GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

RAJYA SABHA
UNSTARRED QUESTION NO. 1643
TO BE ANSWERED ON 13.03.2025

Permanent solution to prevent sea erosion

1643. SHRI S. SELVAGANABATHY:

Will the Minister of ENVIRONMENT, FOREST AND CLIMATE CHANGE be pleased to state:

(a) whether Government has any proposal to devise a permanent solution to prevent sea erosion in the coastal areas;
(b) if so, the details thereof; and
(c) the details of the areas where groynes have been built in various coastal States/UTs of the country?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(SHRI KIRTI VARDHAN SINGH)

(a) & (b): The Government of India is committed for taking proactive steps in combating coastal erosion and protection of India's coastal areas. Coastal erosion is a natural and continuous process caused by waves, tides, currents, and rising sea levels. The coastline can be protected from erosion through combination of scientific understanding, regulatory measures, engineering solutions, and sustainable environmental practices. Several scientific studies are conducted to support solutions for protection of coastline of the country. Some of the measures taken are as follows:

(i) The Flood Management scheme of Ministry of Jal Shakti, including anti-sea erosion schemes, are planned and executed by the State Governments with their own resources as per priorities of States. Union Government renders assistance to States, which is technical, advisory, catalytic and promotional in nature. Considering the importance of data on coastal processes for coastal protection measures, "Coastal Management Information System (CMIS)" has been initiated under the Central Sector Scheme namely of "Development of Water Resources Information System" of Ministry of Jal Shakti. CMIS collects offshore and near shore coastal data, for use in better scientific planning, design, construction and maintenance of site specific coastal protection structures at vulnerable Coastal stretches. At present, eight (8) sites has been established under CMIS. These include 2 sites in Maharashtra(Satpati, Tarkhali), 2 sites in Goa (Benaulim, Baga) and one site each in Gujarat (Nanidanti-Motidanti), Kerala (Ponnani), Tamilnadu (Devaneri) & UT of Puducherry

(Karaikal). Under CMIS, parameters such as Wave, Current, Tide, Near & Offshore bathymetry, River current discharge, Wind velocity, Wind direction, Relative humidity, Shoreline mapping (High Tide Line, Low Tide Line), Beach profile, Rainfall, Temperature, Suspended and Sea bed sediments are observed. Data collection is carried out during spring tide days as per the tidal prediction charts of Survey of India.

(ii) Ministry of Jal Shakti, D/O Water Resources, River Development & Ganga Rejuvenation has a Centrally sponsored scheme namely Flood Management and Border Areas Programme (FMBAP), which provides financial assistance for flood management and control schemes to States/ UTs. Coastal Protection Schemes are eligible for Central assistance under FMBAP. The scheme has a budgetary outlay of Rs. 4100 Crores for a period of 2021-26 with cost sharing provision of 90:10 for special category of States and 60:40 for General Category of states.

(iii) Coastal Protection and Development Advisory Committee (CPDAC) under the Chairmanship of Member (River Management Wing), Central Water Commission (CWC), Ministry of Jal Shakti, have been constituted to guide and implement the programme of anti-sea erosion works & to consider the development potential in the protected coastal zone. The secretariat of the committee is Coastal Management Directorate within CWC. The committee is a high-level inter-ministerial body comprising costal engineering experts and representatives from Maritime States/Union Territories and relevant Central Departments to provide common platform to discuss and solve the coastal erosion problems.

(iv) National Centre for Coastal Research, (NCCR), an attached office of Ministry of Earth Sciences (MoES), has monitored the shoreline changes for the entire Indian coastline using multi-spectral satellite images along with field-surveyed data for the period 1990-2018. As per NCCR study, approximately 33.6% of the Indian coastline is under erosion, approximately 26.8% is under accretion (growing) and approximately 39.6% is in a stable State. In addition, Indian National Centre for Ocean Information Services (INCOIS) under MoES has prepared the Coastal Vulnerability Index (CVI) maps for the entire coastline of India by using seven parameters such as shoreline change rate, sea-level change rate, coastal elevation, coastal slope, coastal geomorphology, significant wave height and tidal range. Such information help in planning precautionary, preventive and control measures for coastal erosion.

(v) Ministry of Environment Forest & Climate Change (MoEFCC) has delineated the hazard line for the entire coast of the country. The hazard line is indicative of the shoreline changes, including sea level rise due to climate change.

(vi) MoEFCC has issued Coastal Regulation Zone (CRZ) Notifications under The Environment (Protection) Act, 1986, with a view to conserve and protect the unique environment of coastal stretches and marine areas and also to promote sustainable development based on scientific principles taking into account the dangers of natural hazards, sea level rise including coastal erosion. Measures for control of erosion are permissible activity in CRZ areas as per the provision of CRZ notification. The Ministry has issued directions to all Coastal States/UTs, for preparation of Shoreline Management Plan. The notification also

provides for No Development Zones (NDZ) along various categories of coastal areas to protect India's coastline from encroachment and erosion due to anthropogenic reasons.

(vii) The "Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISHTI)" is a programme launched by the Government of India , across 9 coastal States and 4 Union Territories, to promote large-scale mangrove plantation. Mangroves reduce wave energy and stabilize coastlines, thereby helps in prevention of coastal erosion as a long term sustainable solution, while providing the co-benefits related to alternative livelihoods for communities, reducing dependence on destructive activities like sand mining. MISHTI is implemented through convergence with gap funding provided through National Compensatory Afforestation Fund Management and Planning Authority (CAMPA).

(c): Based on the information available with this Ministry, groynes have been adopted at 11 locations in Gujarat, 01 in Maharashtra, 23 in Karnataka, 45 in Kerala, 113 in Tamil Nadu, 22 in Andhra Pradesh, 1 in Odisha and 45 in West Bengal.

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