

Impact assessment of the Doha Model as a water harvesting structure

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Abstract

In recent decades, use of groundwater for irrigation in India has increased manifold, contributing for 63% of the net area under irrigation in 2011-12. Groundwater is also the primary source of domestic water supply, contributing 85% in rural water supply. However, groundwater development is facing stress in a few states and a growing population is destined to put more stress on the available groundwater resource. This makes rainwater harvesting a crucial measure in arid and semi-arid regions particularly. This study, in water scarce Marathwada region of Maharashtra, conducts a social and economic cost-benefit analysis of the Doha Model water harvesting structures. Study collects quantitative and qualitative data from 68 households in Jalna district of Marathwada. It finds out that the Doha Model has resulted in positive impact on agriculture – increase in water availability for irrigation, cropping intensity, crop yield. Few farmers have adopted capital-intensive commercial seed crop cultivation with assured irrigation. Study also finds out an increase in the water level of wells and a reduction in drudgery related to fetching water for domestic use. Livestock ownership and availability of fodder has also increased. Income from agriculture and livestock shows an increment as reflected in a positive IRR obtained through cost-benefit analysis. Study also finds out few challenges and limitations to this water harvesting structure. It finds out that the scope of benefits from Doha Model is limited to few households in the vicinity of the stream. It infers that a low community participation has led to a negligence of the maintenance of Doha Models. Another critical area of concern coming out from the study is the geohydrology of the site of intervention.