systems. Further, 25% higher unit cost have been taken into calculation of subsidy for the North Eastern and Himalayan states and 15% higher for States with low penetration of Micro Irrigation for larger adoption of systems by the fanners under the scheme. In addition, some States provide additional incentives/top up subsidy for encouraging farmers to adopt Micro Irrigation.

The Department raises awareness among the farmers by wide publicity through press and print media, publication of leaflets/booklets, organization of workshops, exhibitions, farmer fairs, information on State/Government of India web portals etc. In addition, Indian Council of Agricultural Research (ICAR) imparts training and organizes field demonstrations through Krishi Vigyan Kendras (KVKs) to educate farmers for promotion of efficient irrigation techniques/ Micro Irrigation for various crops including sugarcane. Under PMKSY-PDMC, demonstrations on micro irrigation have been established at 160 KVKs.

Action-plan to tackle adverse impact of global warming on food crops

†3081. SHRI HARNATH SINGH YADAV: Will the Minister of AGRICULTURE AND FARMERS WELFARE be pleased to state:

(a) whether Government is aware of the fact that increasing global warming is adversely affecting or likely to affect the production of wheat, rice and other major crops;

(b) if so, the details thereof;

(c) whether Government has any action plan to prevent any adverse affect of increasing global warming on the production of foodgrain centric crops including pulses; and

(d) if so, the details thereof?

THE MINISTER OF AGRICULTURE AND FARMERS WELFARE (SHRI NARENDRA SINGH TOMAR): (a) and (b) Global Warming associated with the increase in concentration of green house gases in the atmosphere is one of the reasons for the increase in extreme weather events. Due to global warming agriculture sector

†Original notice of the question was received in Hindi.

is likely to be affected and climate change is expected to impact yields of agriculture crops in a business as usual scenario.

Simulation studies using integrated modeling framework showed that rainfed rice yields in India are projected to reduce marginally (<2.5%) in 2050 and 2080 scenarios while irrigated rice yields are projected to reduce by 7% in 2050 and 10% in 2080 scenarios. Climate change is projected to reduce wheat yield by 6-25% towards the end of the century with significant spatio-temporal variations. Climate change in 2050 and 2080 scenarios is projected to reduce the *kharif* maize yields by 18 to 23%. *Kharif* groundnut yields are projected to be increased by 4-7% in 2050 scenarios where as in 2080 scenario the yield is likely to decline by 5%. Future climates are likely to benefit chickpea with increase in productivity (23-54%).

(c) and (d) During XII Plan (2012-2018), more than 400 climate resilient germplasm lines have been identified and 58 genotypes characterised with high water and nutrient use efficiency by Indian Council of Agricultural Research (ICAR).

National Mission for Sustainable Agriculture (NMSA) one of the missions under National Action Plan on Climate Change (NAPCC) aims to evolve and implement strategies to make Indian agriculture more resilient to the changing climate.

National Food Security Mission (NFSM) programme is implemented in the identified districts across the country with the objective of increasing foodgrain production through area expansion and productivity enhancement, restoring soil fertility and productivity at individual farm level and enhancing farm level economy.

ICAR has launched a flagship network project National Innovations in Climate Resilient Agriculture (NICRA).

The NICRA aims at strategic research on adaptation and mitigation, demonstration of technologies on farmers' fields and creating awareness among farmers and other stakeholders to minimize the impacts of global warming on agriculture. Under this project, large number of indigenous genetic resources and improved crop varieties of pulses (black gram, green gram, pigeonpea, chickpea) and cereals (rice and wheat) are screened for major abiotic stresses like drought and heat to identify superior cultivars for large scale adoption in farmers fields genetic materials for cultivation at farmers field. In the process number of genetic materials including improved varieties were

identified, some of which are already in the farmers fields. Besides, location specific NRM technologies are being demonstrated under Technology Demonstration Component of NICRA in 151 climatically vulnerable districts to achieve climate resilient agriculture.

Use of world-wide banned chemical and pesticides in the country

†3082. SHRI AMAR SHANKAR SABLE: Will the Minister of AGRICULTURE AND FARMERS WELFARE be pleased to state:

(a) the number of chemical fertilizers and pesticides banned for use in farms world-wide and the details and list of such banned fertilizers and pesticides which are being used in the country;

(b) whether Government has any plan to restrict the use of banned fertilizers and pesticides in the country, if so, by when and if not, the reasons therefor; and

(c) the details of effects of the use of globally banned fertilizers and pesticides on the human body, agriculture, land, environment and export of agricultural commodities?

THE MINISTER OF AGRICULTURE AND FARMERS WELFARE (SHRI NARENDRA SINGH TOMAR): (a) to (c) The chemical fertilizers (114), bio fertilizers (11) and organic fertilizers (7) specified under Fertiliser Control Order (FCO), 1985 only are allowed for use by the farmers in the country. Any violation of norms in terms of production, sale of inputs as fertilisers that are not specified under FCO is punishable under Essential Commodities Act. Many of the fertilisers (FCO specified) used in the country are also utilised/consumed worldwide.

As far as pesticides is concerned till now 44 pesticides have been banned for import, manufacture and use in the country; 2 pesticides are banned for use but continued to manufacture for export; 8 pesticides have been withdrawn; 9 pesticides are restricted for use in the country and 6 pesticides will be phased out by 31st December, 2020. List of banned pesticides is given in the Statement (*See* below). The use of pesticides is regulated under Insecticide Act, 1968. Production/Sale of any banned pesticides is prohibited and punishable under the Act. While registering the

†Original notice of the question was received in Hindi.