

Sustainable Crop Production: Greenhouse Gas Management in Farm Value Chain

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Abstract : Climate change and Global warming have become an issue for both developed and developing countries and perhaps the biggest threat to the environment. We at ITC Limited believe that a company's performance must be measured by its Triple Bottom Line contribution to building economic, social and environmental capital. This Triple Bottom Line strategy focuses on - Embedding sustainability in business practices, Investing in social development and Adopting a low carbon growth path with a cleaner environment approach. The Agri Business Division - ILTD operates in the tobacco crop growing regions of Andhra Pradesh and Karnataka province of India. The Agri value chain of the company comprises of two distinct phases: First phase is Agricultural operations undertaken by ITC trained farmers and the second phase is Industrial operations which include marketing and processing of the agricultural produce. This research work covers the Greenhouse Gas (GHG) management strategy of ITC in the Agricultural operations undertaken by the farmers. The agriculture sector adds considerably to global GHG emissions through the use of carbon-based energies, use of fertilizers and other farming operations such as ploughing. In order to minimize the impact of farming operations on the environment, ITC has taken a big leap in implementing system and process in reducing the GHG impact in farm value chain by partnering with the farming community. The company has undertaken a unique three-pronged approach for GHG management at the farm value chain: 1) GHG inventory at farm value chain: Different sources of GHG emission in the farm value chain were identified and quantified for the baseline year, as per the IPCC guidelines for greenhouse gas inventories. The major sources of emission identified are - emission due to nitrogenous fertilizer application during seedling production and main-field; emission due to diesel usage for farm machinery; emission due to fuel consumption and due to burning of crop residues. 2) Identification and implementation of technologies to reduce GHG emission: Various methodologies and technologies were identified for each GHG emission source and implemented at farm level. The identified methodologies are - reducing the consumption of chemical fertilizer usage at the farm through site-specific nutrient recommendation; Usage of sharp shovel for land preparation to reduce diesel consumption; implementation of energy conservation technologies to reduce fuel requirement and avoiding burning of crop residue by incorporation in the main field. These identified methodologies were implemented at farm level, and the GHG emission was quantified to understand the reduction in GHG emission. 3) Social and farm forestry for CO₂ sequestration: In addition, the company encouraged social and farm forestry in the waste lands to convert it into green cover. The plantations are carried out with fast growing trees viz., Eucalyptus, Casuarina, and Subabul at the rate of 10,000 Ha of land per year. The above approach minimized considerable amount of GHG emission at the farm value chain benefiting farmers, community, and environment at a whole. In addition, the CO₂ stock created by social and farm forestry program has made the farm value chain to become environment-friendly.

Keywords : CO₂ sequestration, farm value chain, greenhouse gas, ITC limited

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