

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

RAJYA SABHA
UNSTARRED QUESTION NO. 34
TO BE ANSWERED ON 20.07.2023

Climate change impact assessment

34 DR. V. SIVADASAN

Will the MINISTER OF ENVIRONMENT, FOREST AND CLIMATE CHANGE be pleased to state:

- (a) whether Government has conducted any comprehensive assessment of the impact of climate change upon the Indian subcontinent;
- (b) whether it is a fact that most Himalayan glaciers, where a substantial part of the moisture is supplied by the summer monsoon, have been retreating over the past century;
- (c) whether there has been any official confirmation of this and details of the precautions taken; and
- (d) whether the increasing frequency of floods and droughts in the country could be linked to climate change?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(SHRI ASHWINI KUMAR CHOUBEY)

- (a) Climate change is a cross-cutting issue spanning various Ministries/ Departments and institutions under them. Studies on adverse impacts of climate change is mainly sponsored by the Department of Science and Technology (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 (CSIR). 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.
- (b) and (c) The Government of India through its various organizations such as Wadia Institute of Himalayan Geology, National Centre for Polar and Ocean Research (NCPOR), Geological Survey of India, Indian Space Research Organization (ISRO), G. B. Pant National Institute of Himalayan Environment, Central Water Commission, and National Institute of Hydrology has been carrying out regular scientific studies to monitor the changes in Himalayan glaciers. One such study conducted by MoEFCC and ISRO,

monitored 2,018 glaciers between years 2000 to 2011, which showed that 87% of the glaciers showed no change, 12% retreated and 1% glaciers have advanced.

Climate change and its impact on glaciers remains a global challenge which requires global efforts and actions. Government of India is committed to protect the glaciers and has made efforts to reduce the impact through several adaptation and mitigation measures. This includes a number of programmes under National Action Plan on Climate Change. Various R&D projects are being supported for studying Himalayan Glaciers under the National Mission for Sustaining Himalayan Ecosystem and National Mission on Strategic Knowledge for Climate Change. Several areas in the Himalayan States have also been declared as National Parks or Protected Areas, such as, Gangotri National Park, Nanda Devi Biosphere Reserve, and Great Himalayan National Park.

- (d) There is no established study for India providing a quantified attribution of climate change leading to increased outbreak of floods. While many studies monitor disasters such as floods, drought and heat, the science of attribution of these changes particularly to climate change is far more complex and currently an evolving subject. Most studies so far have relied on mathematical modelling of climate change impacts but these are not empirically verified.

The occurrence of floods can be attributed to various factors, including wide variations in rainfall both in time and space with frequent departures from the normal pattern, inadequate carrying capacities of rivers, river bank erosion and silting of river beds, landslides, poor natural drainage in flood prone areas, snowmelt and glacial lake out-bursts.
