GOVERNMENT OF INDIA
MINISTRY OF ROAD TRANSPORT AND HIGHWAYS
RAJYA SABHA
UNSTARRED QUESTION NO -2034
ANSWERED ON – 17/12/2025

NATIONAL DATABASE FOR EMERGENCY MANAGEMENT

2034. SHRI S.R. SIVALINGAM:

Will the Minister of ROAD TRANSPORT AND HIGHWAYS be pleased to state:

(a) the purpose behind mandating the use of National Database for Emergency Management (NDEM) analysis in all highway Detailed Project Reports (DPRs) across the country, including projects proposed in Tamil Nadu;

(b) the manner in which integrating NDEM's geospatial and disaster-forecasting inputs is expected to improve planning, alignment selection and risk-mitigation measures for national highway projects, particularly in disaster-vulnerable regions of Tamil Nadu; and

(c) the measures Government intends to adopt to ensure that project consultants, State authorities and implementing agencies in Tamil Nadu and elsewhere are fully equipped to interpret NDEM data and incorporate it effectively into highway design and safety planning?

ANSWER

THE MINISTER OF ROAD TRANSPORT AND HIGHWAYS

(SHRI NITIN JAIRAM GADKARI)

(a) to (c) The National Database for Emergency Management (NDEM) portal developed and maintained by the National Remote Sensing Centre (NRSC), Indian Space Research Organization (ISRO) hosts multi-temporal satellite data, thematic layers, and decision support tools for monitoring natural hazards such as floods, landslides, droughts, cyclones etc. NDEM provides high-resolution datasets and analytical layers that can support infrastructure planning by enabling evidence-based decision-making and minimizing potential risks associated with natural disasters.

The NDEM portal also contains several geospatial layers of direct relevance to highway project planning and alignment studies, such as Digital Elevation Models (DEM) and slope maps (for route alignment and cut-fill optimization), Land Use Land Cover (LULC) maps (for vegetation covers, environmental and urban impact assessment), Seismic & Landslide risk

mapping (for alignment selection), Hydrological, Drainage, & river basin networks (for cross-drainage structure design and hydraulic analysis), Flood plain and inundation zones (for identifying flood-prone areas), Soil and geotechnical layers (for geotechnical feasibility and pavement design considerations) etc. These datasets can substantially enhance the planning, feasibility study and Detailed Project Report (DPR) preparation of highway projects by improving data accuracy and reducing field uncertainties.

Accordingly, the Government has taken policy decision for DPRs of all National Highways (NHs) projects, including for the State of Tamil Nadu, to mandatorily include analysis based on NDEM datasets, duly covering aspects of route alignment optimization, floodplain and drainage planning, risk and vulnerability assessment, environmental and social screening, landslide risk mapping in case of hill roads. Further, findings of such analysis and its impact on project design and mitigation planning are considered during the approval of project alignment.

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