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1. Glacial Lake Outburst Floods (GLOF) and Climate Change in the Himalayas

- Landslides and glacial shifts on the Lende River in Tibet blocked its water flow and subsequently burst, triggering severe flash floods downstream along the Bhote Koshi and Trishuli River basins in Nepal.
- The disaster resulted in 579 confirmed deaths and left approximately 2,000 people reported missing (including 320 Indian tourists/pilgrims on the Kailash Mansarovar Yatra).
- Himalayan glaciers are melting twice as fast since 2000 due to rising global temperatures, with 78% of the glacial region located between 4,500 and 6,000 meters altitude heavily affected by global warming.
- To prevent future disasters from newly formed blockages, authorities are actively deploying satellite imaging and drone surveillance to monitor transboundary water levels.

2. India-US Defense Procurement Agreement for Javelin ATGMs

- India has finalized a defense procurement agreement with the United States to purchase advanced, highly portable "Javelin" Anti-Tank Guided Missiles (ATGMs) to significantly strengthen the combat capabilities of the Indian Army.
- The Javelin missile systems are modern, medium-range infantry weapons jointly manufactured by American defense firms RTX and Lockheed Martin.
- These highly precise missiles are designed with fire-and-forget capabilities to search, track, and destroy enemy battle tanks, armored vehicles, and fortified ground positions without missing.

- This defense procurement reflects a long-term strategic partnership between India and the US, paving the way for future joint defense manufacturing and technology sharing.

3. Harnessing Geothermal Energy in Ladakh

- ONGC has successfully completed the drilling of its second geothermal well at a depth of 1,000 meters in Ladakh's Puga Valley, situated at an extreme altitude of 14,000 feet.
- This pilot 1 MW Geothermal power plant is designed to tap high subterranean heat (ranging from 140°C to 200°C at shallow depths) and is scheduled to begin local electricity distribution by 2027.
- Unlike fluctuating renewable sources like solar and wind, Geothermal power provides a highly stable 24/7 clean energy source operating continuously throughout the year.
- The Geological Survey of India (GSI) has mapped more than 300 natural hot springs across the country, estimating India's national Geothermal energy potential at 10,000 MW.

4. Permanent High Court Bench Established in Leh, Ladakh UT

- President Droupadi Murmu has officially promulgated the "High Court of Jammu & Kashmir and Ladakh (Sitting in Ladakh) Order 2026" to set up a permanent bench in the Union Territory.
- The order addresses a long-standing public demand, ensuring that citizens of Ladakh have accessible and speedy judicial remedies without being forced to travel to Srinagar or Jammu.
- While the principal seat of the J&K and Ladakh High Court remains in Srinagar/Jammu, designated judges will regularly hold court sessions in Leh.
- Under the new regulations, the Chief Justice of the High Court holds the authority

to transfer specific complex cases back to the main bench if situational demands require it.

5. Pradhan Mantri Jan Dhan Yojana (PMJDY) Completes 12 Years

- Launched on August 28, 2014, the PMJDY financial inclusion scheme completed 12 years of implementation in August 2026.
- The total number of Jan Dhan bank accounts has expanded from 14.5 crore in 2015 to over 59 crore in 2026, bringing crores of unbanked citizens into the formal financial system.
- Women hold a significant share of these accounts at 56% (33 crore), while rural and semi-urban bank branches host 78% (46 crore) of the total accounts.
- The total cumulative balance across all Jan Dhan accounts has reached Rs. 3.17 lakh crore, with an average balance of Rs.5,356 per account, representing a 3.4-fold increase in average savings over 12 years.
- Direct Benefit Transfer (DBT): Over the last 12 years, the Central Government has routed welfare benefits totaling Rs.53 lakh crore directly into the bank accounts of beneficiaries, primarily utilizing PMJDY accounts.

6. Institutional Overhaul and Reforms in the National Testing Agency (NTA)

- Amid public criticisms regarding the confidentiality of national competitive examinations, the Union Government appointed new senior administrative directors to the NTA.
- The new leadership team includes Ravi Kumar Singh (IPS) and Prashant Venkatesh (IFS) as Directors, and Amit Saria (IRS) as Additional Director.
- The NTA is implementing sweeping structural changes, including replacing 600 old question-paper evaluators and test examiners with newly appointed domain experts to ensure complete examination security.

7. Tri-Nation Joint Military Exercise "Freedom Edge"

- The United States, South Korea, and Japan have finalized plans to conduct a major tri-nation joint military exercise named "Freedom Edge".
- Scheduled to begin on September 7, 2026, for a duration of five days, the exercise will take place in the waters off South Korea's Jeju Island to counter growing security threats from North Korea.
- In response to the upcoming exercises, North Korea expressed strong opposition by test-firing approximately 10 ballistic missiles into the sea.

8. Democratic Republic of the Congo Ebola Outbreak and Vaccination Campaign

- The Democratic Republic of the Congo (DRC) is facing a severe outbreak of the Ebola virus, with 5,794 confirmed cases and 2,786 deaths (representing a high mortality rate of approximately 48%).
- The outbreak is driven by the Bundibugyo strain of the Ebola virus, for which there is currently no approved specialized treatment or vaccine.
- To control the spread, health authorities have initiated a vaccination campaign using the Ervebo vaccine; while designed for a different strain, the World Health Organization (WHO) believes it may provide some cross-protection.
- The virus has rapidly spread across 60 health zones, recently expanding to two new regions in the North Kivu province, prioritizing healthcare workers and close contacts for the initial vaccine rollout.

9. Central Government Disinvestment Performance

- Between April and August 2026, the Central Government raised Rs.62,124 crore through strategic Disinvestment and public asset monetization.
- This five-month achievement represents approximately 78% of the annual disinvestment target of Rs.80,000 crore set in the union budget.

- **Minority Stake Sales:** A massive portion of this revenue (Rs. 55,757 crore) was generated through minority stake sales in nine prominent public sector undertakings (PSUs).
- **Major Transactions:** Major sales included offloading a 6.5% stake in LIC for Rs. 31,515 crore, a 2% stake in Coal India for Rs. 5,542 crore, and a 6.01% stake in NHPC for Rs. 4,357 crore.

10. The Tamil Nadu State Government has finalized plans to raise Rs.5,000 crore through the auction of long-term Government securities (bonds) to fund development projects. The bond auction will be conducted by the Reserve Bank of India (RBI) on September 1, 2026.

11. In the final round of the Grand Chess Tour (GCT) Finals Chess tournament held in the United States, Indian Grandmaster R. Praggnanandhaa defeated American Fabiano Caruana 15–13 on points to become the champion.

- i. With this, he created history by becoming the first Indian to win the GCT Finals in the tournament's history.
- ii. Earlier this year, Praggnanandhaa had earned the distinction of becoming the first Indian to win the Norway Chess tournament. He has now created another similar piece of history.

12. Analysis of the recent sudden flood catastrophe in Nepal, its underlying environmental causes and strategic recommendations for the future.

(i) Human and Economic Devastation

- The sudden and violent flood has claimed at least 579 lives so far.
- More than 2,000 people remain missing, a figure that includes 320 Indian citizens

and about 100 people of Indian origin.

- The torrent has completely wiped out countless houses, buildings, bridges, and more than 10 hydroelectric power plants across several Nepalese villages.

(ii) The Flood's Origin and Sudden Progression

- The catastrophe was triggered by a massive landslide on a glacier in Tibet, which temporarily blocked the flow of the Lende River approximately 20 km from the Nepal border.
- The temporary block subsequently burst, sending a massive deluge of ice blocks, rocks, and mud rushing down the Bhote Koshi River.
- The surge merged into the Trishuli and Narayani rivers, completely devastating central Nepalese districts like Nuwakot and Dhading.
- US Geological Survey data confirmed the glacial landslide origin. Due to the sudden burst, water levels in the affected rivers rose by 9 meters in just 30 minutes, leaving riverside residents with almost no time to escape.

(iii) Climate Change as the Accelerating Force

- Rising global temperatures are destabilizing thousands of glaciers across the Himalayas.
- Research shows that the rate of glacier melt in the Hindu Kush Himalayan region has doubled since 2000 compared to previous decades.
- Approximately 78% of Himalayan glacial regions situated between 4,500 and 6,000 meters above sea level are now actively impacted by warming.
- Between 2000 and 2019, Himalayan glaciers lost an average of 267 gigatons of ice annually—a volume equivalent to the weight of 46,500 Great Pyramids of Giza.
- Even if global warming is successfully capped at 1.5°C, studies project that 50% of the world's non-polar glaciers will disappear by 2100, placing millions of downstream residents at permanent risk.

(iv) Critique of Unregulated Human Activities

- Despite recurring natural warning signs, environmentally destructive projects like

cutting down mountains, tunneling, and mining continue unabated in ecologically sensitive areas.

- Under the banner of "tourism development," massive buildings and resorts are constructed in fragile zones without adhering to safety regulations, inviting environmental disasters.
- This systemic neglect places the entire Himalayan belt—including Nepal, India, Tibet, Bhutan, and Pakistan—under constant threat of catastrophic floods.

(v) Recommendations for Regional Collaboration

- Because containing global warming is highly challenging and glacier melting cannot be fully stopped, nations must focus on minimizing human and economic losses.
- The flood underscores the urgent need for India and China to collaborate in predicting glacier melt speeds and glacial lake outburst hazards.
- Governments must deploy satellite-based monitoring systems to track real-time changes in glacier stability.
- Real-time satellite data must be shared swiftly across administrative departments to coordinate effective disaster prevention, early warnings, and evacuations.

13. India's landmark achievement in Geothermal energy technology in Ladakh and the strategic role of Geothermal power in India's energy and macroeconomic future.

(i) Historical Milestone in Ladakh (July 17)

- ONGC's research wing, the ONGC Energy Centre, successfully completed drilling its second geothermal well at a depth of 1,000 meters in Ladakh's Puga Valley, situated at an extreme altitude of 14,000 feet.
- On July 17, Ladakh's Lieutenant Governor, V. K. Saxena, officially inaugurated the milestone for the two geothermal wells.

- This drilling success represents the crucial first step in India's pioneering geothermal energy program, establishing the necessary wells to feed a 1 MW pilot power plant currently under construction.

(ii) Understanding Geothermal Well Technology

- A Geothermal well is a specialized shaft drilled deep into the Earth to extract natural subterranean heat energy in the form of steam or pressurized hot water.
- These wells are drilled to a depth of 1,000 to 3,000 meters to draw high-temperature steam or hot water to run electrical turbines and produce clean, renewable power.
- After generating electricity, the steam cools back into water and is pumped deep back into the Earth via reinjection wells. This crucial loop keeps subterranean water levels and pressures stable.
- Unlike seasonal wind energy or daytime-restricted solar power, geothermal plants are highly stable and can operate continuously 24 hours a day, 365 days a year.

(iii) India's Growing Energy Demand and Coal Dependence

- In terms of total electricity output, India ranks third globally, following China and the United States.
- Driven by rapid economic growth, India's electricity demand is growing aggressively. The country's current generation stands at 1,800 Terawatt-hours (TWh), and the Central Electricity Authority (CEA) projects annual demand to rise to 2,170 TWh by 2030.
- India currently achieves energy self-reliance by sourcing about 75% of its electricity from domestic coal-fired thermal plants.

(iv) The Urgency of Transitioning to Renewables

- India cannot meet its projected demand increases simply by burning more coal. Due to global climate warnings and environmental pressures, India has self-committed to gradually reducing its coal dependency.
- Over the past 4 to 5 years, India's solar and wind generation has doubled from 10%

to 20% of the country's total power output, successfully cutting coal-dependent power by about 4%.

- While major global economies rely primarily on hydro, nuclear, wind, or natural gas (e.g., Brazil, Canada, France, Germany, US, and China), India remains one of the world's most coal-dependent energy producers.
- The International Energy Agency (IEA) estimates that renewable energy made up 34% of global power in 2025. Since India has only recently reached 25%, initiating new renewable technologies like geothermal energy is essential.

(v) India's Geothermal Potential and the Puga Valley Advantage

- Over 35 nations generate Geothermal power, with the US, Indonesia, the Philippines, and Turkey leading the sector. Notably, Kenya secures 45% of its entire power supply through Geothermal resources.
- The Geological Survey of India (GSI) has mapped more than 300 natural hot springs and geothermal zones across the country. These include:
 - Ladakh: Puga and Chumathang valleys.
 - Chhattisgarh: Tattapani in Balrampur district.
 - Himachal Pradesh: Manikaran and Kasol.
 - Other states like Telangana, Gujarat, West Bengal, Jharkhand, Uttarakhand, and Maharashtra.
- The total mapped geothermal capacity across India is estimated to be around 10,000 MW.
- While average Indian Geothermal reservoirs lie deep at 1,500 to 3,000 meters (yielding temperatures of 100°C–160°C), Ladakh's Puga Valley provides extreme temperatures of 140°C to 200°C at shallow depths of just 500 to 1,000 meters. This shallow heat is why India's first project was placed there.

(vi) Future Plans and Macroeconomic Benefits

- The 1 MW pilot plant is expected to become fully operational and begin local electricity distribution in 2027.

- Once the pilot is successful, a second phase is planned to build larger geothermal plants of 20 MW to 50 MW.
- Over 30% of India's annual budget is spent on importing petroleum products.
- While petroleum is barely used for power generation, about 13% of imports (LPG and LNG) go toward cooking gas. Expanding clean electricity production will allow households to transition to electric stoves, cutting gas imports and saving massive foreign exchange.
- Reducing imports and conserving foreign exchange to reinvest in domestic growth is crucial for India to emerge as a global superpower.