Indian Railways Approves Projects worth ₹1,236 Crore to Upgrade Communication and Kavach System

Dual Fibre Communication Network Across all Five Divisions of Central Railway at the Cost of ₹623.63 Crore

Indian Railways to Complete Fibre Communication Network Across Rajkot and Bhavnagar Divisions in Gujarat at ₹302.26 Crore

Kavach 4.0 Collision Avoidance System to be Deployed on 548 km of High-Traffic Routes Across Tamil Nadu, Kerala, and Karnataka at ₹310.18 Crore

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Indian Railways has approved a comprehensive set of projects worth approximately ₹1,236 crore aimed at significantly upgrading its communication backbone and expanding the Kavach automatic train protection system across multiple zones. These approvals cover three separate proposals. Two are focused on optical fibre and ground wire infrastructure on Central and Western Railways, and one on deployment of Kavach on high-utilisation routes of Southern Railway.

Central Railway Gets Upgraded Fibre Network: ₹623.63 Crore

Two complementary works have been approved to build a robust, dual-path communication backbone across Central Railway's network, covering all five of its divisions — Solapur, Nagpur, Pune, Bhusawal, and Mumbai.

First, a special type of composite overhead wire called OPGW (96 fibre) will be installed along the existing 25 KV electric traction lines on 2,250.68 Rkm, covering Solapur, Nagpur, Pune, and Bhusawal Divisions. This wire does two jobs at once: it acts as an earth protection wire for the traction system and also carries optical fibre for communication. Since it runs on the existing traction towers, no new civil infrastructure is needed. Cost: ₹238.9363 Crore.

Second, underground optical fibre cables (2x48 fibre) will be laid on one side of the track over 2,673.21 Rkm across all five divisions — Solapur, Pune, Nagpur, Bhusawal, and Mumbai. Together with the OPGW on the other side, this creates two independent fibre paths on every route, ensuring the communication network stays operational even if one path fails. Cost: ₹384.6887 Crore.

The additional fibre capacity will also be leased out as dark fibre, generating revenue for Indian Railways.

Kavach Safety System Extended to 548 km on Southern Railway: ₹310.18 Crore

Kavach is Indian Railways' automatic train protection system that prevents collisions by automatically applying brakes if two trains are on a collision course or if a signal is passed at danger. Under this approval, it will be deployed on high-traffic routes across Tamil Nadu, Kerala, and Karnataka.

Under this approval, Kavach version 4.0 will be deployed on two sections of Southern Railway:

- **Jolarpettai–Erode (180 Rkm, Salem Division)** and **Chennai Beach – Tambaram – Chengalpattu (60 km, Chennai Division)** — along with new optical fibre cabling. Cost: ₹158.74 Crore.
- **Shoranur–Mangalore (308 km, Palakkad Division)** — along with new 4x48 fibre OFC cabling. Cost: ₹151.44 Crore.

These works are part of Southern Railway's sub-umbrella project worth ₹2,950 Crore.

Western Railway to Complete Fibre Backbone for Rajkot and Bhavnagar Divisions at ₹302.2589 Crore

Optical fibre cables (2x48 fibre, on each side of track) will be laid on the remaining stretches of two Western Railway divisions in Gujarat — 1,064 km in Rajkot Division and 589 km in Bhavnagar Division, totalling 1,653 km. This fills the last gaps in the fibre communication network of these divisions.

A strong fibre backbone is essential for Kavach and LTE-based train control systems to function reliably. Completing this network ensures Western Railway's Kavach rollout can move forward without delays. These works are part of Western Railway's sub-umbrella project worth ₹2,800 Crore.

Overall Impact

These projects are part of Indian Railways' broader strategy to modernise infrastructure through integration of advanced communication systems and safety technologies. The strengthening of traction-linked communication systems and expansion of OFC networks will play a vital role in supporting Kavach, improving operational efficiency, enhancing safety and enabling future-ready railway operations across the country.

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