

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
LOK SABHA  
UNSTARRED QUESTION No. 364  
TO BE ANSWERED ON WEDNESDAY, DECEMBER 12, 2018**

Meteorological analysis

**364: SHRI KODIKUNNIL SURESH**

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

- (a) Whether his Ministry has conducted a meteorological analysis of the recent rains and floods in Kerala; and
- (b) If so, whether any report has been prepared on the analysis and its findings; and
- (c) If so, the details thereof and the reaction of the Government thereto ?

**ANSWER**

**MINISTER OF MINISTRY OF SCIENCE AND TECHNOLOGY AND  
MINISTRY OF EARTH SCIENCES  
(Dr. HARSH VARDHAN)**

- (a-b) Yes Madam. A detailed scientific report has been prepared and is being finalized for publication, towards the end of December 2018.
- (c) The rainfall characteristics which led to the un-precedent floods in Kerala during August 2018 has been analysed in detail, in the report referred to above. The following are the major conclusions.
  - Kerala experienced exceptionally heavy rainfall during 8-16 August 2018 in two consecutive spells leading to devastating floods in many parts of the state.
  - The main causative factors for the occurrence of heavy rainfall over Kerala were the stronger southwesterly winds over the Arabian Sea along and off Kerala coast associated with the Active phase of the southwest Monsoon.
  - The exceptionally heavy rainfall in August (170% above normal rainfall over Kerala during 1-17 August, 2018) can be attributed to consecutive formation (within seven days) of low pressure systems, one on 6<sup>th</sup> and the second on 13<sup>th</sup> August. The stronger winds associated with the active phase of the monsoon, interacted with the Western Ghats leading to orographic uplifting of moist air and hence heavy rainfall.
  - Based on past 143 years of data (1875-2017), it has been found that during the month of August, Kerala received 1132 mm of rain in the year 1931, 877 mm in the year 1923, 851 mm in the year 1907 and 821 mm in 2018. Thus August 2018 rainfall of Kerala is the fourth highest rainfall since the beginning of the record in 1875.
  - The quantum of rainfall received over Kerala remained above normal during June (+15%), July (+18%) and also during 1<sup>st</sup> – 19<sup>th</sup> August (+164%).

- The above normal rainfall occurred during June & July had brought the Reservoir levels to their near full capacity and the first peak spell of rainfall in August, centred around 8<sup>th</sup>, caused them to fill up to the maximum capacity. However, the second peak spell of rainfall in August (around 14-17 August) has led to devastating floods in many parts of the state.
- IMD utilised all its resources including satellite, Radar and ground based observational systems and the numerical models to forecast the heavy rainfall events. Regular warnings were issued to concerned central and state disaster management agencies, print & electronic media and general public through National Weather Forecasting Centre (NWFC), Regional Weather Forecasting Centre (RWFC), Chennai and Meteorological Centre, Thiruvananthapuram.
- Government is committed to improve the accuracy, resolution and lead time of weather predictions, by adopting state-of-art technologies in the field and enhancing the observational and computational capabilities. Also, for better co-ordination with the stake holders, a Cyclone Warning Centre (CWC) has been established at the Meteorological Centre functioning at the State Head Quarters, Thiruvananthapuram with effect from 1<sup>st</sup> October 2018.