GOVERNMENT OF INDIA MINISTRY OF RAILWAYS

RAJYA SABHA UNSTARRED QUESTION No. 139 ANSWERED ON 02.02.2024

DIGITAL TWINS TECHNOLOGY FOR STRENGTHENING AND MONITORING OF IMPORTANT RAILWAY BRIDGES.

139 SHRI R. GIRIRAJAN: DR. KANIMOZHI NVN SOMU:

Will the Minister of RAILWAYS be pleased to state:

- (a) whether it is a fact that there are 30,000 Railway bridges that are more than 75 years old in the country and if so, the details thereof, Railway Zone-wise;
- (b) whether Government has plans for the use of Digital Twins Technology for strengthening and monitoring of important Railway bridges in the country, if so, the details of the total amount allocated and disbursed for the purpose;
- (c) whether Government has identified the railway infrastructure needs of Tamil Nadu, if so, the details thereof, Railway Division-wise; and
- (d) the total funds earmarked for the same?

ANSWER

MINISTER OF RAILWAYS, COMMUNICATIONS 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. 139 BY SHRI R. GIRIRAJAN AND DR. KANIMOZHI NVN SOMU ANSWERED IN RAJYA SABHA ON 02.02.2024 REGARDING DIGITAL TWINS TECHNOLOGY FOR STRENGTHENING AND MONITORING OF IMPORTANT RAILWAY BRIDGES.

(a) & (b): Bridges are maintained in good physical condition irrespective of their age by periodic inspection & repairs. Repair/ Strengthening/ Rehabilitation/ Rebuilding is undertaken wherever required based on inspections. Detailed technical inspection of identified bridges is carried out at the specified periodicity by the designated officials and follow up action is taken. If the corrective / remedial measures are expected to take time, suitable speed restrictions are imposed and such bridges are kept under close watch.

Trials have been conducted for implementing digital technology like photogrammetry and LiDAR for remote inspection of bridges. This technology helps to create digital twins of bridges for recording identified defects from a remote location. By using these technologies, it is possible to carry out inspection of bridges over Perennial River and high bridges in gorges where manual inspection of bridge is difficult. Railway has planned to use this digital platform to monitor the health of identified bridges. The technology is in a nascent stage of implementation.

(c) & (d): Railway projects are sanctioned and taken up Zonal Railway-wise and not State-wise as the Indian Railway's projects may span across various State boundaries. However, as on 01.04.23, 23 projects (09 new line, 03 Gauge conversion and 11 doubling) of total length 2,848 Km costing Rs 35,580 crore falling fully/partly in the State of Tamil Nadu are in planning/approval/construction stage. These includes:-

- (i) 9 New Line projects covering total length of 871 km at a cost of Rs 14,682 crore.
- (ii) 3 Gauge Conversion projects covering total length of 748 km at a cost of Rs 5,224 crore.
- (iii) 11 Doubling projects covering total length of 1,229 km at a cost of Rs 15,674 crore.

Since 2014, there has been substantial increase in Budget allocation and commensurate commissioning of projects. Budget allocation for infrastructure and safety projects falling fully/ partly in the State of Tamil Nadu has been enhanced to highest at Rs 6,080 crore this year which is nearly seven times of the budget allocation of Rs 922 crore in 2013-14.

Average annual Budget allocation for Infrastructure and safety works, falling fully/ partly in the State of Tamil Nadu is as under:-

Period	Average Outlay	Increase w.r.t. average allocation of 2009-14
2009-14	Rs 879 crore/year	-
2023-24	Rs 6,080 crore	nearly 7 times

In 2014-23, 1227 Km section (18 km New Line, 456 Km of Gauge Conversion and 753 km of Doubling) falling fully/partly in the State the Tamil Nadu have been commissioned at an average rate of 136.33 Km per year.
