1. **TALASH Initiative :** Recently, the National Education Society for Tribal Students (NESTS), in collaboration with UNICEF (United Nations International Children's Emergency Fund) India, launched the **TALASH initiative — Tribal Aptitude, Life Skills and Self-Esteem Hub.**
   - **About TALASH:** A national-level digital initiative for tribal students in Eklavya Model Residential Schools (EMRSs).
     - First-of-its-kind platform focused on holistic personal and academic development of tribal youth.
     - **Meaning Behind the Name:** "TALASH" means "search" — symbolizing a student's journey of: Self-discovery, Emotional strength and Career clarity
     - **Key Features:** Aims to strengthen students' confidence in tackling academic and personal challenges.
       - ✓ Generates personalized **Career Cards** for guided career planning.
       - ✓ Reduces the mismatch between ambition and aptitude.
       - ✓ Provides an e-learning platform for training EMRS educators.
   - **About UNICEF :** Established in 1946, in response to the needs of children after World War II.
     - **Mandate:** To support children and youth at risk, regardless of their country's role in the war.
     - **Global Reach:** Operates in over **190 countries and territories**, working to protect the rights and well-being of every child.
     - **Headquarters:** Located in **New York City**, USA.
   - **About NESTS :** An autonomous organization under the **Ministry of Tribal Affairs**
     - Established with the objective of setting up and managing **EMRSs** across the country.
2. **Hindu Kush Himalayas :** Recently, the International Centre for Integrated Mountain Development (ICIMOD) reported an alarming rise in **Glacial Lake Outburst Floods (GLOFs)** in the **Hindu Kush Himalayas (HKH),** often referred to as the "Third Pole".
   - Within just two months, the region experienced three GLOF events, a frequency never observed before, attributed to accelerated glacier melting and extreme temperature fluctuations.

- **About GLOFs :** A sudden release of water from a glacial lake, typically due to the **failure of natural dams** such as moraines or ice barriers.
  - These events are often **triggered by**: Rapid glacier melting, Ice or rock avalanches, Landslides and Collapse of moraine or ice dams
  - **Glacial lakes** are bodies of water **formed by the melting of glacial ice**, usually located in **depressions or basins** carved by moving glaciers.
  - These lakes form due to the accumulation of meltwater behind natural barriers such as moraines or ice walls.
  - **Types of Glacial Lakes** (based on formation process): **Moraine-dammed lakes**, **Ice-dammed lakes**, **Erosion lakes** and **Other types** (formed through complex or combined processes)
- **About Hindu Kush Himalaya :** Covers an area of around **4.2 million square kilometers**.
  - Spans approximately **3,500 km** across **eight countries**: Afghanistan, Bangladesh, Bhutan, China, India, Nepal, Myanmar, and Pakistan.
  - The range runs **northeast to southwest**, separating the **Amu Darya valley** to the north from the **Indus River valley** to the south.
  - In the east, it merges with the **Pamir range** near the tri-junction of **China, Pakistani-administered Kashmir, and Afghanistan**, and then continues southwest into **Pakistan and Afghanistan**, eventually splitting into smaller ranges in western Afghanistan.
  - Features **numerous high, snow-covered peaks**, with the **highest point** being **Tirich Mir (7,708 meters or 25,289 ft)** in Chitral, Pakistan.
  - Divided into three sections: **Eastern Hindu Kush**, **Central Hindu Kush** and **Western Hindu Kush** (also known as the **Bābā Mountains**)

3. **"Frontiers 2025: The Weight of Time" Report** : Recently, a report by the United Nations Environment Programme (UNEP) titled **"Frontiers 2025: The Weight of Time"** has issued a stark warning about the hidden threats posed by increasing flood events.
   - **Key findings : Floods are remobilizing toxic "legacy chemicals"**—such as heavy metals (e.g., lead, cadmium) and persistent organic pollutants (e.g., banned pesticides and industrial by-products), long buried in river, lake, and coastal sediments.

- These pollutants **do not degrade easily** and can accumulate in water bodies and the food chain, posing **serious health risks** including cancer, neurotoxicity, reproductive issues, and organ damage.
- **Floodwaters disturb contaminated sediments**, allowing toxins to spread across landscapes and re-enter ecosystems.
- **Examples cited:** Hurricane Harvey (2017): Released high concentrations of carcinogens and mercury into Galveston Bay, Texas.
  - ✓ Niger Delta flood (2012): Spread sediments laced with carcinogenic polycyclic aromatic hydrocarbons.
  - ✓ Pakistan floods (2010 and 2022): Displaced thousands of tonnes of obsolete pesticide stockpiles, contaminating large areas.

- **India-Specific Observations:** River sediment samples from **Ganga, Hindon, and Vaigai** were found to contain **harmful concentrations of cadmium**, exceeding safe ecological thresholds.
  - Cadmium, a **known carcinogen**, may disrupt endocrine function and harm kidneys, bones, and fetus development.
- **About UNEP** : A specialized agency of the United Nations. It was **established in 1972** following the **United Nations Conference on the Human Environment**.
  - **Functions : Supports developing countries** in implementing sustainable and environmentally sound policies.
    - ✓ Addresses a wide range of environmental issues.
  - **Flagship Reports :** Emission Gap Report, Global Environment Outlook, Frontiers Report and Invest into Healthy Planet

4. **Battery Passport :** Recently, India unveiled plans to launch a **"Battery Passport"** system for electric vehicles (EVs).
   - **About Battery Passport:** Digital Recording of key battery data including: Source of materials, Chemical composition, Performance metrics, Lifecycle information and Supply chain details
     - All this information will be **embedded in a QR code** printed on the battery.
     - **Significance: Enhances safety** and ensures **quality standards** in the EV sector.
       - ✓ **Boosts India's EV export potential** by aligning with global traceability norms.

- ✓ Facilitates the **battery-swapping policy**, allowing users to scan the QR code and access detailed battery information.
- ✓ Enables verification that **all battery cells are manufactured in the same year**, improving reliability and safety.
- ✓ Helps users track the **performance and lifespan** of batteries—crucial since batteries constitute nearly **40% of an EV's total cost**.

5. **Fossil Leaf Study :** Recently, in a groundbreaking palaeobotanical study, Indian scientists discovered that the Kashmir Valley—presently known for its cool, Mediterranean-like climate—was once a **warm and humid subtropical region**.
   - **About Palaeobotany** : Scientific study of **fossilized plants**. It is a **branch of palaeontology** that helps us understand the **origin, evolution, and diversity of ancient plant life** on Earth.
     - Positioned at the intersection of **biology and geology**, palaeontology relies primarily on **fossils preserved in rocks** as its key source of evidence to reconstruct ancient life and environmental conditions.
   - **Scientific Methods Used : CLAMP (Climate Leaf Analysis Multivariate Program):** Scientists analyzed the **shape, size, and margins of fossilized leaves**. This method helped estimate **past temperature and rainfall patterns** based on leaf morphology.
     - **Coexistence Approach:** Fossil plants were **compared with their modern relatives**. This comparison was used to **determine the likely climate ranges** in which these plants could have coexisted, providing further insights into the region's ancient climate.
   - **Need for the Study:** Provides insights into how **tectonic activity** can cause **irreversible climate and ecological changes**.
     - Helps in understanding **past climate shifts** to improve **future climate resilience**.
     - Highlights the **vulnerability of Himalayan ecosystems**, like Kashmir, to climate change.
     - Supports the need for **urgent conservation and informed environmental planning**.
6. **Agricultural Monitoring and Event Detection (AMED) API:** Recently, in a significant step towards promoting data-driven agriculture, **Google launched the AMED API**—an open-source platform designed to monitor **crop health** and **field activities** across India.

- **About AMED API :** Uses **satellite imagery**, **machine learning**, and **AI-powered event detection** to track: Crop health, growth stages, harvesting patterns and abnormal field events.
  - **Offers field-level data on**: Crop type, crop season, field size and historical agricultural activity (up to 3 years)
- **Functionality:** Data refreshed every two weeks for near real-time updates on field-level changes.
  - Tailored for India's diverse **agro-climatic zones**, enabling **localized agricultural insights**.
  - Builds on Google's earlier **Agricultural Landscape Understanding (ALU) Research API**.
  - **Provides precision insights for**: Optimal soil and water management
    - ✓ Forecasting harvest volumes
    - ✓ Enhancing crop-specific interventions

7. **Wular Lake** : Recently, after a gap of nearly 30 years, **lotuses have made a remarkable return to Wular Lake** in Bandipora, bringing a heartening transformation to the iconic waterbody.
   - **About Wular Lake** : Situated in **Bandipora district**, Jammu & Kashmir, about **50 km northwest of Srinagar**.
     - **Geographical Significance: Largest freshwater lake in India** and the **second largest in Asia**.
       - ✓ Lies at an **altitude of 1,580 meters** at the **foothills of the Haramuk Mountain**.
       - ✓ Spans a total area of approximately **200 sq. km** (24 km in length and 10 km in breadth).
       - ✓ Formed due to **tectonic activity** and believed to be a **remnant of the ancient Satisar Lake**.
     - **Hydrology:** Fed by **the Jhelum River**, it plays a key role in the **Kashmir Valley's water system**. Acts as a **natural flood absorption basin** for the valley.
     - **Historical Feature:** Contains **Zaina Lank**, a small island built by **King Zainul-Abi-Din** in the centre of the lake.
     - **Ecological Importance:** Recognised as a **Ramsar Wetland of International Importance** since **1990**. A critical habitat for **wintering, staging, and breeding birds**, including: Black-eared kite, Eurasian sparrow hawk, Short-toed eagle, Himalayan golden eagle & Himalayan monal.
       - ✓ Supports rich aquatic biodiversity and accounts for nearly **60% of the total fish production** in Jammu & Kashmir.