Climate Change Framework and carbon Footprint in Indian Foods Abstract

The population of India has increased rapidly in last few decades and great pressure is being placed on natural resources. Under this population more of the people depend on the food for fulfill their food requirement as the population increase so we need to nourish another 2 billion people in coming year and food production must be rise by 60%. India is an agriculture rich country and it plays a major role in Indian economy. During1950's agriculture sector faced problems due to lack of modern facilities. In the coming years, modern technological advances and green revolution led to a boost in agricultural production. Today, despite having move from shortage to food surplus, there are still several factors that affect the Indian agriculture. Among various other factors, climate change (increase in average temperature, erratic rainfall patterns and extreme weather events) has emerged as one of the major factors that affect the agriculture in India. Substantial changes in land use pattern during the last few decades, mainly driven by biophysical factors and human needs, have enhanced performance of agriculture sector as is evident by an increase in food grain production. With this improved agricultural production, the Government of India could enact the Food Security Act (2013), wherein several schemes have been introduced to feed the needy and make country food secure. With the advent of new technologies and introduction of new food groups, people now have more choices of food and as a result the consumption patterns have changed over the years. This study focuses upon the analysis of water footprint and carbon footprint of different food groups. The water footprint (presence of water in different commodities based on respective production value) was found to be highest in vegetables and milk. The analysis of carbon footprint clearly suggests the importance of cereals, vegetables and fruits in carbon sequestration. The global climate change protocols such as COP-19 discussion held in Warsaw (Poland) as part of UNFCCC also have clearly recognised the potential of agriculture in sequestering carbon. The IPCC AR4 says that during the mid-19th century, the Earth's surface has warmed up to 0.85°C and warns that if global society continues to emit greenhouse gases at current rates, the average global temperature could rise by 2.6–4.8°C by the end of 2100. India has been conscious of optimizing natural resources even before the UNFCCC took place. As an initiative and responsibility at global level, several missions (such as NMSA, NMSHE) under National Action Plan Action Plan on Climate Change (NAPCC) have been launched for controlling the situation rather than just responding to it. NICRA (National Initiative for Climate Resilient Agriculture)is one of the flagship projects of ICAR to address the issue of climate change by enhancing the resilience of Indian agriculture to climatic variability. Globally, agriculture sector is one of the major contributors of greenhouse gas emissions. The agriculture sector in India has higher proportion towards carbon dioxide, methane and carbon monoxide emissions after energy sector. It is therefore, time to achieve climate resilience through development of carbon-neutral food production systems. Over the years, different agricultural practices have been identified that can help in mitigating and adapting to climate change such as promoting agroforestry and C_4 plants *etc.* On the other hand, national adaptation fund on climate change has been introduced to assist the States and Union Territories at the institutional level to meet the cost of adaptation.