

GOVERNMENT OF INDIA  
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

**LOK SABHA**  
**UNSTARRED QUESTION NO. 247**  
TO BE ANSWERED ON 02.02.2026

**Impact of Climate Change on Coral Reefs**

247. SMT. PRIYANKA GANDHI VADRA:

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

- (a) whether the Government has a long-term action plan to protect and preserve coral reefs in the country, particularly against the impact of climate change, if so, the details thereof;
- (b) whether the Government has taken any initiatives to protect major coral formations in the country, if so, the details thereof;
- (c) whether the Government has taken any measures to prevent damage to coral reefs while implementing development, shipping and tourism projects in Lakshadweep islands and the Andaman and Nicobar islands, if so, the details thereof;
- (d) the details of the projects and proposed projects for the protection and management of coral reefs under the National Coastal Mission Scheme, State/UT-wise;
- (e) the details of major coral bleaching events in the country along with the causes and impact, including the extent of damage since 2015; and
- (f) the details of the measures taken/proposed to be taken to strengthen coral bleaching monitoring and alert system along with the details of alerts issued since 2015, State/UT-wise?

**ANSWER**

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

(a) to (d). Government of India has taken several steps to protect and conserve coral reefs in the country through various regulatory and promotional measures, which include:

- i. Coral species are listed under schedule -I under Indian Wildlife (Protection) Act, 1972, which provides highest protection to the coral reefs.
- ii. The Coastal Regulation Zone (CRZ) Notification, 2019, promulgated under Environment (Protection) Act 1986, has specific focus on conservation and management plans of Ecologically Sensitive Areas (ESAs), including corals and coral reefs and prohibit developmental activities and disposal of wastes in their fragile coastal ecosystems.
- iii. Ministry of Environment, Forest Climate Change has initiated a long-term programme of Coral restoration and Marine Biological Stations at several locations.

- iv. The National Coastal Mission (NCM), which is a Central Sector Scheme under the National Coastal Management Programme, aims at enhancing the resilience and sustainability of India's coastal regions. Development of coral reefs and its management is one of the identified activities under the National Coastal Mission Under the Mission, the Government has approved specific projects and activities for the protection, management and restoration of coral reefs, implemented through coastal States and Union Territories, with technical support from national institutions. One of the projects sanctioned under National Coastal Mission Scheme, is 'Development of Corals and its Management' for implementation in Lakshadweep and Andaman and Nicobar Islands by NCSCM in collaboration with Zoological Survey of India (ZSI).
- v. Department of Environment & Forest of Lakshadweep Administration monitors the health and resilience of corals in collaboration with ZSI and is working on Coral Transplantation activities for enhanced coral reef cover and bio-diversity in the shallow reefs.
- vi. Central Marine Fisheries Research Institute (CMFRI) has undertaken studies to understand ecological changes affecting coral reefs. CMFRI has initiated a comprehensive national project aimed at investigating the resilience potential of various coral reefs in India by integrating advanced climatic modelling, deep-learning, and ecological research and develop resilience-based management actions ensuring the long-term sustainability of coral reef ecosystems.

(e) & (f). The primary drivers of coral bleaching have been elevated sea surface temperatures associated with climate change and ocean warming, including thermal stress linked to El-Niño events and prolonged periods of above-normal temperatures. Such conditions cause corals to expel their symbiotic algae, leading to bleaching. However, corals have resilience to recover depending upon the restoration of the normal sea conditions. Very few major coral bleaching episodes have been reported, particularly in Lakshadweep, the Andaman & Nicobar Islands, and the Gulf of Mannar between 2015 and 2026. Coral bleaching is a sporadic event in India, and such incidents do not have major impact on local economy.

Indian National Centre for Ocean Information Services (INCOIS) - a scientific & research organisation under Ministry of Earth Sciences (MoES) INCOIS through its Coral Bleaching Alert System (CBAS), provides operational services including monitoring of sea surface temperatures (SSTs), marine heatwave events and other oceanic variables. By utilizing satellite data, buoys, and oceanographic models, INCOIS identifies anomalies and disseminates Marine Heatwave Alerts to coastal states and relevant stakeholders. These alerts highlight coral regions impacted by bleaching due to thermal stress. This information supports experts in understanding the implications for various marine ecosystems and mariculture activities.

Zoological Survey of India (ZSI) monitors coral reefs through coral restoration, coral transplantation, research on the reproductive biology of corals, and studies of bleaching-resistant corals. Further, ZSI conducts studies on extent of coral bleaching as part of Long Term Coral Reef Monitoring Program. ZSI comprehend the resilience of various coral species and provides critical insights for the formulation of effective conservation strategies and timely interventions by utilizing advanced climatic modelling techniques. ZSI is working in

collaborations with state agencies to oversee the health of coral reefs in all the reef areas of India.

The Coral Reef Monitoring Robot (C-Bot), developed by the Council of Scientific & Industrial Research (CSIR) - National Institute of Oceanography (NIO), is employed to gather precise data regarding coral ecosystems. This robot features underwater imaging and geo-referencing capabilities, which are vital for continuous monitoring and validation of satellite data, thereby ensuring accurate evaluations of reef health.

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