported **8 lakh MT of sugar in 2025-26**, compared with 0.47 lakh MT in 2016-17.
- Major export destinations of Indian sugar** include **Sri Lanka, West Asia, and East Africa.**

Source: PIB

DISASTER FINANCE IN INDIA

In News

- Recently, the Ministry of Home Affairs told the Lok Sabha that heatwaves and lightning had been added to India's list of notified natural calamities.

Do you know?

- India is **witnessing a sudden increase in heat danger**, with more than 57% districts, encompassing nearly three-fourths of the population, in high to extremely high heat risk.
- Increasing hot days, hotter nights, humidity, and fast urbanisation are increasing heat stress, while recent monitoring has recorded thousands of heatstroke cases and deaths.
- The **new disaster-finance framework** allows States to use the **SDRF for urgent aid and compensation** and the SDMF for long-term initiatives such as cooling shelters, early-warning systems, blue-green infrastructure and cool roofs.

Disaster Finance in India

- Constitutional Provisions:** Under Article 280 of the Constitution, the Finance Commission recommends arrangements for disaster management funds.
- Law:** India's disaster-response financing framework, established under the Disaster Management Act, 2005, rests on a two-tier structure.
 - The State Disaster Response Fund (SDRF), financed jointly by the Centre and States in a 75:25 ratio, 90:10 for Himalayan and north-eastern States, provides immediate relief for shelter, food, medical care and compensation.
 - The National Disaster Response Fund (NDRF), fully funded by the Union government, supplements this when a calamity is classified as severe
- Determinations:** The FC-XVI recommended Rs 2.04 lakh crore for State disaster funds in the five years between 2026-27 and 2030-31, nearly 28% more than the previous Commission's allocation.
 - Of the total fund, 1.6 lakh crore goes to the State Disaster Response Fund (SDRF) and the rest to the State Disaster Mitigation Fund (SDMF).
 - A State could notify a heatwave as a 'local disaster' and use the SDRF — but only up to 10% of its annual allocation
- Notified Disaster:** Heatwaves, lightning, cyclones, droughts, earthquakes, fires, floods, tsunamis, hailstorms, landslides, avalanches, cloud bursts, pest attacks and frost & cold waves.

Source: TH

NIPUN: SECOND DIVING SUPPORT VESSEL (DSV)

Context

- The Indian Navy is set to commission Nipun, the **second Diving Support Vessel (DSV)** of the Nistar-class, at the Naval Dockyard, Mumbai.

About

- Indigenously designed and constructed by **Hindustan Shipyard Limited (HSL), Visakhapatnam**, Nipun represents a significant milestone in India's pursuit of self-reliance in defence shipbuilding.
- 'Nipun' is derived from Sanskrit and signifies **one who is adept, capable and well-versed in a particular discipline**.
- Its **side-diving stage** can support operations up to **75 metres**, while **Remotely Operated Vehicles (ROVs)** can undertake diver monitoring and salvage operations down to **1,000 metres**.
- The ship is equipped with modern diving systems and underwater intervention capabilities, enabling sustained support to divers operating in demanding conditions at sea. It will also augment the Indian Navy's capability to support submarine rescue operations.

Source: [PIB](#)**EXERCISE 'PITCH BLACK' AND EXERCISE 'UDARA SHAKTI'****Context**

- The Indian Air Force (IAF) has successfully concluded its participation in two international flight engagements, including **Exercise Pitch Black 2026** in Australia and **Exercise Udara Shakti 2026** in Malaysia.

Exercise 'Pitch Black'

- It is a **biennial, multi-national exercise** hosted by the **Royal Australian Air Force (RAAF)**.
- The name 'Pitch Black' was derived from the emphasis on **night time flying over large unpopulated areas**.
- The **Indian Air Force** previously participated in the **2018, 2022 and 2024** editions of the exercise.

Exercise 'Udara Shakti'

- Udara Shakti is a **biennial bilateral air exercise** between the Indian Air Force (IAF) and the Royal Malaysian Air Force (RMAF).
- The exercise provides an opportunity for personnel of both air forces to train together and enhance interoperability by gaining familiarity with each other's procedures, practices and approaches to air operations.

Source: [AIR](#)