

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

RAJYA SABHA
UNSTARREDQUESTION NO.1326
TO BE ANSWERED ON 28.07.2022

Impact of climate change on ecosystem

1326. SHRI DEEPAK PRAKASH:

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

- (a) whether Government has conducted any study to assess the impact of climate change on various ecosystems including agriculture in the Country during the last two years;
- (b) if so, the details thereof and whether there has been any impact on the State of Jharkhand too due to this climate change; and
- (c) whether Government has formulated any plan in coordination with the international agencies to tackle the adverse impact of climate change and the salient features of such an action plan?

ANSWER

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

(a) and (b) Climate Change is expected to impact the diverse ecosystems of the country in different ways. As per India's Third Biennial Update Report (2021) submitted to the United Nations Framework Convention on Climate Change (UNFCCC), the studies on forests and biodiversity indicate that many natural ecosystems in the country are vulnerable to ongoing and future climate change. Modelling studies at the national level also indicate that 18 to 28 % of forested areas are expected to be impacted by projected climate change under different emission scenarios in the short (2030s) and long (2080s) term. The dominant tree species in central Indian forests, Teak (*Tectona grandis*) and Sal (*Shorea robusta*) will be more sensitive to change in temperature than rainfall, with Sal being more sensitive to minimum temperature and Teak to change in maximum temperature. The studies also show that Indian forests still retain considerable potential for carbon sequestration. The dominant forest type in the country, namely the tropical dry forest, has considerable resilience to store carbon and maintain diversity in the face of climate related disturbances such as drought and fires as per studies in the Western Ghats, though changes in tree species composition are expected to occur. The studies have also brought out the vulnerability of the natural grasslands of the country to climate change with the risk of invasion by alien and native woody plants. There are already indications that both herbaceous and woody plants are moving to higher elevations in mountain regions such as the Himalaya.

Regarding the impact of climate change on agriculture, the Indian Council of Agricultural Research (ICAR) has conducted impact analysis and the effect of climate change on the agriculture

sector under the National Innovations in Climate Resilient Agriculture (NICRA) project. The variable impact of climate change has been projected for the production of various crops, including rice, wheat, maize, groundnut, chickpea and potato. Under NICRA, attempts are being made to develop new climate-resilient varieties of various crops, including heat and drought tolerant wheat, flood tolerant rice, drought tolerant pulses, and water logging and high temperature tolerant tomato.

As part of the NICRA project, a district level vulnerability assessment was undertaken to facilitate prioritization and targeting of adaptation and development initiatives. Risk and vulnerability assessment of Indian Agriculture to climate change for all the states including Jharkhand was undertaken in this project. The analysis was undertaken for 18 rural districts of Jharkhand and the results indicated that 6 districts viz., Garhwa, Godda, Gumla, Pakur, Sahibganj and West Singhbhum are categorized as high-risk prone.

(c) Climate change is a global collective action problem. India is a Party to the UNFCCC, its Kyoto Protocol (KP) and the Paris Agreement (PA). As per the extant provisions under these treaties, India is not obliged to completely stop carbon emissions. The UNFCCC notes that the emissions originating in developing countries, including India, will grow to meet their social and development needs. As per the UNFCCC, the climate action of all countries should be based on equity and the principle of common but differentiated responsibilities and respective capabilities. On this basis, all countries have a right to access and responsibly use their fair share of the global carbon budget. India with more than 17% of the global population has contributed only around 4% of the global cumulative greenhouse gas emissions between 1850 and 2019. India has progressively continued decoupling of economic growth from greenhouse gas emissions. In key sectors of the economy, mitigation efforts are being undertaken with a vision of low-carbon, sustainable development. As a result, India has achieved 24% reduction in emission intensity of GDP between 2005 and 2016.

As a Party to the UNFCCC, India periodically submits its National Communications (NCs) and Biennial Update Reports (BURs) to the UNFCCC. The Government is implementing the National Action Plan on Climate Change (NAPCC) which provides an overarching policy framework for all climate actions. NAPCC comprises of eight core missions in specific areas such as solar energy, enhanced energy efficiency, sustainable habitat, water, sustainable Himalayan ecosystems, Green India, sustainable agriculture, and strategic knowledge for climate change. Thirty-three States and Union Territories have prepared their State Action Plan on Climate Change (SAPCC) consistent with the objectives of the NAPCC.
