

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION NO. 1119
TO BE ANSWERED ON FRIDAY, JUNE 28, 2019**

RISING SEA LEVEL

**1119. PROF. SAUGATA ROY:
SHRI ANTO ANTHONY:**

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether the rising sea level is a serious concern especially for the coastal inhabitants, if so, the details thereof and the reasons therefor;**
- (b) whether the Government has conducted any study to assessed the impact due to rising sea levels of various coastal towns in the country, if so, the details thereof;**
- (c) whether the Government has taken any steps to protect coastal inhabitants from rising sea level by relocating the worst affecting public and prevention of seashore erosion, if so, the details thereof;**
- (d) whether the Government is providing any financial assistance to Coastal States to construct seawalls and other remedies to protect the coastal areas; and**
- (e) if so, the details of such assistances given to various States/UTs during the last five years, year-wise and State/UT-wise?**

ANSWER

**MINISTER OF STATE IN THE MINISTRY OF HEALTH AND
FAMILY WELFARE
(SHRI ASHWINI KUMAR CHOUBEY)**

- (a) Yes Sir. Sea level rise is a very slow phenomenon and is manifested globally with pockets of sea level rise/fall trends. Recent studies by Indian Scientists reveal that the trends of sea level rise is estimated to be 1.3mm/year along the Indian coasts during the last 40-50 years. Some parts of the Indian coastline have been facing coastal erosion and river mouths are experiencing deltaic subsidence. However, it has not been established that these manifestations are only due to rise in sea level. Rising sea levels can exacerbate the impacts of coastal hazards such as storm surge, Tsunami, coastal floods, high waves and coastal erosion in the low lying coastal areas in addition to causing gradual loss of coastal land to sea.**

(b) **Yes, Madam. Several studies have been carried out using geospatial techniques along with ground truth survey all along the east coast of India. The Multi-resolution remote sensing satellite data of different dates were used for shoreline change rate. In most cases, the erosion is mainly due to anthropogenic activities such as construction of ports, breakwaters, groins etc. In some cases extreme events like cyclones, storm surges, river sediment/water discharge etc. also cause shoreline erosion. In each state, the key erosion spots have been identified and currently studying causes of erosion particularly in such areas. In addition, studies suggest that the sea levels are changing at different rates along the Indian coast. The long term data on monthly mean sea levels obtained from the sea level gauges installed at the major ports were used to carry out the analysis. The rate of change of sea level at 11 major ports is shown in the table given below.**

Sl. No.	Location	Rate of change of sea level (mm/year)	Duration of data used (years)
1.	Chennai	0.33	1916-2005
2.	Diamond Harbour	5.16	1948-2005
3.	Haldia	2.89	1972-2005
4.	Kandla	3.18	1950-2005
5.	Kochi	1.30	1939-2005
6.	Mumbai	0.74	1878-2005
7.	Paradeep	1.03	1966-2005
8.	Port Blair	2.20	1916-1964
9.	Vizag	0.97	1937-1988
10.	Okha	1.50	1964-1991
11.	Vizag	0.97	1937-2005

(c) **A wide range of coastal vulnerability maps on different spatial scales have been generated for the entire coast of India by various agencies primarily for use in the forewarning of various ocean hazards viz., Tsunami, Cyclones and Storm Surges. An atlas on Coastal Vulnerability Index (CVI) on 1:1,00,000 scale has been prepared for the entire Indian coast. On a pilot scale, 3-Dimensional Geographical Information System (3D GIS) maps for the coastal stretch between Cuddalore and Nagapattinam have been completed in association with Industry Partners. A set of shoreline change maps have been prepared for the entire country on 1:25000**

scale to assess the erosion and deposition rates. The Ministry of Environment and Forests (MoEF) had developed an Integrated Coastal Zone Management (ICZM) Plan for implementation in India with a view to ensure livelihood security to the fisher communities and other local communities, living in the coastal areas, to conserve and protect coastal stretches, its unique environment and its marine area and to promote development through sustainable manner based on scientific principles taking into account the dangers of natural hazards in the coastal areas, sea level rise due to global warming. This helps in declaring the coastal stretches of the country and the water area upto its territorial water limit, excluding the islands of Andaman and Nicobar and Lakshadweep and the marine areas surrounding these islands up to its territorial limit. Appropriate protection measures arising out of the coastal erosion are addressed jointly by respective state governments and the Coastal Protection and Development Advisory Committee (CPDAC) of the Central Water Commission. The shoreline maps are provided by MoES to the coastal state governments / coastal administrators for utilisation towards saving lives and property during disasters including conducting periodical training programs to coastal administrators. The Ministry of Environment and Forest (MoEF) is using these maps for integrated coastal zone management activities. A National Centre for Sustainable Coastal Management (NCSCM) has been established by MoEF in Chennai to promote research and development in the area of coastal management including demarcation of hazard line for mapping the entire coastline of mainland India.

- (d) and (e) The MoES is not providing any financial assistance to Coastal States for Coastal protection. However, two demonstration shore protection projects at Kadalur PeriyaKuppam in Tamilnadu and Pondicherry were implemented through National Institute of Ocean Technology at cost of Rs 20 cr. and 25 cr. respectively and restored beaches. State Govt use these technologies for Coastal Protection. The Ministry of Water Resources has been responsible for providing financial assistance for building sea walls.
