Entry No. IRRC-0033

Category	: International Rice Research Conference
Select Theme	: Climate change and environmental sustainability
Endorsement email	:
Keyword 1	: Mitigation of climate change
Keyword 2	: Adaptation to climate change
Keyword 3	: Climate smart agriculture
Title of Entry	: EVALUATION OF GHG MITIGATION POTENTIAL OF CLIMATE RESILIENT INTERVENTIONS: A CASE STUDY OF IAMWARM PROJECT IN TAMIL NADU
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Select only one type of presentation	: 3-5 minute flash talk
Abstract	: Climate change is exacerbating the challenges faced by the agricultural sector, negatively affecting crop systems and land use. In India, agriculture sector contributes to 17% of Green House Gas (GHG) emission. In Tamil Nadu, Rice is cultivated in 1.79 million hectares and provides employment to >60% of the population. However, it is an important source of GHG emissions, largely due to the methane emitted from flooded paddy fields, and the energy used fo pumping water. With World Bank support, Tamil Nadu-Irrigated Agricultural Modernization and Water bodies Restoration Management project (TN-IAMWARM) has been operated from 2007-2015 over an area of 3,30,000 ha, to assist selected sub-basin stakeholders in achieving more income per drop of water through enhanced crops' productivity and water use efficiency. Climate-resilient interventions such as Alternate Wetting and Drying (AWD) in SRI paddy, precision farming and micro-irrigation in high-value crops and crop diversification were upscaled in a larger area over Tamil Nadu. As a part of the project evaluation, GHG emission reduction and carbon sequestration from various interventions were estimated using FAO, Ex-Ante Carbon Balance tool (Ex-Act). The estimate indicated that there is an annual climate change mitigation benefits of 449984 tCO2eachieved through IAMWARM interventions as compared to business as usual scenario. This is equivalent to the reduced GHG emission of -1.4t CO2e/ha/year and would become -9t CO2e/ha/year in 20years, a time frame commonly used for accounting GHG mitigation benefits in agriculture sector. The emission decline in paddy cultivation could be achieved mainly through SRI cultivation in which limiting the total flooding time through AWD and integrated nutrient management including organic and inorganic sources

of nutrients are key components resulted in reduction of both methane and nitrous oxide to the tune of 391000 tCO2 e. Besides due to improved land management practices annual GHG benefits are estimated at 77000 tCO2 e in IAMWARM–Phase I. The proposed upscaling of these methods in the follow-on project IAMWARM II, is expected to reduce GHG emissions and estimated increase in carbon sequestration at 5.7 million tCO2e over the project cycle of 20 years.

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