Today's Prelims Topics

Portulaca bharat

Context
New flowering plant species (Portulaca bharat) discovered in Aravali hills near Jaipur

About Portulaca bharat (New Species)

- **Taxonomy:** Belongs to the subgenus *Portulaca*.
- **Habitat and Discovery:** Found exclusively in the Galtaji Hills of the Aravalli range near Jaipur, Rajasthan.
    - Only 10 individual plants have been documented in the wild so far.
- **Key Identifying Features:**
    - **Leaves**: Opposite in arrangement and slightly concave in shape.
    - **Flowers**: Pale yellow, gradually turning creamish-white towards the tip.
    - **Unique Traits**: Glandular hairs present on stamen filaments; roots are notably thick.
- **Naming Significance:** Named *bharat* to symbolically honor India's rich and still-emerging biodiversity.
- **Conservation Status (IUCN):** Provisionally classified as ***Data Deficient,*** due to the absence of known populations beyond the discovery site.

About the Portulaca Genus
- **Global Distribution**
    - Comprises approximately 153 species worldwide.
    - Commonly found in tropical and subtropical climates.
- **Ecological Adaptations:**
    - **Succulent in nature** with high resilience.
    - Possess water-storage tissues and can **thrive in extreme and arid environments**.
- **Presence in India:** India hosts 11 species of *Portulaca*, of which 4 are endemic.
    - These are mainly found in dry and semi-arid regions across the country.

Source: The Hindu

Gharials

Context
Nearly 174 baby gharials were released into the Gandak river in Bihar to mark the World Crocodile Day.

About Gharial (Gavialis gangeticus)
- **Distinctive Features:**
  - Long, narrow snout with interlocking sharp teeth (adapted for catching fish).
  - **Bulbous snout tip** (ghara) in males, used for sound production and courtship displays.
  - Webbed feet and weak legs, making them excellent swimmers but poor walkers.
  - **Communal nesting:** Many females lay eggs in the same area.
  - **Parental Care:** Unlike crocodiles, gharials don't carry hatchlings in their mouths but guard them after hatching..
- **Distribution:** Found in **India, Nepal and parts of Bangladesh**.
- **Preferred Habitat: Freshwater rivers** with deep pools, **sandy banks** and slow-moving currents.
- **Ecological Role:** Primarily **fish-eating** but also **clean up carrion**, keeping rivers healthy.
- **Cultural Significance:** Depicted as the divine mount of Goddess Ganga in Indian mythology.
- **Conservation status:**
  - **IUCN:** Critically Endangered
  - **WPA:** Schedule-I
- **Major Threats:**
  - **Historical Threats:** Overhunting for **skins, trophies, eggs, and traditional medicine**.
  - **Modern Challenges:**
    - **Habitat destruction** (dam construction, irrigation canals, embankments).
    - **Siltation and sand-mining** disrupting nesting sites.
    - Pollution and river course changes.

Facts
- India hosts nearly **80% of the global wild gharial population**.
- **Madhya Pradesh** is also known as **"Gharial State"**
- **Primarily Found In:**
  - National Chambal Sanctuary (550 out of 650 individuals)
  - Katerniaghat Sanctuary, UP
  - Chitwan National Park, Nepal
  - Son River Sanctuary, MP
  - Satkosia Gorge Sanctuary, Odisha
- **Odisha** is the **only Indian state to host wild populations of all three native crocodilian species** (Gharial , Mugger crocodile (IUCN Status–

GLOBAL POPULATION
of mature individuals

Gharials	650
Mugger Crocodiles	5700-8700
Saltwater Crocodiles	500,000

Vulnerable) and Saltwater crocodile (IUCN Status– Least Concern)).
● **World Crocodile Day:** 17th June.
● The **Gharial Ecology Project (GEP)** was launched by **Madras Crocodile Bank Trust in 2008**.
● **Crocodile Conservation Project (CCP):** Launched in **1975** at Bhitarkanika National Park, **Odisha** which was supported by the **United Nations Development Programme and the Food and Agriculture Organisation.**
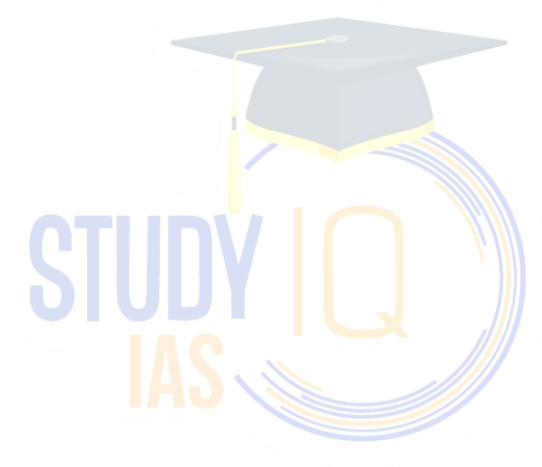

UPSC PYQ
Q. If you want to see gharials in their natural habitat, which one of the following is the best place to visit ? (2017)
    (a) Bhitarkanika Mangroves
    (b) Chambal River
    (c) Pulicat Lake
    (d) Deepor Beel

Answer: B

    Source: ETV Bharat

What is synthetic aperture radar?

Context
Recently, NASA said the NASA-ISRO SAR mission had arrived at ISRO's spaceport in Sriharikota.

What is Synthetic Aperture Radar (SAR)?
● SAR is a type of **active remote sensing technology**.
● It sends out **microwave pulses** and records the energy that bounces back after hitting Earth's surface.
● Unlike optical sensors, SAR can **capture high-resolution images day or night**, and through **clouds, smoke, or light rain**.

How SAR Works
● A **microwave signal** is emitted toward the ground.
● The **reflected signals (echoes)** from surfaces like mountains, oceans, ice, or urban structures are recorded.
● A **moving antenna (on a satellite or aircraft)** captures these echoes from different positions.
● Using **advanced signal processing**, these signals are combined to **simulate a much larger antenna** (synthetic aperture).
● This technique allows **sharp imaging with high resolution**, without needing a physically huge antenna.
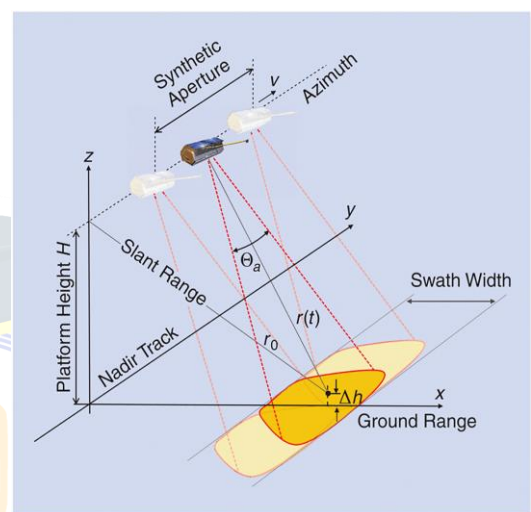
Advantages of SAR
● **All-weather, day-night capability** — unlike optical imaging, SAR works in **darkness and cloudy conditions**.
● Can image **wide areas** (hundreds of kilometers) in a single satellite pass.
● Works well for **monitoring terrain, agriculture, deforestation, flooding, and military surveillance**.

What SAR Can Detect
● **Soil moisture**, vegetation density, surface roughness.
● Differentiates materials like **water, soil, vegetation, metal, and concrete** based on their microwave reflectivity.
● Can detect **minute surface changes** that are invisible in optical imagery (e.g., after earthquakes or landslides).

Source: TheHindu

Heat Risk

Context
A recent study by the Council on Energy, Environment and Water (CEEW), titled 'How Extreme Heat is Impacting India', reveals that **57% of Indian districts** are at **high or very high risk** due to extreme heat exposure.

About Heat Risk
- Refers to the **likelihood of heat-related illness or death** due to extreme heat.
- **More comprehensive** than just temperature readings.
- Determined by three critical factors:
  - **Intensity of heat & compounding effects** (e.g., humidity, urban heat islands).
  - **Level of exposure** to extreme temperatures (e.g., outdoor workers, urban dwellers).
  - **Vulnerability** of the population (e.g., elderly, children, pre-existing health conditions).
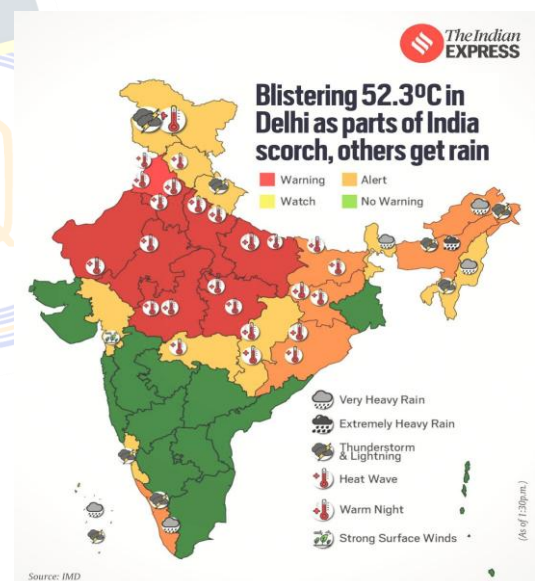
> **Heatwaves**
> No single universal definition.
> Generally refers to **prolonged periods of abnormally high temperatures** in a region.
> Declared based on local climate norms and thresholds.

Key Drivers of Heat Risk in India
- **Rise in Very Warm Nights**
  - 70% of districts had 5+ more warm nights (2012–2022).
  - Warm nights prevent body cooling, raising risk of **heat stroke** and worsening **diabetes/hypertension**.
- **Increase in Relative Humidity (North India)**
  - Indo-Gangetic Plain humidity rose from **30–40% to 40–50%**.
  - High humidity reduces sweat evaporation, increasing **heat stress**.
- **Urbanisation & Population Density**
  - Cities like Delhi & Mumbai face higher risk due to **dense population** and **heat-absorbing concrete**.
  - Tier II/III cities also heating up due to rapid urban growth.
- **Socio-Economic & Health Vulnerabilities**
  - States like Andhra Pradesh, Bihar, UP, and Maharashtra are more vulnerable.
 - Risk worsened by **elderly population** and **chronic diseases** (e.g., hypertension, diabetes).

The Indian EXPRESS

Blistering 52.3°C in Delhi as parts of India scorch, others get rain

Warning Alert
Watch No Warning

Very Heavy Rain
Extremely Heavy Rain
Thunderstorm & Lightning
Heat Wave
Warm Night
Strong Surface Winds

Source: IMD

Key Findings of the Study
- States facing the highest risk include Delhi, Maharashtra, Goa, Kerala, Gujarat, Rajasthan, Tamil Nadu, Andhra Pradesh, Madhya Pradesh, and Uttar Pradesh.
- The Council on Energy, Environment and Water (CEEW), based in New Delhi, is one of the world's leading and best-managed independent climate think tanks.
- **2024: Warmest Year on Record**
  - 2024 was the **hottest year globally and in India**.
  - Global temperature was **1.5°C above pre-industrial levels (1850–1900)**.

- ○ India's average temperature was **1.2°C higher** than the 1901–1910 average.
- **India's Climate Impact is Already Visible**
    - ○ India saw its **longest heatwave since 2010**.
    - ○ Over **44,000 heatstroke cases** were reported in **2024** alone.
- **Inadequate Heat Action Plans (HAPs)**
    - ○ Many HAPs lack **long-term strategies**.
    - ○ Even where plans exist, **implementation is weak**, per the **Sustainable Futures Collaborative (SFC)**.
    - ○ This undermines India's **climate resilience**.
- **Future Risks**
    - ○ Without urgent action, **heat-related deaths will likely rise**.
    - ○ India faces **more frequent, intense, and longer heatwaves** in the coming years.

Source: IndianExpress
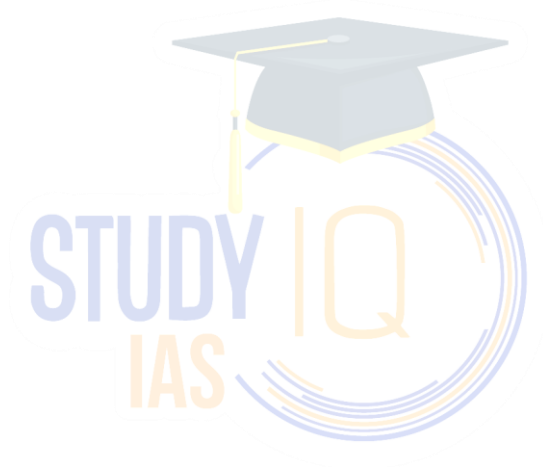
GeM Portal

Context
The **government now allows scientific institutions to bypass the GeM portal** for purchases.

About Government-e-Marketplace (GeM)
- **Launched:** August 9, 2016
- **Developed by:** Ministry of Commerce and Industry.
- **Purpose**: To facilitate online purchases of goods and services by all central government ministries and departments.
- **Government Purchases:** The Ministry of Finance has endorsed and **mandated the use of GeM for government purchases**, as outlined in the General Financial Rules, 2017.
  - **Example**: The platform is used extensively by the defence sector including the **assembly of BrahMos missiles**.
- **Ownership**: Managed by **GeM SPV (Special Purpose Vehicle)**, a completely government-owned (100%), not-for-profit entity established **under the Ministry of Commerce and Industry.**
- **Who Can Use:** Government departments, PSUs, autonomous bodies.
- **Global Standing**: GeM is the **3rd largest government e-procurement platform** in the world, following **South Korea's KONEPS and Singapore's GeBIZ.**

Source: The Hindu

Bonn Climate Change Conference

Context

The annual Bonn Climate Change Conference began in Bonn, Germany.

About Bonn Climate Change Conference

- **What is it?:** An **annual mid-year meeting** organized under the **United Nations Framework Convention on Climate Change (UNFCCC)**.
  - Acts as a key platform to **advance climate negotiations** before the annual COP (Conference of the Parties).
- **Launched**: 1992
  - Formally called the **Sessions of the UNFCCC Subsidiary Bodies (SBs)**.
- **Purpose**: To discuss the **technical and scientific aspects** of climate action.
  - Helps in **setting the agenda** for the COP summit, held typically in **November**.
  - Also reviews the **implementation of agreements** made at the previous COP.
- **Who Attends?** Members of the Subsidiary Bodies (SBs), Indigenous peoples' representatives, scientists, civil society, and international organizations.
- **Key Agenda for 2025: Global Goal on Adaptation (GGA),** which is an attempt to identify a common global goal on adaptation, just like keeping temperatures below the 1.5 degrees Celsius threshold is a global goal on mitigation.

- **Subsidiary Bodies (SBs)**– essentially committees that assist UNFCCC's governing bodies in implementing and reviewing climate change agreements.
- **2 permanent SBs of the UNFCCC**:
  - **Subsidiary Body for Implementation (SBI)**: It assists UNFCCC governing bodies in the **assessment and review of the implementation of their decisions.**
    - It also facilitates **discussions on financial and technical suppor**t to developing countries which are party to the UNFCCC.
  - **Subsidiary Body for Scientific and Technological Advice (SBSTA):** It a**dvises governing bodies on scientific knowledge** related to climate change.

Source: Indian Express

UNESCO Creative Cities Network (UCCN)

Context

Lucknow has submitted its nominations for inclusion as "**City of Gastronomy**" in the **UNESCO Creative Cities Network (UCCN)**.

About UNESCO Creative Cities List

| UNESCO Creative Cities Network (UCCN)	
Initiation	2004
Purpose	To foster cooperation among cities which recognize creativity as a major factor for sustainable urban development.
Current Membership	350 cities globally
Objective	To integrate creativity and cultural industries into local development strategies and to collaborate at an international level.
Creative Fields Covered	Crafts and Folk Arts, Media Arts, Film, Design, Gastronomy, Literature, Music
Application Process	Annual call for applications; in India, coordinated through the Ministry of Culture.
Benefits of UCCN Tag	Global recognition, potential for international funding, partnerships with craft universities, and promotion of crafts as commercial products.
Indian Cities in UCCN	o Kozhikode (Literature) o Gwalior (Music) o Jaipur (Crafts and Folk Arts) o Varanasi (Music) o Chennai (Music) o Mumbai (Film) o Hyderabad (Gastronomy) o Srinagar (Crafts and Folk Arts)

Source: News18

CAR T-cell therapy

Context

Delhi's Dr (Col) VK Gupta beat his blood cancer after receiving CAR T-cell therapy at Tata Memorial Hospital.

About CAR T-cell Therapy

- CAR T-cell therapy is a **type of immunotherapy** used to treat certain types of cancer, such as **leukemia and lymphoma.**
- It involves **removing a patient's T cells (a type of immune cell)** and modifying them in a laboratory to produce special cells known as chimeric antigen receptor **(CAR) T cells.**
- The modified T cells are then **infused back into the patient's bloodstream,** where they can recognize and attack cancer cells that express specific targets, or antigens, on their surface.
- Because the CAR T cells are a **product of the patient's own immune system,** they are less likely to cause side effects compared to other forms of cancer therapy.
- **Global Status of CAR T Research on Solid Tumours:** Research on solid tumours like gliomas (brain/spinal cancers) and those targeting CLDN18.2 (gastric-related cancers) is at an advanced stage globally, with potential approvals expected in a few years.
  - **ImmunoACT**, a start-up incubated at **IIT Bombay**, is developing CAR T therapies for:
    - **Glioblastoma and neuroblastoma** (brain and nerve cell cancers)
    - **Gastric and gastroesophageal junction cancers** — similar to those targeted in leading Chinese trials.

How CAR T-cell therapy is used to treat cancer

Cleveland Clinic ©2022
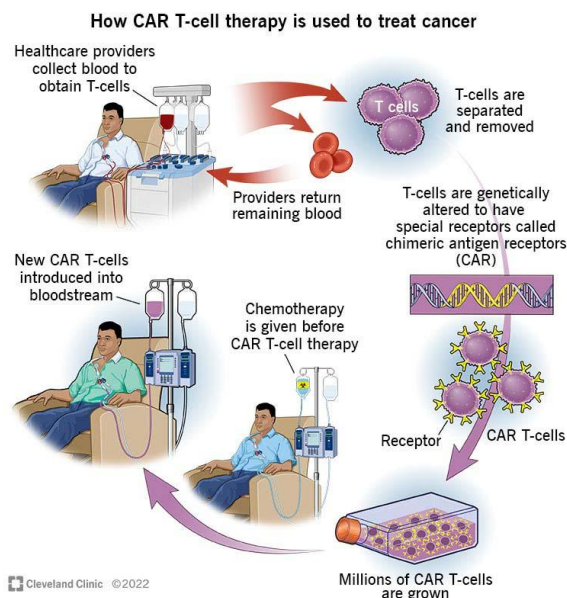
What are T Cells?

- T cells, also known as **T lymphocytes,** are a type of **white blood cell** that play a central role in the **immune response.**
- **Significance:** T cells play a crucial role in the **adaptive immune response,** which is the part of the immune system that is capable of recognizing and responding to specific pathogens or abnormal cells.
- **Production:** T cells are produced in the **bone marrow** and mature in the **thymus gland.**
- **Important types of T cells:**

Helper T cells: These cells play a crucial role in coordinating the immune response.

Cytotoxic T cells: These cells play a key role in destroying cells that are infected with viruses or cancer cells.

T regulatory cells (Tregs): These cells play a crucial role in maintaining immune tolerance and preventing autoimmunity.

Source: Indian Express

# Servants of India Society (SIS)

Context

The Gokhale Institute of Politics and Economics (GIPE) has officially called for the Servants of India Society (SIS), its parent organization, to be placed under the control of a neutral administrator.

● **Gokhale Institute of Politics and Economics (GIPE)** was founded by SIS in **1930**, Pune.

About SIS

- **Establishment: June 12, 1905** in **Pune**, India by **Gopal Krishna Gokhale** with **K. Devadhar**, **A.V. Patwardhan**, and **N.A. Dravid**.
- **Objectives:** To **train dedicated individuals** to serve the nation in a **religious and selfless spirit**.
  - To promote **political education** and **constitutional agitation** for India's national interest.
  - To work through **constitutional means**, avoiding violent or extremist methods.
  - Members were considered as **missionaries of Indian nationalism**.
- **Branches**: Established in cities like **Chennai (Madras)**, **Mumbai (Bombay)**, **Nagpur**, **Allahabad**, and others.
- **Publications:** Started **"The Hitavada"**, an English-language journal, in **1911** from **Nagpur**.
- **Prominent Members:** S. Srinivas Shastri, Hriday Nath Kunzru, A.V. Thakkar, Mahatma Gandhi (joined under the guidance of Gopal Krishna Gokhale).

Source: Hindustan Times
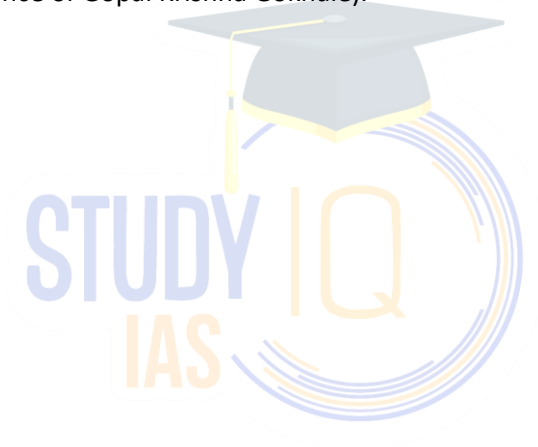
International Big Cat Alliance (IBCA)

Context

The first Assembly of the International Big Cat Alliance (IBCA) was held in New Delhi presided over by the Union Minister for Environment, Forests and Climate Change, Bhupender Yadav.

About International Big Cat Alliance (IBCA)

- It is a multi-country, multi-agency coalition of countries with an interest in big cat conservation.
- Launched by the **Government of India** in **March 2024**.
- Established through the **National Tiger Conservation Authority (NTCA)**.
- Functions under the **Ministry of Environment, Forest and Climate Change**.
- **Membership**: Membership is open to **97 "range" countries**, which host the natural habitat of these big cats, as well as other **interested nations, international organizations**, etc.
- **Objectives:**
  - Global Conservation of **7 big cats – Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar and Puma.**
    - **India hosts five of these:** Tiger, Lion, Leopard, Snow Leopard and Cheetah (excluding Jaguar and Puma).
  - Prevent Illegal Wildlife Trade by strengthening anti-poaching laws and enforcement.
  - Financial & Technical Support for conservation efforts in range and non-range countries.
- It is the **First-ever global alliance** for big cat conservation.
- The alliance has received ratifications from **India, Nicaragua, Eswatini, Somalia and Liberia.**

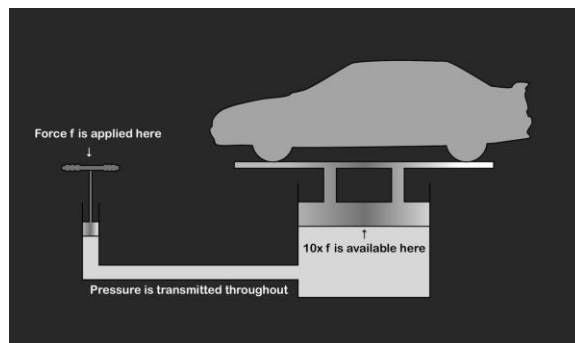| Species		Estimated Population (2023-25)	Found In	Social Structure	Hunting Style	Territory Range	Conservation Status	Conservation Programmes
Asiatic lion		~891	Gir, Saurashtra, Barda (Gujarat)	Prides (3-15 lions)	Cooperative (group hunts)	~100–150 sq km	Endangered (IUCN)	Project Lion, translocation plans (Kuno)
India tiger		~3,682	MP, Karnataka, Uttarakhand, Sundarbans	Solitary	Ambush predator	~60–100 sq km	Endangered (IUCN)	Project Tiger, Tiger Reserves
Leopard		~13,874	Across India, incl. urban edges	Solitary	Opportunistic ambush	~10–50 sq km	Vulnerable (IUCN)	Leopard census, Human-Leopard Mitigation
African cheetah		~26	Kuno National Park (Madhya Pradesh)	Solitary/Mother and Cubs/Can live in groups - male coalitions	Speed-based chase	~100–300 sq km	Critically Endangered (in India context)	Project Cheetah (MoEFCC)

SOURCE: PIB, INDUSTRY SOURCES

Source: Indian Express

Hydraulic System

Context
Globally, the hydraulics industry is valued at approximately **$45–50 billion** and continues to experience steady growth.

About Hydraulics
● Hydraulics operate on **Pascal's Law**, formulated by French scientist **Blaise Pascal** in the 17th century.
● **Pascal's Law** states: *When pressure is applied to an incompressible fluid, it is transmitted equally in all directions.*
● **Working of a Hydraulic System:**
　○ A **force is applied to a fluid**, generating pressure.
　○ This pressure is **evenly distributed**, allowing a **small force over a small area** to produce a **larger force over a larger area**.
　○ Example: A small force at one end can lift a heavy object at the other end by using a **larger surface area**.
　○ Hydraulic systems are not limited to lifting — they perform **multiple mechanical functions** efficiently.
● **Key Components of a Hydraulic System:**
　○ **Pump** – Creates the fluid flow.
　○ **Pipes** – Carry the hydraulic fluid.
　○ **Valves** – Control the direction and pressure of the fluid.
　○ **Actuators** – Convert hydraulic energy into mechanical motion (linear or rotary).
　○ **Tank with filters** – Stores and purifies the hydraulic fluid.
　○ **Sensors or switches** – Monitor parameters like pressure, temperature, movement, and oil contamination.
● **Applications of Hydraulics:**
　○ Broad sectors:
　　■ **Agriculture**: Harvesters, irrigation systems
　　■ **Construction**: Excavators, cranes
　　■ **Manufacturing**: Hydraulic presses, molding machines
　　■ **Wind Energy**: Turbine systems
　　■ **Waste Management**, **Automation**, etc.
　○ Both **mobile equipment** (vehicles) and **static machinery**.
● **Advantages:**
　○ **Smooth operation** and precise control.
　○ **High power-to-weight ratio**, enabling powerful performance in compact designs.
　○ **Better heat dissipation** than mechanical systems.
　○ **High accuracy** and repeatability in complex tasks.
Source: TheHindu

News in Short

Treaty on Eternal Good Neighbourliness, Friendship and Cooperation

News? A "Treaty on Eternal Good Neighbourliness, Friendship and Cooperation" was signed during **2nd China–Central Asia Summit** in Astana, Kazakhstan.

About the treaty

- **Countries Involved**: China, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan.
- The treaty formalizes a long-term pledge to **never use force** against each other, and to resolve disputes peacefully.

SIPRI Report

News? The SIPRI Yearbook 2025 revealed that **India now possesses more nuclear warheads than Pakistan**, but significantly fewer than China.

Countries with Nuclear Weapons (9 States)

Estimated Global Nuclear Warhead Inventories, 2025
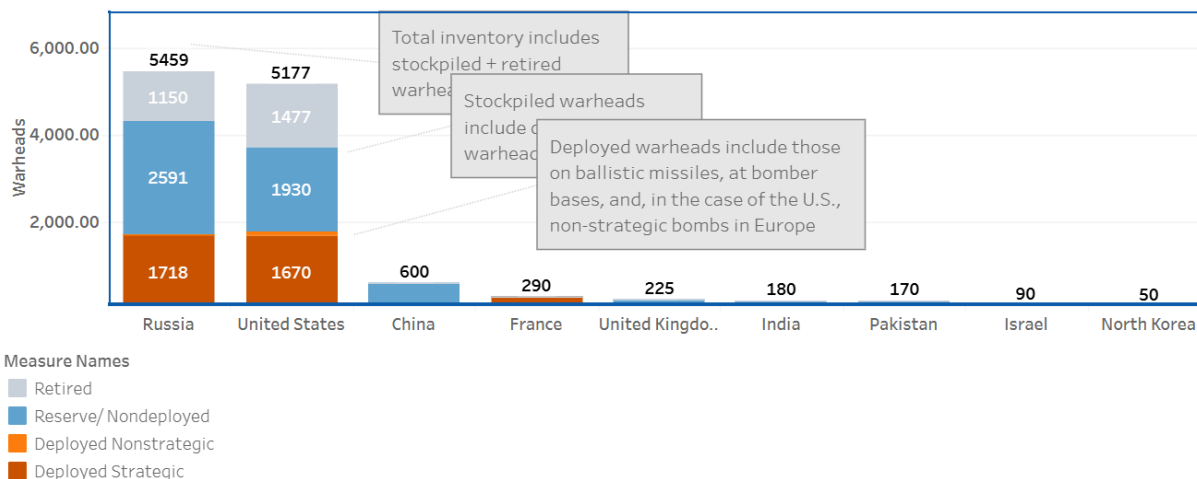
Trends and Key Insights

- **Russia and USA** together hold **~90% of all nuclear warheads** globally.
- Despite a slight **decline in global stockpiles**, nuclear warheads **ready for use** have **increased**.
- All nuclear-armed states are engaged in **modernising their arsenals**:
  - Upgrading existing weapons
  - Developing new warhead designs and delivery systems
- **China's arsenal** is growing **faster than any other country**.
- Countries are investing in **more advanced systems**, including:
  - **Canisterised missiles**
  - **Multiple Independently targetable Reentry Vehicles (MIRVs)**
  - Improved **alertness and mobility** of nuclear forces

Source: TheHindu

Editorial Summary

India needs to design an inclusive pension system

Context
Pensions provide financial security after retirement, especially as income stops, healthcare costs rise, and inflation increases. In India, most retirees lack adequate pension coverage, making them vulnerable to poverty in old age.

Current Situation in India
● **Pension assets** = only **17% of GDP** (vs. 80% in developed countries)
● Only **12%** of India's workforce is covered by formal pensions
● **85%** of India's workforce is in the **informal sector**, which is largely uncovered
● **Atal Pension Yojana & National Pension System (NPS)** (voluntary schemes) cover only **5.3%** of population.

What Are The Key Challenges?
● **Fragmentation of Schemes:** India has multiple, uncoordinated pension schemes run by different agencies (e.g., EPFO, NPS, Atal Pension Yojana, various state government schemes). This leads to overlap, inefficiencies, and confusion.
   ○ **Example:** A gig worker might not know whether to enroll in the Atal Pension Yojana (run by PFRDA) or wait for a platform aggregator to contribute on their behalf under the Code on Social Security. This fragmentation reduces effective coverage and creates administrative hurdles.
● **Low Coverage in Informal Sector:** Only around **12% of the workforce** is covered under formal pension systems. The **informal sector**, which makes up **85% of the workforce**, is largely uncovered.
   ○ **Example:** A street vendor or daily-wage labourer typically has no pension coverage unless they voluntarily join NPS or APY — but most don't due to lack of awareness or resources.
● **Lack of Awareness & Financial Literacy:** Many informal workers are unaware of pension products or how to enroll. Literacy and trust in formal financial systems remain low, especially in rural and semi-urban India.
   ○ **Example:** In a survey conducted among rural workers in Uttar Pradesh, fewer than 20% had heard of Atal Pension Yojana, and only 4% had enrolled.
● **Inadequate Pension Adequacy:** Even among those enrolled, the pension amounts are too low to provide meaningful financial security in old age.
   ○ **Example:** Atal Pension Yojana offers a maximum pension of ₹5,000/month, which is insufficient to meet basic living and medical costs for retirees in urban areas.
   ○ India scored only **44%** on the **Mercer CFA Global Pension Index 2024**, with a poor rating on *adequacy*.
● **Sustainability and Liquidity Concerns:** Many pension funds, especially public ones, face financial strain due to increasing payouts and fewer contributors.
   ○ **Example:** China is struggling to sustain its public pension fund due to ageing population and low contribution base. India, with its rising old-age dependency ratio (projected at **30% by 2050**), could face a similar crisis unless reforms are undertaken.
● **Scalability and Infrastructure Barriers:** Current pension platforms and delivery systems are not designed to handle mass inclusion — especially for gig workers, self-employed individuals, and rural populations.

○ **Example:** Despite growth in platforms like Swiggy and Ola, few gig workers are enrolled in formal pensions due to unclear aggregator responsibilities and lack of digital onboarding mechanisms.
● **Voluntary Nature of Informal Sector Schemes:** Schemes like NPS and APY are **voluntary**, which results in **low uptake** among low-income and informal workers.

Way Forward for India's Pension Reforms
● **Create a Unified, Tiered Pension Framework:** Integrate all existing pension schemes (EPFO, NPS, APY, etc.) under a **three-tiered national framework** with a single regulatory authority.
  ○ **Structure:**
    ■ **Tier 1:** Mandatory flat-rate pension for all (basic security)
    ■ **Tier 2:** Employer-based occupational pension (auto-enrollment or mandatory)
    ■ **Tier 3:** Voluntary personal pension savings (incentivised by tax breaks)
● **Expand Coverage to Informal and Gig Workers:** Use **digital platforms** for enrolment and tracking.
  ○ Ensure **aggregators/platforms** under the gig economy contribute to worker pensions as mandated under the Social Security Code
  ○ Offer **co-contribution schemes** from government for low-income workers
● **Improve Financial Literacy and Awareness:** Integrate **retirement planning and financial literacy** into school and college curriculum.
  ○ Conduct **mass media campaigns** and grassroot outreach (via panchayats, SHGs, etc.)
  ○ Create **pension calculators and mobile apps** in regional languages
● **Ensure Financial Sustainability of Pension Funds:** Diversify pension fund investments into **targeted debt, equities, and infrastructure bonds**
  ○ Introduce **risk-based fund management** with safeguards for poor/elderly
  ○ Encourage **private pension fund participation** for long-term viability
● **Increase Trust and Transparency:** Mandate **annual pension entitlement disclosures.**
  ○ Use **Aadhaar-based digital dashboards** to allow individuals to track their contributions and expected payouts.
● **Leverage Technology for Scale:** Adopt **mobile-based KYC**, digital onboarding, and grievance redressal.
  ○ Expand **Jan Dhan–Aadhaar–Mobile (JAM)** infrastructure to facilitate direct benefit transfer for pensions.
  ○ Use **India Stack** to build a pension stack akin to the health stack model

Global Best Practices India Can Emulate

Country	Practice	Details
Japan	Mandatory national pension	Every resident (20–59 yrs), including informal/self-employed, contributes to a basic pension
New Zealand	Universal public pension	Flat-rate pension for everyone aged 65+, subject to 10-year residency
United Kingdom	Auto-enrollment ("opt-out")	Employees are automatically enrolled in pension plans; must opt out actively if they don't want it
Netherlands	Transparent disclosures	Pension funds send yearly statements to all contributors, boosting trust
Australia	Financial education in curriculum	Superannuation and retirement savings are taught in schools to build early awareness
Nigeria	Digital pension outreach	Used digital tools and apps to reach informal workers and boost pension enrolment rates
Denmark / Netherlands	Public-private partnership	Strong private pension funds supplement state pension; focus on sustainability and stable returns

| United States | Diversified pension investments | Pension funds invest in debt, equity, and infrastructure to ensure stable long-term returns |

Source: The Hindu

The real cause of delays in district courts

Context

Despite substantially increasing the number of judges and funding, while diverting cases to new judicial forums, the delay in the disposal of cases before district courts remains a consistent problem

Reasons for Delay in District Courts

Broad Cause	Specific Mechanism	Illustrative Example
Governance & Incentive Failures	● **Opaque disciplinary control by High Courts** – judges fear punitive "misconduct" findings for legal errors, so they avoid bold rulings (e.g., bail, land-acquisition awards). ● **"Unit"-based performance targets** – equal credit for a 5-minute vs. 5-day task; judges game the system by finishing easy matters first. ● **Revolving docket** – frequent transfers mean no single judge owns a file end-to-end; partially-heard matters restart, wasting earlier effort.	Dismissal of District Judge K. Ganesan on hearsay; cross-examination counted as one unit whether it lasts 10 minutes or 10 hours.
Resource & Procedural Bottlenecks	● **Vacancies & support-staff shortages** – 5,000+ vacant posts; many courts lack stenographers, process servers, IT staff. ● **Poor physical / digital infrastructure** – unreliable video-link, record-keeping, or courtroom space. ● **Complex and Adjournment-Prone Procedures:** CPC and CrPC allow multiple procedural stages; adjournments are easy to seek and hard to refuse.	Only ~35 % of e-Courts Phase II funds utilised in some States; average civil suit sees >30 adjournments (National Court Management Authority sample, 2023).
Litigation Culture & Stakeholder Conduct	● **Over-burdened government litigation** – Union & States are the single largest litigants (often 50-60 % of caseload). ● **Low cost of filing / appeals** – encourages speculative suits and routine challenges. ● **Delay-seeking tactics by parties** – non-appearance of witnesses, late evidence, forum shopping.	Land-acquisition appeals routinely filed up to Supreme Court regardless of merit; criminal trials stalled when police fail to serve summons.

Concerns Associated With These Delays

● **Access to Justice & Rights:** Victims, undertrials, and civil litigants wait years, eroding the right to speedy trial and effective remedy (Art. 21 & Art. 39-A).
● **Economic Cost:** Stalled contracts and property disputes lock capital; World Bank *Ease-of-Doing-Business* ranked India 163/190 on contract enforcement (2020).
● **Erosion of Public Trust:** Perception that "justice delayed is justice denied" fuels vigilante action and informal arbitration.

- **Judicial Morale:** Honest judges feel pressured by opaque discipline and quantity-driven metrics, discouraging talent from joining the service.
- **Prison Overcrowding:** Slow criminal trials keep 70 % of inmates as under-trials, inflating jail budgets and violating human rights.

Suggestions & Best-Practice Reforms

Area	Recommended Actions
Disciplinary Framework	- Codify *separation* between **judicial errors** (correctable only on appeal) and **misconduct** (e.g., corruption). - Publish inquiry procedures and final orders; allow RTI access once proceedings conclude. - Include external members (retired judges, academics) on disciplinary panels to curb bias.
Performance Measurement	- Replace crude "unit counts" with **weighted case-mix indices** that reward complexity/time. - Track **age of oldest pending matter** per judge and penalise excessive adjournments. - Link promotions to **quality indicators** (reversal rate, timeliness) not raw disposals.
Docket Ownership	- Fix minimum tenure (≥3 years) at each posting; allow judge-with-file transfers only in rare circumstances. - Pilot **individual calendar system** (as in U.S. federal courts) where one judge handles a case from filing to judgment.
Procedural & Technological Upgrades	- Enforce strict **adjournment caps** and costs; mandate day-to-day trials for priority categories (e.g., senior citizens, under-trials). - Complete **e-Courts Phase III**: end-to-end e-filing, evidence presentation, and digital court records. - Expand certified **court-annexed mediation** and pre-litigation Lok-Adalats to divert settleable disputes.
Human Resources & Support Staff	- Fill vacancies swiftly via **calendar-based recruitment** twice a year. - Increase **support cadre** (research clerks, data entry, bailiffs) so judges focus on adjudication. - Continuous training on case-flow management, IT tools, and ethics.
Litigation Management by State	- Implement **"Zero-Pendency" cells** in all departments to screen and settle disputes pre-filing. - Make departmental officers personally accountable for unnecessary appeals.

Cost & Incentive Realignment	● Raise nominal court fees for repetitive/frivolous suits; award realistic **exemplary costs** for delay tactics. ● Introduce **contingent cost bonds** for adjournments sought beyond a fixed number.

Source: Indian Express