

**P.L.RAJ IAS & IPS ACADEMY****Building Bureaucrats Since 2006****August 27, 2026 – Dinamani Newspaper – Tit bits**

1. A sudden flash flood in a river near the Tibet border in Nepal claimed the lives of 157 people. Around 750 people, including 133 Indians, are missing. Among the missing Indians are 37 people from Tamil Nadu and Puducherry. Nepalese officials said:
 - i. The Bhotekoshi River flows through Nepal's Rasuwa district. At around 9 a.m. on Wednesday, a sudden flood originating in the Tibet region surged downstream, rising several feet above the riverbank. Bridges built across the Koshi River, vehicles parked along the riverbank, and other structures were swept away.
 - ii. Was it caused by an earthquake?
 - A study of satellite images of the flood-affected areas has provided new information about the cause of the sudden flooding. An unstable condition in a mountainous region along the Nepal-Tibet border caused ice masses to collapse and fall into the Lende Khola River, triggering a flood. The flood subsequently flowed through the Koshi River and reached the Trishuli River, causing extensive damage. The National Disaster Management Authority said that an earthquake also occurred in Tibet at around the same time as the ice masses collapsed.
2. Tanzania's Vice-President Emmanuel Simbi has announced that he will resign from his post effective September 4.
 - i. The resignation is being viewed as a significant development in Tanzania, a country known for political stability under the one-party rule of the CCM. Emmanuel Simbi is stepping down less than a year into his tenure following a power struggle with Samia Suluhu Hassan, the country's first female President.
 - ii. It is reported that differences arose between the President and Vice-President over

administrative issues and the Government's handling of protests that took place during and after the elections held last October, which were reportedly suppressed with an iron hand.

- iii. Meanwhile, the President's office has confirmed that constitutional procedures to select a new Vice-President will be initiated soon.

3. Warnings have been issued for continuous rainfall in China as four storms develop successively along its coastal and southern regions.

- i. Typhoon Narra made landfall in China's southern island province of Hainan. The storm, which had remained over the Beibu Gulf for the past few days, brought extremely heavy rainfall to Guangxi, Hainan and Guangdong.
- ii. Due to the continuous rainfall, rivers in Guangxi have risen beyond danger levels, while low-lying areas have been inundated.
- iii. Meanwhile, Typhoon Saudel is forecast to make landfall between Thursday and Friday along China's eastern coast, between Zhejiang and Fujian provinces.
- iv. Along with these storms, a total of four storms—including Kenari and Atsani—are simultaneously centred over the Northwest Pacific and South China Sea regions, according to the China Meteorological Administration.
- v. Due to the threat posed by these successive storms, commercial establishments have been closed in Guangxi and Hainan provinces, while services for tourists have also been suspended. Tens of thousands of people have been evacuated to safer locations.

4. The 14th South Asian Games will be held in Islamabad, Lahore and Peshawar in Pakistan from April 3 to 11 next year. India's participation in the event, which is returning to Pakistan after 23 years, remains uncertain.

5. With Chinese President Xi Jinping's participation confirmed at the Shanghai

Cooperation Organisation (SCO) summit to be held in Kyrgyzstan from August 30 to September 1, the possibility has arisen of a meeting and talks between him and Prime Minister Narendra Modi.

- i. The SCO comprises Russia, India, Iran, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Uzbekistan, Belarus and China as member states. The organisation's summit will be held in Bishkek, the capital of Kyrgyzstan.
- ii. Leaders of all member states are expected to participate in the summit.
- iii. In this context, China has confirmed President Xi Jinping's participation. Prime Minister Modi is also expected to represent India at the summit. Modi participated in the organisation's summit held in China last year. At that time, decisions were taken regarding the resumption of the Kailash–Mansarovar pilgrimage, restoration of visa services and resumption of direct flights between India and China. Against this backdrop, the two leaders are expected to meet and hold discussions in person again.
- iv. The BRICS summit will be held in New Delhi on September 12 and 13. Xi Jinping is also expected to participate in this summit. If he visits India, there is a possibility of progress through dialogue on several issues, including the border dispute.
- v. Earlier, National Security Adviser Ajit Doval travelled to China on Monday and Tuesday and participated in the 25th meeting of the Special Representatives on the India–China boundary question. The Indian delegation led by him held detailed discussions with the Chinese delegation headed by Chinese Foreign Minister Wang Yi.

6. India's landmark achievements in nuclear energy technology at Kalpakkam and the strategic importance of nuclear power in securing the nation's energy future.

(i) India's Energy Dilemma and Growth Needs

- While nuclear energy is inherently associated with risks, India faces a developmental dilemma where it cannot completely abandon nuclear power if it

wants to elevate its economy and generate sufficient employment opportunities for its rising population.

- India has become one of the fastest-growing economies in the world. To sustain this rapid growth, the country's energy production capacity must be increased manifold.
- At present, atomic energy contributes a mere 3% of India's total energy generation, whereas globally, more than 60 nuclear reactors are currently being installed in various countries.

(ii) The Kalpakkam PFBR Criticality Achievement

- On April 6, India achieved a major milestone at Kalpakkam in Chengalpattu district, Tamil Nadu, when the indigenously designed and constructed Prototype Fast Breeder Reactor (PFBR) successfully achieved its first continuous nuclear chain reaction, known as "criticality".
- Criticality is the state where a sustained, controlled nuclear fission chain reaction begins, releasing stable heat energy. Scientists regard this as the crucial first step toward producing thermal energy and, ultimately, electricity.
- The PFBR is the successful culmination of decades of domestic scientific research, design, and engineering.

(iii) The Three-Stage Nuclear Program & Resource Strategy

- Achieving criticality officially marks India's entry into the crucial second stage of its specialized three-stage nuclear power program.
- India has very limited natural reserves of uranium.
- Conversely, India holds the world's largest reserves of thorium, which is found abundantly in the coastal sands of Tamil Nadu and Kerala.
- India's thorium resources have the potential to generate 500 gigawatts (GW) of electricity annually for the next 400 years. The Department of Atomic Energy designed the three-stage program specifically to utilize these vast thorium reserves.

(iv) Technical Operation of the Fast Breeder Reactor

- Unlike conventional thermal reactors, the PFBR uses a uranium-plutonium mixed oxide (MOX) fuel.
- Inside the reactor, Uranium-238 is transmuted into Plutonium-239, allowing the reactor to breed more fuel than it consumes.
- The reactor is designed to ultimately utilize Thorium-232, converting it into Uranium-233. Uranium-233 will serve as the core fuel for the third stage of India's nuclear program.
- Spent fuel from the fast breeder reactor is reprocessed and recycled back, creating a sustainable loop that unlocks massive energy potential from thorium.
- Because fast breeder technology involves highly hazardous liquid sodium as a coolant and plutonium as a fuel, many countries worldwide abandoned it. However, Indian scientists successfully mastered the indigenous technology to safely handle liquid sodium.

(v) World's First Nuclear-Powered Hydrogen Production

- On June 26, Indian scientists achieved another world-class miracle at Kalpakkam by launching the world's first clean hydrogen production plant directly integrated with a nuclear reactor.
- Traditionally, splitting water to produce clean hydrogen requires massive amounts of electricity, which often relies on burning coal.
- To avoid this, Indian scientists developed a method that directly uses the massive waste heat from the nuclear reactor. By utilizing a copper-chlorine (Cu-Cl) cycle to heat and split water, they successfully produced hydrogen.
- This breakthrough enables the production of the cleanest hydrogen with zero pollution and zero carbon emissions, positioning India as a global leader in clean energy technology.

7. Analysis of the massive ecological footprint of digital infrastructures.

(i) Global Rise and Resource Backlash

- The global expansion of Artificial Intelligence (AI) has triggered an exponential rise in the establishment of high-capacity data centers to handle complex workloads.
- These centers consume massive quantities of water, electricity, and land.
- In regions spanning America, Europe, Latin America, and Southeast Asia, local communities, environmentalists, and political leaders have actively begun protesting against new data center projects.
- The primary concerns raised globally include the depletion of local drinking water reservoirs, destruction of fertile agricultural lands, and noise and light pollution.

(ii) Chennai as India's AI and Data Center Capital

- Chennai is rapidly positioning itself as India's premier hub for AI and data centers, with multiple new campuses projected to open in the coming years.
- Chennai has drawn substantial global investments due to several key geographical and structural factors:
 1. Direct connectivity to multiple undersea international fiber optic cables.
 2. A highly stable and reliable IT infrastructure.
 3. A well-established and mature industrial ecosystem.
 4. Relatively lower land acquisition costs and operational expenditures.

(iii) Intense Electricity Consumption and Thermal Footprint

- Every single AI model trained, cloud computing task executed, and video streamed online is powered by thousands of servers running in data centers, which continuously release massive amounts of heat into the environment.
- Traditional data centers primarily stored data and handled daily computing tasks. AI data centers, however, rely heavily on high-performance Graphics Processing Units (GPUs), which consume several times more power than legacy systems.
- According to the International Energy Agency (IEA), global electricity consumption by data centers is projected to more than double by 2030.
- During hot summer months, Chennai's local grid is already under strain due to air

conditioning usage in residential and commercial spaces. Integrating highly power-hungry AI data centers into this infrastructure could place dangerous pressure on the city's power grid.

(iv) Extreme Water Demands and Depletion Risks

- Because data centers generate extraordinary amounts of heat, they require continuous cooling. The industry standard relies heavily on evaporation-based cooling technology, which requires millions of liters of water to operate.
- Building such massive, water-intensive digital infrastructures in cities already battling acute drinking water shortages presents a direct threat to the local populace's survival.

(v) International Regulatory Responses

- Mayors of several major global cities are coordinating to establish strict environmental limits, arguing that AI infrastructure must not expand at the cost of basic ecological survival.
- The EU is pivoting away from giant, resource-heavy facilities, prioritizing smaller regional data centers that run on renewable energy and consume minimal natural resources.
- Multiple states in the US have implemented strict laws making it mandatory to audit local water and electricity capacity, as well as the impact on local livelihoods, before any new data center is approved.

(vi) The Path Forward: "Green Data Centers" (பசுமை தரவு மையங்கள்)

To balance technological progress with environmental preservation, India should enforce a "Green Data Center" policy structured around six essential practices:

- Powering data facilities using clean energy sources like solar and wind power.
- Capturing the massive waste heat generated by servers and converting it for alternative uses.
- Utilizing strictly treated wastewater for cooling systems instead of tapping fresh drinking water.

- Mandatory implementation of large-scale rainwater harvesting systems on-site.
- Utilizing highly energy-efficient, low-water cooling systems.
- Setting mandatory statutory standards for water and energy efficiency across all future tech policies.