

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

RAJYA SABHA
STARRED QUESTION NO. 9
TO BE ANSWERED ON 20.07.2023

Technologies and solutions to address the impact of climate change

*9. SMT. JEBI MATHER HISHAM:

Will the Minister of ENVIRONMENT, FOREST AND CLIMATE CHANGE be pleased to state:

- (a) whether long-term strategies are being considered to adapt to changes expected in the temperature in the coming years and to mitigate its impact on health, agriculture and other sectors, details thereof;
- (b) whether any investments are being made in research and development to identify new technologies and solutions to address the impact of climate change on various sectors, and the manner in which Government is supporting these innovations, details thereof; and
- (c) whether Government has integrated climate adaptation and mitigation consideration into its policies and decision-making across different sectors, if so, the mechanisms available for ensuring its effective implementation, details thereof?

ANSWER

MINISTER FOR ENVIRONMENT, FOREST AND CLIMATE CHANGE
(SHRI BHUPENDER YADAV)

- (a) to (c) A statement is laid on the table of the House.

**STATEMENT REFERRED TO IN REPLY TO PARTS (a) TO (c) OF RAJYA SABHA
STARRED QUESTION NO. 9 DUE FOR REPLY ON 20.07.2023 RAISED BY
SMT. JEBI MATHER HISHAM**

(a) to (c) In order to address the challenge of climate change including global rise in temperature, India has submitted its Long-Term Low-Carbon Development Strategy to the United Nations Framework Convention on Climate Change in November 2022. It includes section on “Adaptation and Resilience” which reviews climate impacts in India, provides details on adaptation strategies, and linkages between adaptation and mitigation. There are potential inter linkages between the climate change impacts, mitigation and adaptation activities, and the developmental outcomes, recognition of which can help identify climate-resilient development pathways.

The Government of India stands committed to combating climate change through its several programmes and schemes including the National Action Plan on Climate Change (NAPCC) which comprises missions in specific areas of solar energy, energy efficiency, water, sustainable agriculture, health, Himalayan ecosystem, sustainable habitat, green India, and strategic knowledge for climate change. The NAPCC provides an overarching framework for all climate actions.

The impact of climate change on different sectors is being assessed by the relevant Ministries from time to time. The Indian Council of Agricultural Research (ICAR) has initiated a network project, National Innovations in Climate Resilient Agriculture (NICRA) in 2011 to study and address the impact of climate change on Indian agriculture. As per the studies under NICRA, rainfed rice yields in India are projected to reduce marginally (<2.5%) in 2050 and 2080 and irrigated rice yields by 7% in 2050 and 10% in 2080 scenarios. Wheat yield is projected to reduce by 6-25% in 2100 and maize yield by 18-23%. Climate change is likely to benefit chickpeas with an increase in productivity (23-54%). The Ministry of Health and Family Welfare is taking several measures under the National Programme on Climate Change and Human Health, which was approved under the National Health Mission in February 2019. Further, the Department of Science and Technology is implementing two national missions under NAPCC, namely National Mission for Sustaining the Himalayan Ecosystem and National Mission on Strategic Knowledge for Climate Change. Under the aforesaid Missions, a number of R&D projects have been supported in climate change studies across India to assess the impact of climate change on coastal vulnerability, health, agriculture and water.

The Government stands committed to addressing the global collective action problem of climate change through multilateralism and resolute domestic actions, including, improving the understanding of the subject through various research endeavors. The Government is fully aware that research and knowledge generation are critical aspects of the fight against climate change. Climate change is a cross-cutting issue spanning various Ministries/Departments and institutions under them. Research on climate change is mainly sponsored by the DST, Ministry of Earth Sciences (MoES), Ministry of Environment, Forest and Climate Change (MoEFCC), Indian Space Research Organisation (ISRO), Ministry of Agriculture and Farmers Welfare, and Council of Scientific and Industrial Research. Sectoral aspects of climate change are also studied by different Ministries/Departments concerning sectors like agriculture, water resources, human

health, power, renewable energy, transport, urban, etc. Further, a large number of universities and government research institutions such as the Indian Institute of Technologies (IITs), Indian Institute of Science (IISc), Central and State Universities and their departments also carry out climate change related research.

The DST is funding techno-endeavors for promoting high-end basic Research Development& Innovation in cutting-edge technologies. The DST is investing on the identification and adoption of the right balance of the portfolio of emission curtailment technologies. It is contributing to mitigation and adaptation pathways through its Clean Energy Research and Climate Change Research initiatives with focus on developing national research competence to drive down the cost of clean energy through pre-competitive translational research and solution-oriented research led disruptive innovations. The key areas are Green Hydrogen, Carbon Capture, Utilization, and Storage (CCUS), high efficiency solar PV and Solar Thermal devices and system. The emphasis is to evolve technologies and methodologies that address issues related to high capital costs, safety, logistics and high auxiliary power consumption. Department has endeavored in priority mode in Green Hydrogen domain. The DST has supported R&D project on Technology Need Assessment to relook into the technology needs for priority sectors such as power and energy, industry, transport, agriculture, waste sector.
