



Tropentag, October 9-11, 2007, Witzenhausen

“Utilisation of diversity in land use systems:
Sustainable and organic approaches to meet human needs”

An Environmental Economic Assessment of Sujala Watershed Project in Tumkur District

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Abstract

This study attempts to assess the environmental economic impact of Sujala watershed programme in Karnataka on groundwater recharge, the resultant efficiency and equity in the distribution of benefits. Field data were collected for the year 2004–05 from 30 farmers each in the upstream and downstream areas of Devarathorehalla watershed while 30 farmers in non-watershed area were chosen to represent the control. Field data from Sample farmers were classified based on physical access to groundwater as low, medium and high water users. Annual externality was worked for both inside and outside watershed areas to ascertain the differing degrees of predicament suffered by farmers.

In the watershed, physical access is higher by 17 per cent (12.31 acre-inches) compared to non-watershed area (10.56 acre-inches). Environmental economic impact of Watershed Development Programme included savings in cost of groundwater irrigation and augmented net returns to groundwater. The irrigation cost was found to be 15 per cent lower in the watershed (Rs. 171 per acre-inch) than in the non-watershed (Rs. 201 per acre-inch). The amortized cost per functioning well was 14.5 per cent lower in watershed (Rs. 13,109) than in non-watershed (Rs.15, 392) and the investment per well in Sujala was Rs. 47,276 lower than that in non-Sujala being Rs. 62,728, by 25 per cent. The investment per functioning well in the watershed was Rs. 64,785, i.e., 14 per cent lower than that in non-watershed (Rs. 75,273). The net returns per acre of gross irrigated area was Rs.5,064 for low water users, Rs. 3,988 for medium water users and Rs. 4,430 per acre for high water users.

Comparing Gini Coefficients in respect of the distribution of net returns per farm (0.7 Vs 0.76), in the watershed there was greater equality compared to outside watershed. The annual net returns per acre from all sources in watershed were Rs. 3,769, higher by 31 per cent over the non-watershed (Rs. 2,869), reflecting the synergistic contribution of Sujala watershed programme enlisting the participation of NGO's and farmers.

Keywords: Watershed, groundwater