Rain Water Harvesting for Reversal of Impact on Shallow Aquifer due to Overexploitation in Hydernager Dist. Sangrur, Punjab India

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Malerkotla block is largely known for quality vegetable cultivation. The people are mainly dependent on shallow groundwater for domestic and deep aquifer for their agricultural needs. The area lies in alluvial plains and the groundwater occurrence is at a depth ranging from 30m till 200m and perennial in nature. Agriculture is the mainstay of rural economy in this area. Unlimited groundwater pumping through tube wells to irrigate water intensive crops precisely traditional Paddy Rice cycle is risking a recession in groundwater quality of shallow as well as deep aquifer. The open drains along the road carry domestic effluent water to a village pond, which also contributes to pollute the shallow aquifer. In the village Hydernagar during discussions health related complaints were reported. Malaria, Body ache, Abdomen pain, Joints pain were common whereas severe diseases like Hepatitis were also presented from one or two persons. For drinking water purpose shallow tube wells were dug and restricted to a depth of 25 to 30m. Water samples were collected at various hand pumps and tube wells having depth from 20 to 100 m, based on the analysis made from the preliminary household survey, from cross sections and different sources and levels. The results of chemical analysis of ground water shows Total Dissolved Solids (TDS) is high in 4-samples, out of which 2 are from top unconfined aquifer being tapped by hand pump and shallow tube well of depth 30 and 40m respectively.

It was planned to reverse this impact by installing Rainwater harvesting system in each house as well as Public and Community Buildings. The rainwater collected from the roof would be diverted through the proper filtration process which finally would drain near the domestic drinking water tube well in each premise. The fresh rainwater recharge shall help to reduce the TDS from the shallow aquifer and also replenish it for the year. Domestic Bio gas plant was also recommended for the proper disposal of the human and animal waste. This study was carried out in Haidarnagar located in Malerkotla block of Sangrur District of Punjab.

References

[1] Rohit Mehra , Surinder Singh and Kulwant Singh Jan 2007

[2] Dr. Karanjot Kaur Brar