Mains Master

Mahua expelled from LS, Opposition MPs walk out

Context:

- Mahua Moitra expelled from Lok Sabha over cash-for-query allegations.
- Accused of receiving bribes for asking questions in Parliament.
- Expulsion motion moved by Parliamentary Affairs Minister Pralhad Joshi.

Accusations and Findings:

- Allegations of taking bribes from Dubai-based businessman Darshan Hiranandani.
- Found guilty by Ethics Committee of "unethical conduct" for sharing Lok Sabha credentials.
- Opposition's demand for cross-examination of the alleged bribe-giver and more investigation.

Proceedings and Arguments:

- Opposition walkout during proceedings.
- Opposition questioning the fairness of the process and lack of opportunity for Moitra to defend herself.
- Opposition members raised concerns about the speed of review and the need for proper examination of the report.
- Opposition highlighting the need for natural justice and the right to be heard.

An icy warning

Glacial Decline:

- **Global Trend:** Glaciers worldwide thinning at an average rate of about a meter per year due to greenhouse gas emissions.
- **Regional Variability:** Despite regional differences, a consistent pattern of shrinking glaciers observed across the globe.

Regional Impacts and Projections:

- **African Glaciers:** Predictions of glacier disappearance on Rwenzori Mountains, Mount Kenya, and Kilimanjaro by 2030-2040.
- **Rise in Proglacial Lakes:** Rapid growth in proglacial lakes heightens the risk of Glacier Lake Outburst Floods (GLOFs), posing threats to ecosystems and livelihoods.

Disaster Incidents and Environmental Consequences:

- **Uttarakhand Floods:** Glacial melt contribution to the devastating Uttarakhand floods of June 2013.
- **Recent Catastrophe:** Chungthang dam destruction in Sikkim due to a melting glacier's flood, emphasizing downstream risks.

Accelerated Disappearance and Future Projections:

- **Hindu Kush Himalayas:** Glacial disappearance in this region found to be 65% faster in the 2010s compared to the previous decade.
- **Impact of Greenhouse Gas Emissions:** Forecasting a significant decline in glacier volume by the century's end, leading to reduced freshwater supply.

Necessity for Monitoring and Preparedness:

- **Sensitivity to Warming:** Urgent need for meticulous monitoring of glaciers due to their sensitivity to temperature changes.
- **Call for Early Warning System:** Urges the establishment of an early warning system for GLOF events, akin to cyclone and earthquake alerts, to mitigate risks.
- **Comprehensive Risk Management:** Advocates comprehensive risk assessments, vulnerability mapping, and infrastructure development with stringent standards to address these environmental challenges effectively.

Bridge this deficit between India and Sri Lanka

Land Connectivity Proposal:

- President Ranil Wickremesinghe renews proposal for land connectivity with India.
- Revival of the two-decade-old idea: constructing a bridge between Rameswaram and Talaimanar for economic integration.

Challenges and Opposition:

- Resistance from Sinhalese-Buddhist groups previously hindered progress.
- Opposition questioned project benefits for Sri Lanka, causing delays.

Persistent Efforts:

- Continued support from Wickremesinghe and PM Narendra Modi to sustain the connectivity idea.
- Joint commitment to feasibility studies and inclusion in recent joint statements.

Infrastructure Focus:

- Wickremesinghe highlights plans to use Colombo and Trincomalee ports for meeting India's supply needs.
- Emphasis on potential regional economic growth through enhanced connectivity.

Slow Progress in Power Sector:

- Delay in establishing electricity network despite discussions dating back to 1970.
- Comparison drawn with India's successful energy collaboration with Bangladesh.

Trade and Economic Relations:

- Limited progress post the 1998 India-Sri Lanka Free Trade Agreement.
- India's significant import source and a leading country for tourist arrivals, but trade volume lags behind Bangladesh.

Call for Improvement:

- Encouragement for Sri Lanka to learn from Bangladesh's mutually beneficial economic relationship with India.
- Emphasis on capitalizing on recent positive developments to strengthen economic ties and foster stability.

U.S. FDA approves pair of gene therapies for sickle cell disease

FDA Approves CRISPR-Based Therapy for Sickle Cell Disease:

Groundbreaking Approval:

- FDA greenlights CASGEVY™ and LYFGENIA™, the first gene therapies for sickle cell disease.
- These therapies target patients aged 12 and older experiencing recurrent vaso-occlusive crises (VOCs).

Impact of Sickle Cell Disease:

- Lifelong condition causing severe pain, organ damage, and shortened life due to deformed blood cells.
- Gene therapies aim to address this issue by editing DNA within the patient's cells.

CASGEVY and LYFGENIA Treatment Details:

- CASGEVY by Vertex Pharmaceuticals and LYFGENIA by bluebird bio offer distinct gene-editing approaches.
- CASGEVY uses CRISPR technology to prevent cells from assuming the sickle shape, reducing pain episodes.
- LYFGENIA adds a functional gene to produce adult hemoglobin, addressing the underlying cause of sickle cell disease.

Who are the bonded labourers of India, and where do they work?

1. Scale of Bonded Labour in India:

- **Regional Concentration:** 84% of identified bonded labourers hail from Karnataka, Tamil Nadu, Odisha, Uttar Pradesh, and Andhra Pradesh.
- **Total Released and Rehabilitated:** 3,15,302 released till date; 2,96,305 rehabilitated from 1978 to Jan 31, 2023.
- **Government's Objective:** Central government aimed to release and rehabilitate 1.84 crore bonded labourers across India in 2016.

2. Persistent Challenges and Recommendations:

- **Slow Progress Despite Advisories:** Ministry's regular advisories to States/UTs show minimal tangible progress in eliminating bonded labour.
- **Committee's Call to Action:** Lok Sabha's Standing Committee urges the Ministry to enhance coordination, monitoring, and establish the National Portal on Bonded Labour.

3. Constitutional and Human Rights Framework:

- **Legal Provisions:** Article 23 of the Indian Constitution prohibits human trafficking, forced labour, and similar forms of exploitation, punishable by law.

4. Understanding Bonded Labour and Modern Slavery:

- **Bonded Labour Definition:** Debt bondage persists for centuries, compelling labourers to toil for minimal compensation, often under coercion and with limited or no wages.
- **Modern Slavery Context:** Bonded labour represents a form of modern slavery, operating as a lucrative enterprise exploiting vulnerable labourers for profit.

5. Evolving Presence and Industries:

- **Historical Concentration in Agriculture:** Initially prevalent in agriculture, bonded labour has now expanded its reach to non-agricultural sectors, mirroring evolving industries.

6. Insights from Research and Regional Focus:

- **Research Findings:** Studies by Jawed Alam Khan highlight bonded labour prevalence in Bihar, Uttar Pradesh, Rajasthan, Madhya Pradesh, Telangana, Karnataka, and Tamil Nadu.
- **Challenges Encountered:** Bonded labourers face prolonged working hours, coercion, irregular wages, indebtedness, and restricted mobility between employers.

7. Impact on Demographics:

- **Workforce Representation:** Approximately 10% of India's workforce categorized as bonded labourers.
- **Demographic Composition:** 83% of rehabilitated individuals are from Scheduled Castes (SCs) or Scheduled Tribes (STs), with significant representation of women and children among bonded labourers.

Prelims Booster

Primordial germ-cell

🔬 Primordial germ cells (PGCs) are the precursors of gametes (sperm or eggs) that develop into reproductive cells in organisms.
🔬 PGCs originate in early embryonic development from a cluster of cells that differentiate into germ cells.
🔬 PGCs possess unique genetic and molecular attributes that distinguish them from other cell types in the body.
🔬 PGCs undergo migration from their site of origin to the developing gonads (testes or ovaries).
🔬 In the gonads, PGCs undergo further division and maturation to eventually form mature sperm or eggs for reproduction.
🔬 PGCs play a crucial role in transmitting genetic information to the next generation, passing on hereditary traits.

CISPR-CAS9 Technology

🔬 CRISPR stands for "Clustered Regularly Interspaced Short Palindromic Repeats," derived from the bacterial immune system.
✂️ Cas9 is an enzyme that acts as molecular scissors, guided by RNA molecules to precisely cut and edit specific sections of DNA.
🧬 CRISPR-Cas9 allows scientists to modify genes by altering, adding, or removing specific sequences within the genome with high precision.
🌱 It has applications in biomedicine, agriculture, and research for disease treatment, creating genetically modified organisms, and studying gene function.
💥 CRISPR-Cas9 is considered a breakthrough technology with the potential to revolutionize treatments for genetic disorders, cancers, and various diseases.