

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
RAJYA SABHA
UNSTARRED QUESTION No. 1234
TO BE ANSWERED ON THURSDAY, MAY 07, 2015**

IMPACT OF EL NINO IN VARIOUS STATES

1234 SHRI DEVENDER GOUD T.:

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) Whether it is a fact that IMD has now predicted 50 percent change of El Nino this year;**
- (b) If so, the details thereon and the impact of El Nino in various States, including Andhra Pradesh; and**
- (c) In what matter, Ministry is planning to help the States to overcome El Nino this year?**

ANSWER

**MINISTER OF STATE FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND
MINISTRY OF EARTH SCIENCES
(SHRI Y. S. CHOWDARY)**

- (a-b) Yes sir. In March, 2015 MINISTRY OF EARTH SCIENCES had issued a forecast indicating 50% chance for the weak El Nino conditions to continue during the 2015 Monsoon season. However, the latest ENSO* outlook from various agencies indicate high probability (about 70%) for weak El Nino conditions to persist during the 2015 monsoon season.**

No such direct link has been established between the all India summer monsoon rainfall activity and El Nino so far. All India summer monsoon rainfall (AISMR), analyzed for the period 1871-2014, has a typical epochal pattern of rainfall variability with alternating periods of wet and dry, extending to 3-4 decades, viz. the 44-year period of 1921-64 witnessed just 3 dry monsoon (deficient rainfall) years. During such epochs, the monsoon was found to be less correlated with the ENSO. During the other periods like that of 1965-87 which had as many as 10 dry monsoon (deficient rainfall) years out of 23, the monsoon was found to be strongly linked to the ENSO.

The details of the observed impact of El Nino in various meteorological subdivisions is given in Annexure-1, that shows the sub-division wise climatological probabilities of monsoon season rainfall in three pre-defined rainfall categories (below normal, normal and above normal) during the 28 El Nino years occurred so far during 1901-2014. Out of 28 El Nino years so far COASTAL Andhra Pradesh seasonal rainfall deficit is only in 8 years and Rayalseema is in 10 years. On the other hand, TELANGANA experienced rainfall deficit in 11 years out of 28 El Nino years. Evolving scenario of current year impact, if any, is assessed on weekly basis for next 15 days.

- (c) Based on developing El Nino conditions, Earth System Science Organization–India Meteorological Department (ESSO-IMD) will update its monsoon rainfall forecasts for the country as well as in homogeneous regions in the month of June 2015. Thereafter monthly updates of monsoon rainfall will be issued to concerned Government agencies. Weekly Crop Weather Watch Group (CWWG) Meetings (multi ministerial coordination meeting), organized by Ministry of Agriculture, evolves state specific action/ contingency plans and advice respective states to deal with possible adverse impacts of ENSO and associated monsoon rainfall deficiency as it evolves during the June-September period in support of Kharif season farming operations.**

** El Niño Southern Oscillation (ENSO) refers to the effects of a band of sea surface temperatures which are anomalously warm or cold for long periods of time that develops off the western coast of South America and causes climatic changes across the tropics and subtropics. The Walker Circulation was discovered by Gilbert Walker at the turn of the 20th century. The "Southern Oscillation" refers to variations in the temperature of the surface of the tropical eastern Pacific Ocean (warming and cooling known as El Niño and La Niña, respectively) and in air surface pressure in the tropical western Pacific. The two variations are coupled: the warm oceanic phase, El Niño, accompanies high air surface pressure in the western Pacific, while the cold phase, La Niña,, accompanies low air surface pressure in the western Pacific.*

Annexure-1

No of El Nino years under each of the 3 rainfall categories (Below Normal, Normal and Above Normal) in respect 36 subdivisions of the country during the period 1901-2014. During the period, there were 28 El Nino years.

SN	SUB DIVISION	NO. OF ELNINO YEARS(1901-2014)		
		Below Normal (<-19% of LPA)	NORMAL (-19 to +19 % of LPA)	Above Normal (>19% LPA)
1	ANDAMAN & NICOBAR ISLANDS	3	25	0
2	ARUNACHAL PRADESH	3	18	3
3	ASSAM & MEGHALAYA	3	24	1
4	NAGALAND,MANIPUR, MIZORAM AND TRIPURA	4	20	4
5	WEST BENGAL & SIKKIM	7	18	3
6	GANGETIC WEST BENGAL	1	24	3
7	ORISSA	1	26	1
8	JHARKHAND	5	21	2
9	BIHAR	5	18	5
10	EAST UTTAR PRADESH	9	17	2
11	WEST UTTAR PRADESH	13	14	1
12	UTTARANCHAL	11	17	0
13	HARYANA	14	10	4
14	PUNJAB	14	10	4
15	HIMACHAL PRADESH	15	12	1
16	JAMMU & KASHMIR	11	10	7
17	WEST RAJASTHAN	19	5	4
18	EAST RAJASTHAN	12	13	3
19	WEST MADHYA PRADESH	9	17	2
20	EAST MADHYA PRADESH	5	22	1
21	GUJARAT	13	9	6
22	SAURASHTRA & KUTCH	15	9	4
23	KONKAN & GOA	7	18	3
24	MADHYA MAHARASHTRA	8	16	4
25	MARATHWADA	10	16	2
26	VIDARABHA	11	15	2
27	CHATTISGARH	7	20	1
28	COASTAL ANDHRA PRADESH	8	17	3
29	TELANGANA	11	14	3
30	RAYALASEEMA	10	18	0
31	TAMILNADU	9	18	1
32	COASTAL KARNATAKA	6	19	3
33	NORTH INTERIOR KARNATAKA	5	20	3
34	SOUTH INTERIOR KARNATAKA	4	22	2
35	KERALA	9	18	1
36	LAKSHADWEEP	7	18	3