

05– 06 – 2023

News: Understanding the Kavach system

- The train collision in Odisha has made the Kavach once again in limelight.

Kavach – Automatic Train Protection System

- Kavach is **India's own automatic protection system**, which is developed under the name **Train Collision Avoidance System (TCAS)**, which got rechristened **Kavach** or “**armour**”.
- Kavach has been developed by Research Design and Standards Organisation (RDSO) in collaboration with the Indian industry.
- It is a **set of electronic devices and Radio Frequency Identification (RFID) devices** installed in locomotives, in the signalling system as well as the tracks.
- They **connect to each other using ultra high radio frequencies to control the brakes of trains and also alert drivers**, all based on the logic programmed into them.
- TCAS or Kavach includes the key elements from already existing, and tried and tested systems like the **European Train Protection and Warning System**, and the **indigenous Anti Collision Device**.

- It will also carry features of the high-tech European Train Control System Level-2 in future.
- The current form of Kavach adheres to the highest level of safety and reliability standard called Safety Integrity Level (SIL) 4.
- SIL comes from two voluntary standards used by plant owners/operators to quantify safety performance requirements for hazardous operations.
- It is meant to provide protection by preventing trains to pass the signal at Red (which marks danger) and avoid collision. It activates the train's braking system automatically if the driver fails to control the train as per speed restrictions.
- In addition, it prevents the collision between two locomotives equipped with functional Kavach systems.
- The system also relays SoS messages during emergency situations.
- An added feature is the centralized live monitoring of train movements through the Network Monitor System.
- There are four SIL Levels (1-4). A higher SIL Level means a greater process hazard and a higher level of protection required.
- In the new avatar, India wants to position Kavach as an exportable system, a cheaper alternative to the European systems in vogue across the world.

- While now Kavach uses Ultra High Frequency, work is on to make it compatible with 4G Long Term Evolution (LTE) technology and make the product for global markets.
- Work is on to make the system such that it can be compatible with other already installed systems globally.

News: World Environment Day

World Environment Day

- World Environment Day is celebrated on 5th June of every year by United Nations as its flagship event.
- Purpose of celebrating the environment day is in encouraging awareness and action for the protection of our environment.
- World Environment Day came into existence in 1972 by the United Nations Assembly on the first day Stockholm Conference held on the human environment and later in 1974, the day started to be celebrated with the theme "Only One Earth".
- Theme for the year 2022 was "Only One Earth" and that of 2023 is "Beat Plastic Pollution".

- Every year the day will be hosted by a country. 2023 event is being hosted by Côte d'Ivoire.
- UNEP implements the celebration on behalf of UNGA.