

Answer to the Lok Sabha Question Dy. No. 1265 raised by Shrimati Santosh Ahlawat and others regarding "Impact of Climate Change"

.....

a) Whether India is facing the dual problem of climate change and Globalization and if so, the details thereof;

Yes, Increase in temperatures and variability in rainfall is largely experienced in India and it is attributed to climate change.

b) Whether unprecedented increase in global temperature is likely to cause severe impact on global hydrological system, ecosystem, sea level, crop production and related processes and if so, the reaction of the Government thereto;

Yes, climatic variability in India with the increase in temperatures, erratic distribution of rainfall, shifts in monthly rainfall, increased frequency of extreme events is impacting productivity and production in many parts of India.

Under the aegis of Ministry of Agriculture, Government of India, the Indian Council of Agriculture Research (ICAR) has been analyzing the changes in rainfall pattern across the country from time to time. Recognizing the impact of climate variability on agriculture, a Network Project on Climate Change (NPCC) was initiated during X Plan which was continued during XI Plan. This project helped in understanding the impacts of global warming on productivity of rice, wheat and other crops, livestock and fisheries. Recognizing that the climate change is likely to have a major impact on agricultural and allied sector, the Council has initiated a mega network project, National Initiative on Climate Resilient Agriculture (NICRA) during 2010-11 with an outlay of Rs.350 crores. This scheme is continued during the XII plan with a multi-pronged strategy encompassing strategic research on adaptation and mitigation, demonstration of technologies on farmers' fields and creating awareness among farmers and other stake holders. The strategic research aims mainly at evolving crop varieties tolerant to climatic stresses like floods, droughts, frost, inundation due to cyclones and heat waves. Standardization of management practices to reduce emission of greenhouse gases is also envisaged.

c) Whether the government has conducted any study on the ill effects of climate change including of human health and agriculture if so, the details and findings thereof;

Extensive field and simulation studies are being carried out in agriculture and allied sectors by cooperating centers consisting ICAR Institutes and SAU's.

The findings from the Climate Change impact assessment of the ICAR-NPCC network project are as follows;

Rice

Irrigated rice yields are projected to reduce by -4% in 2020, 7% in 2050 and by -10% in 2080 scenarios. On the other hand, rainfed rice yields in India are projected reduced by -

6% in 2020 scenario, but in 2050 and 2080 scenarios they are projected to decrease only marginally (<2.5%). Adopting improved varieties and input management can improve the yields by 6-17% in irrigated condition and by about 20-35% in rainfed condition.

Wheat

Climate change is projected to reduce the timely sown irrigated wheat production by about 6% in 2020 scenario from existing levels, however, late and very late sown wheat yields are projected to decrease by about 18% in 2020, 23% in 2050 and 25% in 2080 scenarios if no adaptation is followed. However, adaptation by sowing improved varieties coupled with improved agronomic management can improve the yields by about 10% in 2020 (2010-2040) scenario.

Maize

Climate change is projected to reduce the irrigated kharif maize yields by up to 18% in 2020 scenario, if no adaptation is followed. However, adapting to climate change by adoption of technologies such as improved varieties and agronomic management can improve the yields by about 21% in 2020 scenario. Climate change in 2050 and 2080 scenarios is projected to reduce the irrigated kharif maize yields by 18 to 23% and the adaptation is projected to improve the yields by about 10% in 2050 and by 4% in 2080 scenario.

Sorghum

Rainfed sorghum yields, on all India scale, are projected to marginally (2.5%) decline in 2020 scenario while it is projected to decline by about 8% in 2050 scenario. Adaptation strategies such as improved and tolerant variety managed under improved input use efficiency with additional nitrogen fertilizer can enhance the net production by about 21% in 2020, 10% in 2050 and 4% in 2080 scenarios.

Soybean

Likely increase in kharif soybean yield in the range of 8-13% under different future climate scenarios (2030 and 2080) is predicted.

Groundnut

Kharif groundnut yields are projected to increase by 4-7% in 2020 and 2050 scenarios where as in 2080 scenario the yield is likely to decline by 5%.

Chickpea

Future climates are likely to benefit chickpea by an average increase in productivity ranging from 23 to 54%. However, a large spatial variability for magnitude of change in the productivity is projected.

Potato

Climate change may likely to benefit potato in Punjab, Haryana and western and central UP by of 3.46 to 7.11% increase in production in A1b 2030 scenario, but in West Bengal and southern plateau region, potato production may likely to decline by 4 - 16% by 2030.

Apple

In Himachal Pradesh, consequent to warming and reduction in chilling temperatures, apple cultivation has shifted to higher elevations.

Controlled environmental studies

Controlled environmental studies under elevated CO₂ upto 550 ppm indicated a positive response by pulse crops like chickpea, soybean, Greengram and vegetables like onion and tomato and non-edible oil seeds like castor.

d) Whether the Government proposes to launch any educational study/programme on climate change in consultation with the states and if so, the details thereof;

N.A.

e) the details of financial assistance provided to the states in this regard ?

N.A.