

Organizational Management of Groundwater by Farmers for the Sustainable Utilization of Water Resource in Jaffna District of Northern Sri Lanka

Tharmendra, P., & Sivakumar, S.

Abstract — Groundwater is categorized as a common pool resource and is characterized by exclusion and subtractibility. Given the nature of groundwater, user exclusion is an extremely difficult task. The cost of exclusion measures could outweigh the benefits generated from the use of the resource. In a finite aquifer system, water withdrawal by one or more persons reduces the water available for others and thus groundwater becomes rival in use. Eventual depletion occurs when water withdrawals exceed replenishment rates over period of time. Groundwater suffers from appropriation and provision related problems. Short term gains often pushes users to over exploit the resource base with minimal or no maintenance. Absence of incentives, institutional structures, and social mechanisms would potentially lead to the destruction common pool resources. Farmer Organizations in Sri Lanka were formed to organize farmer activities at field level. They exist all over the country and formed at the Grama Niladari or Village level. Traditionally the Farmers's Organizations focused on providing membership to farmers, distribution of inputs, irrigation management at local level, and act as a body for collective voicing for farmers. Their involvement in groundwater management had been minimal in the past. Unlike Jaffna, existence of surface irrigation systems in other parts of the country could have contributed to the Farmer Organization's limited involvement in managing the groundwater resources. Given the nature of ground water use at individual level, difficulty of controlling their usage, the article examines potential role social capital could play in such circumstances. The article examines the potential role that the already existing Farmer Organizations could play in conserving and managing the scarce groundwater resources of Jaffna district. Ground water is the life line of Jaffna peninsula and the traditional shallow wells had been used for centuries for domestic and irrigation purposes. Approximately the 0.6 Million population of the district largely depends on groundwater sources for its various needs. The whole Jaffna peninsula is underlain by Miocene limestone formations which are generally 100 to 150 m thick, distinctly bedded, well jointed and highly karstified. Water mounds or lenses found within the limestone formation reach their peak during the monsoon rains of November –December. The aquifer boundary itself expands and contracts through the wet and dry seasons respectively. Various studies has placed the net groundwater recharge rate at an average 37% with Spatial variation of net groundwater recharge ranging from 12 to 69%, of annual rainfall.