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Daily News Analysis

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1. Dulhasti Hydel Power Project Stage II got Approved

Prelims perspective: What need to learned

- What is a Run off River Project
- Location: On **Chenab river in Jammu and Kashmir**
- Indus Water Treaty
- Similar Hydrel projects in the Region

Mains Perspective: Note need to be prepared

- India-Pakistan Relations and Indus Water Treaty (**GS II- International Relations**)

Prelims Fact:

- Sawalkote, Ratle, Bursar, Pakal Dul, Kwar, Kiru, and Kirthai I and II Hydel projects: on Chenab and its Tributaries

What needs to be Known:

- **What is a Run off River Project:**
 - A hydroelectric project generates power using the natural flow of a river without large dams or reservoirs for long-term storage.
 - The river water is diverted to a penstock and utilised for operating the turbines for electricity generation and the water is released back to the river.
- **Indus Water Treaty (IWT):**
 - It was signed in 1960 between India and Pakistan with World Bank mediation, allocating waters of the Indus River system to resolve post-partition disputes.
 - **India controls the Eastern Rivers (Ravi, Beas, Sutlej)** for unrestricted use.
 - **Pakistan manages the Western Rivers (Indus, Jhelum, Chenab)**, allocated 80%, with India permitted limited irrigation and unlimited non-consumptive uses like hydropower.
 - India has suspended the IWT in the aftermath of the Pahalgam terror attack in April 2025.

2. Kavach System Installation faces Delay

Prelims perspective: What need to learned

- What is 'Kavach' System
- RFID Technology and its Applications

Mains Perspective: Note need to be prepared

- Application of RFID Technology (**GS III- Science and Technology**)
- Modernizing Railways (**GS III- Economy**)

Prelims Fact:

- Kavach is an indigenously developed Automatic Train Protection System of India to prevent train collision.

What Need to be Known:

- **What is Kavach System:**
 - It automatically applies brakes if the driver overlooks signals or exceeds speed limits, using **radio frequency communication** between trains, tracks, and locomotives.
 - It was developed by **Research Designs and Standards Organization (RDSO)** and Indian Industry partners- **Fully Indigenous**.
 - It is being installed both on tracks as well as the locomotives.
 - It is being implemented in a phased manner.
 - It does not replace the need for the loco pilot.
- **RFID Technology:**
 - It is a **wireless technology** that uses electromagnetic fields to automatically identify and track tags attached to objects, animals, or people.
 - Readers emit radio waves to activate tags, which then transmit stored data like unique IDs without needing line-of-sight.
 - **Applications:** FASTag, Retail & Supply Chain (Tracking goods), Manufacturing & Logistics (Real-time monitoring and Tracking), Healthcare, Pet Detection and Tracking, etc.

3. Snake Bites and their Solutions

Prelims perspective: What need to learned

- Snake Bite and its Impacts
- Antivenom for Snake Bites

Mains Perspective: Note need to be prepared

- Man-Animal Conflict (GS III- Environment)

Prelims Fact:

- India has over **60 venomous snake species**.
- Snake bites account for nearly **58000 deaths in rural India annually**.

What Need to be Known:

- **Snake Bite and its Impacts:**
 - Snake venom are **proteins** and are harmful only when administered into blood- Are safe to consume orally.
 - Venom can be **Hemotoxic** like Vipers and **Neurotoxic** like Cobra and Krait
 - **Impacts:** Can cause **three types of damage** to the human body- Blood disorders, Muscle paralysis and Tissue death.
- **Antivenom for Snake Bites:**
 - A Standard Antivenom has been developed against the '**Big Four Species**' of snakes in India (The Common Krait, Russell's Viper, Saw-scaled Viper and Spectacled Cobra).
 - A cocktail of the venoms of the four species of snakes are injected into **Horses** in non-lethal doses and the Antibodies are extracted from the blood of the horses.
 - Snake venom for the antivenom production in India are mostly sourced from **Tamil Nadu's Irula Tribes** (Particularly Vulnerable Tribal Group).