

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
LOK SABHA  
UNSTARRED QUESTION NO. 4377  
TO BE ANSWERED ON WEDNESDAY, 30<sup>TH</sup> MARCH, 2022**

**RISE IN SEA LEVEL**

**4377. SHRI Y. S. AVINASH REDDY:  
SHRI KOMATI REDDY VENKAT REDDY:  
SHRI MANNE SRINIVAS REDDY:**

**Will the Minister of EARTH SCIENCES be pleased to state:**

- (a) whether in the next three decades, cities like Chennai may witness a marginal decrease in its annual rainfall due to rapid urbanization, threat of sea-level rise and decrease in rainfall that are likely to affect the fragile freshwater coastal aquifer;
- (b) if so, the facts thereof;
- (c) whether sea level is likely to rise by 2050 due to various factors including global warming that would impact the freshwater aquifer;
- (d) whether the proposed installation of desalination plants may reduce ground water extraction and maintain the freshwater aquifer and if so, the details thereof; and
- (e) the State-wise studies done in this regard alongwith the reports prepared and the future action plan prepared by the Government to tackle this issue?

**ANSWER**

**THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR  
MINISTRY OF SCIENCE AND TECHNOLOGY AND EARTH SCIENCES  
(DR. JITENDRA SINGH)**

- (a) Yes, Sir. Recent scientific studies have projected a decrease in annual rainfall for Chennai at the rate of 6.398 mm/year during the next three decades (2020-2050). However, these results are based on projections using a single regional climate model and there are large uncertainties in projecting rainfall changes at regional / local scales.
- (b) The reduction in the projected rainfall would lead to reducing the recharge of the coastal aquifer. In addition to this, increased extraction of groundwater will also affect the coastal aquifers.
- (c) Yes, Sir. It is expected that the sea level will continue to rise in the coming several decades. As per the 6<sup>th</sup> Assessment Report (AR6) of the Intergovernmental Panel on Climate Change (IPCC), relative to 1995-2014, the global mean sea level is expected to rise by 0.28 - 0.55 m under the very low greenhouse emission scenario (SSP1-1.9), 0.44 - 0.76 m under the intermediate emission scenario (SSP2-4.5) and 0.98 - 1.88 under the very high emission scenario (SSP5-8.5) by 2100. However, the regional sea level change can differ significantly from the global mean. The regional sea level rise estimate for the Chennai coast and its impact on freshwater aquifers have not yet been studied.
- (d) & (e) No studies have been carried out state wise to indicate that the proposed installation of desalination plants may reduce ground water extraction and maintain the fresh water aquifer.

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