

Category	: International Rice Research Conference
Select Theme	: Climate change and environmental sustainability
Endorsement email	:
Keyword 1	: Adaptation to climate change
Keyword 2	: Mitigation of climate change
Keyword 3	: Climate smart agriculture
Title of Entry	: Conserving Water in Rice Production by CWAD (Crop Water Assessment Device) using 'Nudge' Practice
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: Rice is essential for ensuring global food security. Traditional rice cultivation, practiced in flooded paddy soils, demands higher water. The technology options that can help farmers to cope with water scarcity at the field level is Alternate Wetting and Drying (AWD). The farmers are constrained because they don't have access to a simple device to monitor the regulation of water. It needs to be sensitized the farmer's historic belief through social nudges practices. Simplified CWAD (Crop Water Assessment Device) was developed. It is a hollow cylindrical device that captures the saturation of water in the subsoil with two default water level indications at 5 and 15 cm height, which correspond to the minimum and maximum desired moisture levels signalling the farmers to stop or start irrigation, respectively. 50 farmers from Paddy cultivated villages (10 numbers) of three districts in three different agro-climatic zones of Tamil Nadu. In each village, control plot was maintained. CWAD practice and awareness through nudge theory led to a significant dwindling of irrigation numbers, pumping hours, and on whole water usage. The mean water measurement observations in CWAD fields at 10 different locations in Tamil Nadu clearly demonstrated that CWAD fitted paddy fields required only 874 mms of water as against 1206 mms (mean of locations) for conventional paddy cultivation saving 38 percent due to AWD. Higher grain yield and water use efficiency (6608 kg/ha and 7.87 kg/ha/mm, respectively) have been recorded wherever the CWAD is fitted when compared with conventional systems (5597 kg/ha and 4.64 kg/ha/mm, respectively). The 'nudge' practices protect the crop under minimum water availability conditions. Instead of an average irrigation of 13 times per crop in the conventional rice field, CWAD installed field requires only nine irrigation. The study found that 34-53 percent increase in the water use efficiency, besides saving pumping hours and

consequent savings in fuel cost. An android based smart phone application on operation and functioning of the CWAD is demonstrated through animation signalling farmers to start (water level at 10 cm below the ground level) and to stop (2.5 cm standing water column above the ground level) the Irrigation

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