

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS**

**LOK SABHA
UNSTARRED QUESTION NO. 336
TO BE ANSWERED ON 27.11.2024**

DEPLOYMENT OF 'KAVACH' SYSTEM IN RAILWAYS

336. SHRI ABHISHEK BANERJEE:

Will the Minister of RAILWAYS be pleased to state:

- (a) the details of the total amount of funds allocated for installation and deployment of 'Kavach' system or Traffic Collision Avoidance System (TCAS) in the Railways budget for the financial years 2021-22, 2022-23, 2023-24, and 2024-25;**
- (b) the details of the amount of funds utilised till date out of the allocated budget in States like West Bengal and Odisha during the financial years 2021-22, 2022-23, 2023-24, and 2024-25 along with the particulars of the same;**
- (c) the details of the railway routes and other modalities of the 'Kavach' system which have been sanctioned to be installed for the financial years 2021-22, 2022-2023, 2023-24, and 2024-25; and;**
- (d) the details of the percentage of the routes and other modalities of the 'Kavach' system, successfully installed and deployed across railway routes in the country till date?**

ANSWER

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

(SHRI ASHWINI VAISHNAW)

(a) to (d): A statement is laid on the Table of the House.

STATEMENT REFERRED TO IN REPLY TO PARTS (a) TO (d) OF UNSTARRED QUESTION NO.336 BY SHRI ABHISHEK BANERJEE TO BE ANSWERED IN LOK SABHA ON 27.11.2024 REGARDING DEPLOYMENT OF 'KAVACH' SYSTEM IN RAILWAYS

(a) to (d):

- 1. Kavach is an indigenously developed Automatic Train Protection (ATP) system. Kavach is a highly technology intensive system, which requires safety certification of highest order (SIL-4).**
- 2. Kavach aids the Loco Pilot in running of train within specified speed limits by automatic application of brakes in case Loco Pilot fails to do so and also helps the trains to run safely during inclement weather.**
- 3. The first field trials on the passenger trains were started in February 2016. Based on the experience gained and Independent Safety Assessment of the system by Independent Safety Assessor (ISA), three firms were approved in 2018-19, for supply of Kavach ver 3.2.**
- 4. Kavach was adopted as National ATP system in July 2020.**
- 5. Implementation of Kavach System involves following Key Activities:**
 - a. Installation of Station Kavach at each and every station, block section.**
 - b. Installation of RFID Tags throughout the track length.**
 - c. Installation of telecom Towers throughout the section.**
 - d. Laying of Optical Fibre Cable along the track.**
 - e. Provision of Loco Kavach on each and every Locomotive running on Indian Railways.**

- 6. Based on deployment of Kavach version 3.2 on 1465 RKm on South Central Railway, lot of experience was gained. Using that further improvements were made. Finally, Kavach specification version 4.0 was approved by RDSO on 16.07.2024.**
- 7. Kavach version 4.0 covers all the major features required for the diverse railway network. This is a significant milestone in safety for Indian Railways. Within a short period, IR has developed, tested and started deploying Automatic Train Protection System.**
- 8. Major improvement in Version 4.0 includes increased Location Accuracy, Improved Information of Signal Aspects in bigger yard, Station to Station Kavach interface on OFC and Direct Interface to existing Electronic Interlocking System. With these improvements, now large scale deployment has started.**
- 9. Kavach has already been deployed on 1548 RKm on South Central Railway and North Central Railway. Presently, the work is in progress on Delhi- Mumbai & Delhi- Howrah corridors (approximately 3000 Route km). Track side works on these routes have been completed on about 1081 RKM (705 RKm on Delhi-Mumbai section and 376 RKm on Delhi-Howrah section). Regular trials are being done on these sections.**
- 10. Progress of Key items comprising Kavach system on above mentioned routes upto Oct' 2024 is as under:-**
 - a. Laying of Optical Fibre Cable: 4960 Km**
 - b. Installation of Telecom Towers: 378 Nos.**
 - c. Provision of Kavach at Stations: 381 Nos.**

- d. Provision of Kavach in Loco: 482 Locos**
 - e. Installation of Track side equipment: 1948 RKm.**
- 11. Next phase of Kavach implementation is planned as under:-**
- a. Project for equipping 10,000 Locomotives has been finalized.**
 - b. Bids for track side Works of Kavach for approximately 15000 RKm have been invited, out of which Bids for about 9000Rkm have been opened. It covers all GQ, GD, HDN and Identified sections of Indian Railways.**
- 12. Currently, 3 OEMs are approved for supply of Kavach System. To increase capacity and scale of implementation, trials and approval of more OEMs are at different stages.**
- 13. Specialized training programme on Kavach are being conducted at centralized training institutes of Indian Railways to impart training to all concerned officials. By now more than 9000 technicians, operators and engineers have been trained on Kavach technology. Courses have been designed in collaboration with IRISSET.**
- 14. The cost for provision of Track Side including Station equipment of Kavach is approximately Rs. 50 Lakhs/Km and cost for provision of Kavach equipment on locomotives is approximately Rs. 80 Lakh/Loco.**
- 15. The funds utilized on Kavach works so far is Rs. 1547 Crores. The allocation of funds during the year 2024-25 is Rs. 1112.57 Crores. Requisite funds are made available as per the progress of works.**