Today's Prelims Topics

C-FLOOD

Context

Union Minister of Jal Shakti inaugurated the C-FLOOD platform.

About C-FLOOD Platform- A Unified Inundation Forecasting System

- **Developed By:**
  - **C-DAC Pune** (Centre for Development of Advanced Computing)
  - **Central Water Commission (CWC)**, under the **Ministry of Jal Shakti**.
- **Executed under:** National Supercomputing Mission (NSM), steered by:
  - Ministry of Electronics and Information Technology (MeitY)
  - Department of Science and Technology (DST)
- **Aim:** To improve **flood forecasting**, **management**, and **disaster response** across India.
- **Key Features of C-FLOOD:**
  - **Web-based platform** providing **2-day advance flood forecasts**.
  - Offers **flood inundation maps** and **water level predictions** at the **village level**.
  - Acts as a **unified system**, integrating flood modeling data from various national and regional agencies.
  - Designed as a **decision-support tool** for disaster management authorities.
- **Geographical Coverage:**
  - Currently operational in the **Mahanadi, Godavari,** and **Tapi river basins**.
  - Plans to **expand coverage** to more river basins in future phases.
- **Technical Highlights:**
  - Uses **advanced 2D hydrodynamic modeling** to simulate flood scenarios.
  - **Simulations for Mahanadi Basin** are run on **High Performance Computing (HPC)** infrastructure at C-DAC Pune.
  - **Outputs for Godavari and Tapi basins** are developed by the **National Remote Sensing Centre (NRSC)** under the **National Hydrology Project (NHP)**.

Source: PIB

Scheme for Promotion of Registration of Employers and Employees

Context
The Employees' State Insurance Corporation (ESIC) has launched SPREE 2025.

About SPREE 2025 (Scheme for Promotion of Registration of Employers and Employees)
● A **special initiative by ESIC** to bring **unregistered employers and workers**, especially **contractual and temporary employees**, under the **ESI social security system**.
● **Launched by**: Employees' State Insurance Corporation (ESIC)
● **Under**: Ministry of Labour and Employment
● **Aim**: To **formalize employment** through **voluntary compliance** and expand ESI coverage to the **informal workforce**.

Key Features of SPREE 2025
● **Digital Registration**: Available via the **ESIC portal**, **Shram Suvidha portal**, and **MCA portal**.
● **No Retrospective Penalty**: Employers are **not liable** to pay contributions or face inspections/legal actions for the **period before registration**.
● **Declared Validity**: ESI coverage is applicable **from the date declared** by the employer during registration.
● **No Legal Hurdles**: Provides **legal immunity** for past non-compliance, easing employer concerns.
● **Support for Informal Sector**: Brings **temporary, contractual, and unorganised workers** into the **formal social security network**.
● **One-Time Amnesty Scheme**: Offers a **penalty-free opportunity** for mass participation by unregistered entities.
● **Boosts Labour Formalisation**: Incentivizes employers to bring informal workers into the **formal employment system**.
● **Expands Social Welfare**: Enhances access to **ESI health, insurance, and social security benefits** for a wider section of workers.

Source: PIB

Quad

Context

The **Quad Foreign Ministers** have strongly condemned the **Pahalgam terror attack** and called for the **perpetrators to be brought to justice without delay.**

About Quadrilateral Security Dialogue (QUAD)

- It is a strategic forum of four countries: **India, United States, Japan, and Australia.**
- **Purpose:** To promote a free, open, and inclusive Indo-Pacific region, and to ensure rules-based order, maritime security, and regional stability.
- **Origin:** First initiated in 2007 by Japanese Prime Minister Shinzo Abe, but lapsed soon after; revived in 2017 amid growing concerns about China's assertiveness in the Indo-Pacific.
- **Nature of Cooperation:** Not a military alliance, but focuses on cooperation in areas such as maritime security, counterterrorism, cyber security, supply chains, climate change, and health (COVID-19 vaccine distribution).
- **Significance of QUAD for India:**
  - **Strategic leverage** against China's "**String of Pearls**" and aggression.
  - **Economic benefits** through initiatives like **Asia-Africa Growth Corridor**, **Blue Dot Network**, and **Supply Chain Resilience Initiative**.
  - Enhances **Indian maritime security** via joint drills and patrols.
  - Boosts **regional stability** and **rules-based order** in the Indo-Pacific.
  - **Post-COVID diplomacy**: Leverage to attract industries exiting China.
- **Key Quad Initiatives:**
  - **QUAD Fellowship** – PhD funding in STEM for Indo-Pacific students.
  - **Vaccine Partnership & Covid-19 Global Action Plan** – Boosting vaccine outreach.
  - **Senior Cyber Group** – Promoting cybersecurity standards.
  - **Climate Working Group** – Supporting resilience and adaptation to climate change.
  - **Maritime Exercises:** All QUAD members participate in the annual **Malabar naval exercise.**

Evolution of QUAD

- **2007**: Japanese Prime Minister **Shinzo Abe proposed the idea of creating the Quad**. The Quad was initially formed in 2007 during an informal meeting of leaders from the ASEAN.
- **2012**: The Japanese Prime Minister again highlighted the concept of the **'Democratic Security Diamond'** which includes the US, Japan, India, and Australia.
- **2017**: Leaders of India, Japan, the USA, and Australia held the **first 'Quad' talks in Manila** ahead of the ASEAN Summit 2017.
- **2020**: The trilateral Malabar naval exercise of India-US-Japan was expanded to include Australia, marking the first joint military exercises among the four countries.
- **2021**: The Quad leaders met virtually and later released a joint statement titled '**The Spirit of the Quad**'. Since 2021, member states of the Quad and their leaders have been hosting regular "Leaders Summits".

Source: The Hindu

News in Short

Researchers sequence whole genome of ancient Egyptian for the first time

News? Researchers have successfully sequenced the complete genome of an ancient Egyptian individual who lived between 4,500 and 4,800 years ago.

About Genome
- It is the complete set of genetic material (DNA or RNA) in an organism, containing all hereditary instructions for growth, maintenance, and reproduction.
- **Human Genome**:
    - Composed of **DNA** (deoxyribonucleic acid), including **nuclear** and **mitochondrial DNA**.
    - RNA viruses, in contrast, have **RNA** as their genetic material.
- Determining the **order of nucleotides** (A, T, G, C) in the genome is called **genome sequencing**.

Where is the Genome Found?
- In **eukaryotes** (humans, animals, plants, fungi):
    - Genome is mainly located in the **nucleus**.
    - Also present in **mitochondria**.
    - Found in almost every cell **except red blood cells** (no nucleus or mitochondria).
- In **reproductive cells** (sperm and egg):
    - Each contains **half the genome**.
    - Combine during fertilisation to form a full genome.
- In **prokaryotes** (bacteria and archaea):
    - Genome is stored in the **nucleoid**, an area within the cytoplasm (no true nucleus).

Source: TheHindu

Operation Melon

News? Recently Operation Melon was carried out by the Narcotics Control Bureau (NCB).

What Was The Operation All About?
- **Led By:** NCB's Cochin Zonal Unit.
- **Target**: The worst darknet-based narcotics syndicate in India, operating under the alias **"Ketamelon"**, identified as a **Level 4 vendor**—the only one in India with that top-tier rating

Moondust

News? According to a study published recently in Life Sciences in Space Research, moondust is less harmful than the particulate matter.

About Moondust
- Moondust is made of fine, **statically charged particles that stick to surfaces**, as experienced by Apollo astronauts.
- Both lunar dust and Earth's urban dust (PM2.5) **can damage lung cells,** especially **alveolar cells** responsible for oxygen exchange.
- Moondust simulants are **less toxic to bronchial cells** than Earth's PM2.5, but at extremely high concentrations, both can be inflammatory and harmful.
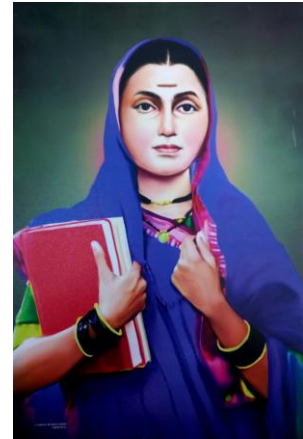
Personality in News

Savitribai Phule

News? The **National Institute of Public Cooperation and Child Development (NIPCCD)** has been officially renamed the **Savitribai Phule National Institute of Women and Child Development.**

About Savitribai Phule

- Born on **January 3, 1831**, in a small village in **Satara district, Maharashtra.**
- A pioneering **social reformer, poet**, and **freedom fighter**.
- Became the **first female teacher in India**.
  - In **1852**, the **British government recognized her** as the **best teacher**.
- Along with her husband **Jyotirao Phule** (he **established Satyasodhak Samaj in 1873**), she opened **India's first girls' school** in **Pune in 1848**.
- Established two key institutions:
  - **Native Female School, Pune**
  - **Society for Promoting the Education of Mahars, Mangs**, and other marginalized communities.
- Founded **Mahila Seva Mandal (1852)** to raise awareness about **women's rights** and social justice across all castes.
- In **1863**, started **Balhatya Pratibandhak Griha**, India's **first home to prevent female infanticide**, offering shelter to widows and victims of sexual violence.
- **Literary Contributions**
  - Authored two significant poetry collections:
    - *Kavya Phule* **(1854)**
    - *Bavan Kashi Subodh Ratnakar* **(1892)**
  - **Poem: "Go Get Education"**
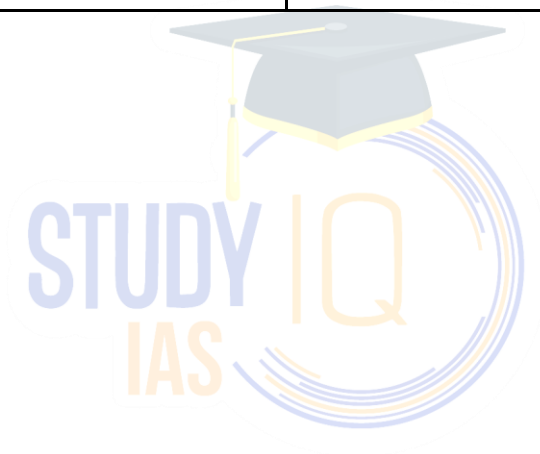
Source: PIB

Places in News

Burgundy

News? Burgundy celebrates the 10th Anniversary of inclusion of 'Climats' in World Heritage site on July 4.

About Burgundy
- Located in east-central France.
- Famous for Burgundy wines (Pinot Noir, Chardonnay), gastronomy, and historical architecture.
- **Major Treaty:** Treaty of Arras.

Source: The Hindu

Editorial Summary

India And Global South: Restructuring Modalities of Engagement

Context
India has expanded development partnerships with the Global South, primarily through Line of Credits (LoCs). However, debt crises and shrinking global aid now demand a shift towards balanced, innovative, and cooperative engagement models.

What Has India Been Doing?
● **Rising Development Cooperation**: India's development cooperation with the Global South has expanded rapidly, with total outflows rising from $3 billion in 2010-11 to $7 billion in 2023-24.
● **Key Modalities of Engagement**:
   ○ **Lines of Credit (LoCs):** Main instrument under Indian Development and Economic Assistance Scheme (IDEAS), funding infrastructure, health, education projects.
   ○ **Capacity Building:** Flagship programmes like Indian Technical and Economic Cooperation (ITEC), e-ITEC, and Pan Africa e-Network to train officials and professionals.
   ○ **Technology Transfer:** Sharing affordable technologies in health, agriculture, and digital public infrastructure (e.g., UPI, CoWIN platform).
   ○ **Market Access:** Duty-free tariff preference schemes for Least Developed Countries (LDCs).
   ○ **Grants and Concessional Finance:** Direct grants for social sector projects.
● **Promoting South-South Solidarity:** Advocacy for Global South issues at forums like G-20, BRICS, and the Voice of Global South Summit (VoGS).
   ○ Proposal for a **Global Development Compact (GDC)** to balance modalities of engagement.

Problems and Challenges Faced
● **Sovereign Debt Crisis in Partner Countries:** Many recipient countries face debt distress, making repayment of LoCs uncertain.
   ○ **E.g.,** Zambia defaulted on its sovereign debt in 2020 and was unable to repay India's Lines of Credit, leading to a debt restructuring agreement with India's Exim Bank in 2024.
● **Red Flags on Lines of Credit:** Ministry of Finance has cautioned against continued over-reliance on LoCs, especially amid global liquidity crises and repayment risks.
● **Declining Global Development Finance:** Shrinking Official Development Assistance (ODA) from traditional donors (from $214 billion in 2023 to a proposed $97 billion), compounded by geopolitical tensions and economic crises.
● **Resource Constraints and ODA Politics:** OECD-DAC (Organisation for Economic Co-operation and Development – Development Assistance Committee) dominance in development finance sets restrictive terms, often misaligned with Global South priorities.
   ○ **E.g.,** Aid from DAC members often comes with "tied aid" conditions—requiring recipient countries to **procure goods and services only from the donor country** or other specified countries.

> The Development Assistance Committee is an international forum of 33 members (Australia, U.K., U.S., etc) largest providers of aid.

- **Rising Cost and Unpredictability of Borrowing:** Global capital market volatility has made it harder and costlier for India to borrow and extend concessional finance.
- **Implementation and Impact Issues:** Sometimes, Indian assistance projects face criticism over slow execution or limited alignment with local needs.

What India Needs to Do

- **Rebalance Modalities of Engagement:** Move away from LoC-dominated approach to a **balanced mix**: expand grants, technical cooperation, market access, and technology transfer.
- **Promote Triangular Cooperation (TrC):** Pool resources and expertise with like-minded countries (e.g., Germany, Japan, Brazil) for development in third countries, especially in Africa and Latin America.
  - **E.g.,** India and Germany signed a Joint Declaration in 2022 to implement TrC projects in Africa and Latin America (Cameroon, Ghana, Malawi, and Peru).
- **Strengthen Capacity Building and Technology Sharing:** Scale up programmes like ITEC, digital public infrastructure exports, and knowledge exchanges tailored to partner needs.
- **Leverage Partnerships for Scale and Impact:** Engage with global institutions (G-20, World Bank, African Union) and private sector for co-financing and greater impact.
- **Ensure Debt Sustainability:** Design financing models that prioritize debt sustainability and support for countries in distress.
- **Champion the Voice of the Global South:** Continue to highlight Global South concerns in global forums, and drive collective bargaining for fairer development finance and technology flows.

Source: The Hindu

Palliative care

Context
Despite the proven impact of palliative care, it remains critically underfunded and underutilised in India, leaving millions without the support that they desperately need.

What is Meant By Palliative Care?
- Palliative care is specialised medical care focused on providing relief from pain, symptoms, and stress of serious illnesses.
- Its goal is to improve quality of life for patients and their families by addressing physical, emotional, social, and spiritual needs, rather than trying to cure the illness.

Need for Palliative Care in India
- **Rising Non-Communicable Diseases:** Increase in cancer, diabetes, heart and respiratory diseases has led to more patients needing long-term symptom management.
- **High Burden of Suffering:** 7–10 million Indians need palliative care every year, but only 1–2% have access.
- **Aging Population:** With more elderly people, the need for end-of-life care is growing.
  - **E.g,** The elderly population in India is growing faster than other age groups, with the number of people aged 80+ projected to increase by **279% between 2022 and 2050 (UNFPA Report)**.
- **Prevent Unnecessary Hospitalisation:** Helps reduce emotional, physical, and financial burden on families.
- **Holistic Support:** Addresses pain, emotional distress, and offers support to families in difficult times.

What are the Challenges Associated?
- **Low Access and Availability:** According to the Worldwide Hospice Palliative Care Alliance (WHPCA, 2020), **only 1–2% of the 7–10 million Indians who need palliative care actually receive it**.
- **Shortage of Trained Professionals:** Few doctors, nurses, and allied health workers are trained in palliative care, limiting service provision.
  - E.g. The **Indian Association of Palliative Care** reported in 2021 that **less than 1% of India's 12 lakh registered doctors** have any formal training in palliative care.
- **Inadequate Funding and Infrastructure:** Palliative care receives little budgetary support, and dedicated facilities are scarce.
  - **E.g,** Government funding for the **National Programme for Palliative Care (NPPC)** was only ₹15 crore for 2022–23, a fraction compared to other health missions.
- **Lack of Awareness:** Both public and healthcare providers often misunderstand or are unaware of palliative care benefits.
  - **E.g,** A 2018 **All India Institute of Medical Sciences (AIIMS) survey** found that **over 70% of Indian patients and families were unaware of palliative care as a concept or service**.
- **Integration Issues:** Palliative care is not fully embedded in primary, secondary, or tertiary health care, leading to fragmentation.
  - E.g., Only **4% of medical colleges in India** have integrated palliative care into the undergraduate MBBS curriculum (Lancet Global Health, 2020).
- **Cultural Barriers and Stigma:** Discussions about death, terminal illness, and pain management are often taboo.
  - **E.g.,** A 2019 study published in the **Indian Journal of Palliative Care** noted that **over 60% of doctors felt uncomfortable discussing end-of-life care with patients due to cultural taboos**.

Solutions to Strengthen Palliative Care in India

● **Integrate into Medical Education:** Include palliative care as a mandatory subject in the MBBS curriculum and allied health courses.
● **Capacity Building:** Train doctors, nurses, and allied health professionals in palliative care skills, especially in rural areas.
● **Task Shifting:** Empower nurses and allied health workers to provide basic palliative care, bridging the specialist gap.
● **Dedicated Funding and Insurance:** Allocate government funding and expand insurance schemes (e.g., Ayushman Bharat) to cover palliative services.
● **Awareness Campaigns:** Launch public education initiatives to demystify palliative care and encourage early access.
● **Partnerships:** Collaborate with NGOs, private sector, and global organisations to expand reach and share best practices.
● **Infrastructure Strengthening:** Ensure that public and private health facilities are equipped for palliative care delivery.

Best Practices
The Kerala Model
● **Kerala** leads in India with its **community-based palliative care** approach.
● The state's **Neighbourhood Network in Palliative Care (NNPC)** is a globally recognized example.
● It involves training volunteers, decentralizing services to community level, and integrating palliative care with primary health care.
● Over 90% of Kerala's population has access to basic palliative care—a model that can be scaled elsewhere in India.
United States:
● Integrates palliative care with mainstream healthcare; insurance covers hospice and palliative care, and there's strong focus on patient-centered end-of-life care.

Source: The Hindu

Facts For Value Addition

Custodial Deaths

- **Data on Custodial Deaths (2016-17 to 2021-22):**
  - **Tamil Nadu**: 490 custodial/judicial deaths.
  - **Uttar Pradesh:** Highest in India with 2,630 deaths.
  - **India (total):** 11,656 custodial/judicial deaths.
- **Accountability Gap:**
  - No police officer convicted for custodial deaths in Tamil Nadu (2017-2022).
  - Across India, no convictions for police officers in such cases during this period.
- **Judicial/Magisterial Enquiries (2017-2022):**
  - 345 enquiries into police custody deaths.
  - 123 policemen arrested.
  - 79 policemen chargesheeted.
  - **Zero convictions** for custodial deaths.
- **Human Rights Violations:**
  - 74 cases filed against police (2017-2022) for illegal detention, custodial deaths, torture/injury.
  - 41 police personnel chargesheeted, but only 3 convictions.
- **Disproportionate Impact on SCs (Tamil Nadu):**
  - 38.5% of detenues in Tamil Nadu in 2022 were from Scheduled Castes (SCs) (SC population in State: 20%).
  - Tamil Nadu has a much higher number of preventive detentions than other states.
  - As of December 31, 2022, Tamil Nadu had 2,129 detenues—nearly half of India's total.

Map 1: Deaths reported while suspects were in judicial or police custody between 2016-17 to 2021-22 (upto 31.03.2022)

Uttar Pradesh 2,630

West Bengal 935

Maharashtra 888

Tamil Nadu 490