Arun-3 Hydro Project

Recently the government has approved an investment proposal for transmission component in **Nepal portion of Arun-3 Hydro Electric Project.**

- The investment will be done by state-owned **Sutlej Jal Vikas Nigam (SJVN)** which has been carrying out the construction work at the plant.
- The power from the project will be **exported from Dhalkebar in Nepal to Muzaffarpur in India.** This will not only provide surplus power to India but also **strengthen the economic linkages with Nepal.**
- The Arun-3 Hydro Electric project (900 MW) is a **run-of-river located on Arun River in Eastern Nepal.**
- A Memorandum of understanding (MoU) was signed between Government of Nepal and SJVN Limited for the project in 2008 for execution on **Build Own Operate and Transfer (BOOT)** basis for a period of 30 years including five years of construction period.

Build Own Operate and Transfer (BOOT)

- **BOOT (build, own, operate, transfer)** is a **public-private partnership (PPP)** project model in which a private organization conducts a large development project under contract to a public-sector partner, such as a government agency.
- BOOT is sometimes known as **BOT (build, own, transfer).**
- In this model, the public-sector partner contracts with a **private developer with specific expertise** - to design and implement a large project.
- The public-sector partner may **provide limited funding or some other benefit (such as tax exempt status)** but the private-sector partner assumes the risks associated with planning, constructing, operating and maintaining the project for a specified time period.
- During that time, the developer charges customers who use the infrastructure that's been built to realize a profit. At the end of the specified period, the **private-sector partner transfers ownership to the funding organization,** either freely or for an amount stipulated in the original contract.

Run-of-the-river Project

- Run-of-the-river hydroelectric projects are hydroelectric systems that harvest the energy from **flowing water to generate electricity.**
- The primary difference between this type of hydroelectric generation compared to others is that **run-of-the-river primarily uses the natural flow rate of water to generate power—instead of the power of water falling from a height**.
- For a run-of-the-river system to be possible in a given location, there needs to be **two specific geographical features:**
    - A **substantial flow rate**, either from rainfall or a melting snowpack.
    - There must be **enough of a tilt to the river to speed** the water up significantly.
- Features:
    - These are **less expensive** to build and can be **built over a shorter period of time.**
    - They have a **smaller environmental footprint** when compared to dams with large amounts of water storage.
    - However, the **output from run-of-the-river system is significantly lower** than large

scale hydro projects, which **increases the cost per kWh as compared to Dam based hydroelectric generation.**
- The manipulation of river flows can cause a significant number of environmental impacts **affecting the aquatic ecosystem.**