GOVERNMENT OF INDIA
MINISTRY OF CONSUMER AFFAIRS, FOOD AND PUBLIC DISTRIBUTION
DEPARTMENT OF CONSUMER AFFAIRS

RAJYA SABHA
UNSTARRED QUESTION No. 1807
TO BE ANSWERED ON 05.08.2025

INDIGENOUS TIMEKEEPING TECHNOLOGY FOR MAINTAINING IST

1807. SHRI JAGGESH

Will the Minister of CONSUMER AFFAIRS, FOOD AND PUBLIC DISTRIBUTION be pleased to state:

(a) whether it is a fact that during the Kargil War, the US had refused to share GPS coordinates with India for keeping time, which had created obstructions in the military operations;
(b) whether Government proposes to replace GPS-based timekeeping with an indigenous system to safeguard critical sectors from potential foreign disruptions;
(c) whether India is prepared for a domestically managed network of atomic clocks rather than the US-controlled GPS for maintaining IST;
(d) whether the indigenous system represents part of India's broader Atmanirbhar Bharat initiative aimed at achieving self-reliance in strategic technologies; and
(e) if so, the details thereof?

ANSWER

THE MINISTER OF STATE, CONSUMER AFFAIRS, FOOD AND PUBLIC DISTRIBUTION (SHRI B. L. VERMA)

(a) to (e) : The Department of Consumer Affairs, in collaboration with National Physical Laboratory (NPL) and ISRO, is implementing a nationwide project to disseminate Indian Standard Time (IST) through five Regional Reference Standard Laboratories (RRSLs) located at Ahmedabad, Bengaluru Bhubaneswar, Faridabad, and Guwahati. These nodes will be equipped with atomic clocks and timing systems traceable to NPL's primary time scale to provide secure and accurate time to telecom, power, financial and IT systems. Synchronization to IST for all sectors such as telecom, banking, finance, power and IT systems will ensure uniform time stamping and traceability, enhancing cybersecurity, interoperability and operational integrity across critical infrastructures.

The protocols used for dissemination of IST shall ensure high precision in real-time operations across sectors like telecom, banking and scientific research. These protocols enable millisecond to microsecond-level accuracy, crucial for high-frequency trading, 5G networks, and scientific measurements. Infrastructure at RRSLs will maintain traceability to NPL's primary time scale, supported by a Disaster Recovery Centre at RRSL, Bengaluru to ensure uninterrupted precision timing.

Multiple proactive measures are being taken to integrate critical infrastructure with Indian Standard Time (IST), including the completion of civil infrastructure and installation of atomic clocks and timing servers at five Regional Reference Standard Laboratories (RRSLs). The Department is working in close coordination with Internet Service Providers (ISPs), Telecom Service Providers (TSPs), power grids, data centers, and financial institutions to ensure their systems are ready to receive and synchronize with IST. Additionally, secure dissemination protocols are being implemented to safeguard against cybersecurity threats, including time-based spoofing or manipulation.

In addition to the above initiatives, the Government is also leveraging indigenous satellite navigation technology by promoting the use of the Navigation with Indian Constellation (NavIC) system to reduce dependence on foreign controlled GPS services. NavIC, developed by ISRO, provides accurate position and timing information over India and surrounding regions and is being integrated with time dissemination infrastructure to enhance national resilience. This indigenous capability not only strengthens strategic autonomy but also ensures uninterrupted access to time and navigation data for critical sectors such as defense, power grids, transportation, and telecommunications, even in scenarios where access to GPS may be restricted or denied.

To ensure seamless implementation, the Department has established regular coordination with key stakeholders including DoT, MeitY, RBI, SEBI, CERT-In, NPL and ISRO. Monthly review meetings and high-level inter-agency consultations are being held to align infrastructure readiness and regulatory enforcement. Joint technical working groups are constituted with NPL, ISRO, etc. to finalize specifications, system design and indigenous software integration. Engagement are made for critical equipment with Indian service providers for optical fiber deployment for time transfer.

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