

GOVERNMENT OF INDIA  
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

**LOK SABHA**  
**UNSTARRED QUESTION NO. 3329**  
TO BE ANSWERED ON 13.03.2020

**Increase in Sea-Level in Coastal Areas**

3329. SHRI C. N. ANNADURAI:

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

- (a) whether heavy losses are likely to be incurred due to increase in sea-level in many coastal areas of the country due to global warming which may result in a few cities being submerged;
- (b) if so, the details thereof; and
- (c) the details of steps taken to check rise in harmful emissions and tackle effects of global warming?

**ANSWER**

**MINISTER OF STATE IN THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE**  
**(SHRI BABUL SUPRIYO)**

(a) and (b) It was observed that, the sea levels are changing at different rates along the Indian coast as per the studies carried out at Indian National Centre for Ocean Information Services (INCOIS). Based on the study by INCOIS as well as the studies published in scientific literature, on an average, the sea level along the Indian coast is considered to be rising at about 1.7 mm/year. These rising sea levels may not impact much but, it can exacerbate the coastal inundation along low lying areas during the extreme events such as tsunami, storm surge, coastal flooding, coastal erosion. It will have cumulative impact on inundation during extreme events causing increased coastal inundation. The coastal areas that might get inundated due to the rising sea level needs to be evaluated based on their elevation above mean sea level.

The direct impacts of sea level rise on coastal zones were not carried out. However, INCOIS has estimated rate of change in the sea levels from the long term data (monthly mean sea levels) obtained from the sea level gauges installed at 10 major ports which is given below. Since no long term data on land subsidence or emergence are available for those locations, the rate of increase of sea level also includes that in addition to the changes due to climate change. For example, the higher rate of sea level increase at Diamond Harbour is also due to the larger land subsidence happening there. The same may apply to Kandla, Haldia and Port Blair as well.

S. 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	1.5	1964-1991

(c) The Government is implementing National Action Plan on Climate Change (NAPCC) which comprises eight missions in specific areas of solar energy, energy efficiency, water, agriculture, Himalayan ecosystem, sustainable habitat, green India and strategic knowledge on climate change. Thirty three States/Union Territories (UTs) have prepared their State Action Plan on Climate Change in line with NAPCC taking into account State's/UT's specific issues relating to climate change. Under the Paris Agreement, India has submitted Nationally Determined Contributions (NDC) with target to reduce the emissions intensity of its Gross Domestic Product (GDP) by 33 to 35 % by 2030 from 2005 level, to achieve about 40% cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030, and to create an additional carbon sink of 2.5 to 3 billion tons of CO<sub>2</sub>eq through additional forest and tree cover by 2030.

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