Mines Surveillance System

Why in News?

Recently, The Uttarakhand government approved a Rs 93-crore proposal for the installation of **Mining Digital Transformation and Surveillance System (MDTSS)**, across the state to curb illegal mining.

Key Points

- The systems will be installed at 40 check gates across **Dehradun, Haridwar, Nainital, and Udham Singh Nagar.**
- The new system equipped with bullet cameras, Radio Frequency Identification (RFID) radars, **and** Light Emitting Diodes (LED) floodlights will not only **help monitor illegal mining activities** but also **boost the state government's revenue.**
- **A Mining State Control Centre (MSCC)** will be set up in Dehradun, along with mini command centres at district headquarters in Dehradun, Haridwar, Nainital, and Udham Singh Nagar.

Illegal Mining

- **About:**
    - Illegal mining is the extraction of minerals, ores, or other valuable resources from land or water bodies **without the necessary permits, licenses, or regulatory approvals** from government authorities.
    - It can also involve the violation of environmental, labor, and safety standards.
- **Issues:**
    - **Environmental Degradation:**
        - It can lead to deforestation, soil erosion, and water pollution and can result in the **destruction of habitats for wildlife,** which can have serious ecological consequences.
    - **Hazards:**
        - Illegal mining often involves the **use of hazardous chemicals such as** mercury **and** cyanide, which can pose serious **health risks to miners** and nearby communities.
    - **Loss of Revenue:**
        - It can lead to a **loss of revenue for governments** as miners may not pay appropriate taxes and royalties.
        - This can have significant economic impacts, particularly in countries where natural resources are a major source of revenue.
    - **Human Rights Violations:**
        - Illegal mining can also result in human rights violations, including forced labor, child labor, and exploitation of vulnerable populations.

Radio Frequency Identification (RFID) radars

- RFID is a **type of passive** wireless technology that allows for tracking or matching of an item or individual.
- **The system has two basic parts: Tags and Readers.**
    - The **reader gives off radio waves and gets signals back from the RFID tag,** while

the **tag uses radio waves to communicate** its identity and other information.
- A tag can be read from up to several feet away and does not need to be within the direct line-of-sight of the reader to be tracked.
- The technology has been **approved since before the 1970s** but has become much more **prevalent in recent years** due to its usages in things like global supply chain management and pet microchipping.