Global Dam Safety: A Growing Crisis

Prelims *– Currents events of national and international events.*

Mains *– General Studies III | Disaster and disaster management.*

Why in news?

A study published in Nature Water (March 7, 2025) has highlighted the increasing failure rates of newly built dams, particularly in low-income countries.

- Dams are critical infrastructure for water management, energy and flood control.
- However, recent study indicate a rising trend of dam failures, especially in low-income countries.
- The consequences of these failures are often catastrophic, leading to significant loss of life and property.
- **Study Conducted by** – Researchers from Deltares, IHE Delft and Imperial College London.

Key findings of the report/study

- **Increased Failure Rate** – A study in Nature Water predicts 23 large dam failures globally by 2035.
- 4.4% of large dams have a failure probability exceeding 1/10,000.
- **Infant Mortality of Dams** – Newly constructed embankment dams have a higher failure probability in their initial years.
- Modern concrete dams exhibit greater resilience.
- **Ageing Dams** – Older embankment dams (15-70m height, built in the latter half of the 20^{th} century) are prone to future failures.
- **Regional Disparities** – Low-income countries, particularly those in monsoon-dominated regions, show a higher rate of new dam failures.
- This coincides with areas with untapped hydropower potential.

Factors Contributing to Failures

- Inadequate monitoring and maintenance.
- Changing hydrological scenarios (e.g., increased flooding).
- Deglaciating basins, extreme weather events, and geopolitical conflicts.
- Limited resources for upkeep.

Reference

1. Down to Earth | Dam Safety

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