

(a) whether Government has the data regarding change in ground water level due to climate change;

(b) if so, the details thereof; and

(c) whether there is any scientific study which proves the relation between ground water level and climate change?

THE MINISTER OF EARTH SCIENCES (SHRI S. JAIPAL REDDY): (a) No Sir.

(b) Does not arise.

(c) Central Ground Water Board (CGWB) of the Ministry of Water Resources monitors regional level ground water levels through a network of 15643 observation wells but no information of the change in ground water levels with respect of climate change is available. Globally, the knowledge of current ground water recharge levels is poor as there has been very little research on the future impact of climate change on ground water except few isolated studies taken up very recently over UK and Africa.

#### **Rise in sea level**

2230. SHRI BAISHNAB PARIDA: Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether it is a fact that seas are rising very fast *i.e.* 60% per cent faster than UN forecasts;

(b) what is the status of rise of waters in all the seas on the Indian Ocean;

(c) whether any kind of alarming warning has been given by the concerned authorities, both foreign and Indian, to the population living in the coastal regions; and

(d) if so, the details thereof?

THE MINISTER OF EARTH SCIENCES (SHRI S. JAIPAL REDDY): (a) Reported study published in Environmental Research Letters of Nov., 2012, through comparing climate projections to observations up to 2011, confirms that sea level rise is happening as fast and in some cases faster than climate models had projected. The satellite based linear trend during 1993-2011 is estimated to be

3.2±0.5mm/year that is about 60% higher than the best estimate of 2.0mm/year by the Intergovernmental Panel on Climate Change (IPCC), 2007 assessment report. However, the estimated sea level rise by the tide gauge records (of over 200) for the period 1993-2009 is found to be about 2.8±0.8mm/year.

(b) Sea level rise is a very slow phenomenon and is manifested globally with pockets of sea level rise/fall trends. However, the trends of sea level rise as estimated by tide gauge data is found to be 13mm/decade. The corresponding satellite derived estimates over the Indian Ocean are found to be in the range of 3.0mm/year with pockets of higher rise along the east of Malaya peninsula, south Indian Ocean between Madagascar and Australia.

(c) No Sir.

(d) Does not arise.

#### **Setting up of AWSs and ARGs**

2231. SHRI Y. S. CHOWDARY: Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether Government has constituted any Committee for preparation of guidelines for setting up Automatic Weather Stations (AWSs) and Automatic Rain Gauges (ARGs) across the country;

(b) whether the Committee has submitted its draft report to Government;

(c) if so, the details thereof;

(d) whether Government has accepted the recommendations/suggestions made by the Committee;

(e) if so, the details thereof; and

(f) if not, the reasons therefor?

THE MINISTER OF EARTH SCIENCES (SHRI S. JAIPAL REDDY): (a) Yes Sir.

(b) Yes Sir.

(c) Department of Agriculture & Cooperation under the Ministry of Agriculture has constituted the committee for preparation of guidelines for setting up Automatic Weather Stations (AWSs) and Automatic Rain Gauge (ARGs) across the country where DGM, Earth System Science Organization - India Meteorological Department (ESSO - IMD) is also a member. The draft report submitted by the Committee is circulated for widely for comments and suggestions that dealt with following aspects: