Climate Change and Agriculture Sustainability in India

Ch.Srinivasa Rao

Director, ICAR-National Academy of Agriculture Research Management, Rajendranagar, Hyderabad, 500 030; Email: chsrao_director@naarm.org.in: cherukumalli2011@gmail.com

India has only 2.5% of the world's geographical area, but has about 17% of its population and predominantly agrarian economy with total geographical area of 328.7 million ha out of which 141 M ha is the net cultivated area devoted to agriculture, of which only 63 Mha or 44% is the net irrigated area producing more than 56% of the total food grains. Though net sown area in India is stated at around 140 M ha overall several decades, some important pockets of Indian cultivated land is diverted to other developmental activities or Industries. With increasing population at estimated 1.3 billion in India, huge pressure is building on natural resources particularly on soil. Per capita availability of land is decreased to around 0.20 ha and average requirement of each citizen need about 0.48 ha towards food besides other human needs. Climate change and impacts of climate change in terms of droughts, floods, cyclones, heat wave, cold wave, frost and sea water intrusion in the cropped coastal regions has emerged as most challenging task for overall sustainability of agriculture and food systems in the country. With the skewed and intense rainfall and concurrent rise in temperatures, the fertile top soil is prone to degradation: raised serious concerns in terms of economy as well as environmental quality. Traditionally high rainfall regions like North East Hill and Himalayan ecosystems, states like Kerala, West Bengal, Parts of Bihar, Jharkhand, Himachal Pradesh etc. are experiencing drought like situations particularly mid-season droughts. Southern Indian states like Telangana, AP, Karnataka, Maharashtra, Tamil Nadu experiencing severe water shortages not only for agriculture but also for human beings and livestock sectors. Larger area of coast line in AP needs special coping mechanisms in order to protect the fishery sector in the regions. Though, country registered about 284 million tons of food along with equalling amounts of horticulture produce in 2018 (early estimations), maintaining and improving further is a challenging task in the scenario of climate change. Tolerant cultivars, efficient rain water management, agro forestry systems, intercrops, maintaining soil organic carbon, tolerant breed-shelter-feed in livestock and poultry systems, integrated farming systems, efficient coastal farming are the need of the hour in managing climate change adaptation in India.

Key words: Climate change, Agriculture sustainability, Climate adaptation, Technology