

GOVERNMENT OF INDIA
MINISTRY OF HOUSING AND URBAN AFFAIRS
RAJYA SABHA
UNSTARRED QUESTION NO. 691
ANSWERED ON 10/02/2025

**ADVANCEMENTS AND TECHNOLOGICAL INNOVATIONS INCORPORATED IN
METRO SYSTEMS**

691. SHRI R. DHARMAR:

Will the Minister of HOUSING AND URBAN AFFAIRS be pleased to state:

- (a) the number of cities in the country that have operational metro systems and the total length of the metro network in the country;
- (b) the advancements and technological innovations incorporated in metro systems in the country in recent years including the State of Tamil Nadu;
- (c) the plans of Government to expand metro connectivity to more cities in the coming years including the State of Tamil Nadu;
- (d) the steps being taken to ensure that the metro systems are environment– friendly and energy-efficient; and
- (e) the progress made in integrating metro systems with other modes of public transport in major cities?

ANSWER

THE MINISTER OF STATE IN THE MINISTRY OF HOUSING AND URBAN AFFAIRS

(SHRI TOKHAN SAHU)

- (a) At present, about 1011 kms of metro rail network including RRTS is operational in 23 cities across the country.
- (b) A number of advancements and technological innovations have taken place during the recent years in various Metro Rail operational in the country. Some of the noteworthy technological advancements are:
 - (i) Introduction of Namo Bharat Train- India's first State of Art Namo Bharat train with design speed of 180 kmph and operational speed of 160 kmph has been introduced on priority section between New Ashok Nagar to Meerut South Depot on Delhi- Meerut RRTS corridor;
 - (ii) European Train Control System (ETCS) – World's first State of Art ETCS level II with Hybrid level-III radio based train signalling system on LTE backbone has been introduced on Namo Bharat trains running between New Ashok Nagar to Meerut South Depot on Delhi- Meerut RRTS corridor enhancing passenger safety to a new level.

- (iii) Platform Screen Door (PSD) - For improved safety and to reduce the risk of accidents, PSD has been jointly developed by Bharat Electronics Limited (BEL) with National Capital Region Transport Corporation (NCRTC);
 - (iv) National Common Mobility Card (NCMC) – One Nation-One card i.e. NCMC work on all NCMC enabled transport systems in the country;
 - (v) QR based Ticketing – QR based ticketing system has facilitated booking of tickets from Mobile based apps;
 - (vi) Unmanned Train Operations (UTO) – For improved efficiency and quality of service including better utilisation of resources, UTO is functional in many stretches of Delhi Metro Rail Corporation;
 - (vii) Indigenous Automatic Train Supervision system (i-ATS) – India’s first Indigenously built Automatic Train Supervision System developed by the combined efforts of DMRC and Bharat Electronics Limited (BEL) has been implemented on Red Line of Delhi Metro.
- (c) ‘Urban planning’ is a State subject. Therefore, the respective State Governments are responsible for planning, initiating and developing urban transport infrastructure including integration amongst various modes of public transport. As per Metro Rail Policy, 2017, the Central Government considers financial assistance for Metro Rail proposals in cities or urban agglomerates based on the feasibility of the proposal and availability of resources, as and when posed by the concerned State Government.
- (d) Solar power panels have been installed by Metro companies that help in reduction of CO2 emissions. Metro Rail projects have adopted the regenerative braking system in rolling stock. Adoption of Regenerative Braking Systems by metro projects are resulting in power saving and reutilisation. Setting up solar panels leads to considerable reduction in power consumptions and savings in expenditure and power which contributes significantly making metro projects sustainable and environment friendly.
- (e) Central Government has formulated National Urban Transport Policy (NUTP), 2006, Metro Rail Policy, 2017 and Transit Oriented Development Policy, 2017, which act as a guide to State Governments for integrated planning and implementation of urban transport systems in most sustainable and viable manner. The policy also envisages necessarily inclusion of feeder systems, last mile connectivity through pedestrian pathways, Non-Motorized Transport (NMT) infrastructure, and induction of facilities for Para transit modes etc. to incentivize metro rail ridership.
