

GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS

**RAJYA SABHA**  
**UNSTARRED QUESTION NO. 2197**  
**ANSWERED ON 09.08.2024**

**IMPLEMENTATION PLAN FOR COMMUNICATIONS BASED TRAIN CONTROL  
DESIGNED RAILWAY SIGNALLING SYSTEM (CBTCDRSS)**

2197. SHRI. NARAYANA KORAGAPPA:

Will the Minister of RAILWAYS be pleased to state:

- (a) whether it is a fact that CBTC Designed Railway Signalling System (CBTCDRSS) will increase track capacity by reducing time interval between trains thereby enabling introduction of more trains on existing tracklines;
- (b) whether it is a fact that CBTCDRSS is a high-performance failsafe signalling apparatus with dual benefits of mitigating the land requirement for additional tracks and performing the activity of KAVACH signalling system;
- (c) whether it is a also fact that CBTCDRSS is three to four times more cost-effective than existing system; and
- (d) roadmap of RDSO for implementation of CBTCDRSS across the country and financial requirement for R&D for the same?

**ANSWER**

**MINISTER OF RAILWAYS, INFORMATION & BROADCASTING AND  
ELECTRONICS & INFORMATION TECHNOLOGY**

**(SHRI ASHWINI VAISHNAW)**

(a) to (d):

1. Indian Railways has gone for implementation of advance technology system “Kavach” as an Automatic Train Protection (ATP) system. Kavach is indigenously developed Automatic Train Protection (ATP) system. Kavach is a highly technology intensive system, which requires safety certification of highest order.
2. Kavach has been adopted as a National ATP system in July 2020.
3. Kavach aids the loco pilot in train running within specified speed limits by automatic application of brakes in case Loco Pilot fails to do so and also helps the train to run safely during inclement weather.

4. Implementation of Kavach involves execution of many activities, such as:
  - (i) Installation of Station Kavach at each and every station.
  - (ii) Installation of RFID tags throughout the track length.
  - (iii) Installation of Telecom Towers throughout the section.
  - (iv) Laying of optical Fibre cable along the track.
  - (v) Provision of Loco Kavach on each and every Locomotive running on Indian Railways.
5. The implementation of Kavach started after 2014. Before 2014, the progress of Kavach on Indian Railways was nil.
6. Kavach has so far been deployed on 1465 Route km and 144 locomotives on South Central Railway.
7. Presently, the progress of main items related to Kavach on Delhi-Mumbai & Delhi-Howrah Corridors (approximately 3000 Route km) is as under:
  - (i) Laying of Optical Fibre Cable : 4275 Km
  - (ii) Installation of Telecom Towers : 364 Nos.
  - (iii) Provision of equipment at Stations : 285 Nos.
  - (iv) Provision of equipment in Loco : 319 Locos
  - (v) Installation of Track side equipments : 1384 Route Km.
8. Indian Railways has also prepared Detailed Project Report (DPR) and Detailed Estimate on another 6000 Rkm.
9. On 16.07.2024, Kavach 4.0 specification has been approved by RDSO. This version covers all the major features required for the diverse railway network. This is significant milestone in safety for Indian Railways. Within a short period, IR has developed, tested and started deploying Automatic Train Protection System.

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