

Application of Village Level Input-output model for assessing Ground water use efficiency

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Abstract

Agriculture is the major consumer of fresh water both in global and developing country scenarios 80 percent and 86 percent of the total water use respectively (Rosegrant, Cai et al. 2002). As India has only 4 percent of water resources compared to its 16 percent of world population, water scarcity is acute in India than the world average. Rural livelihoods in semi-arid parts of India are increasingly dependant on groundwater for production and domestic use. Ground water is depleted when the extraction is more than natural recharge. In a number of regions in India, ground water depletion has been such that the water tables have been falling at excessive rates as a threat to the 25 percent of the future agricultural production (Rosegrant, Cai et al. 2002)In this context an input-output model to measure the ground water efficiency could give some intelligent insights for sustainable allocation of the same.

The study aims at deriving input-output coefficients and efficiency measures especially for the ground water use in a sample village setting which excessively depend on ground water to support its Rice fields yearly. A primary survey done in Madhugiri Taluk in Karnataka has provided us with the input-output data of the farmers which is being modeled as a Input –output model. The hypothesis of the study is that, groundwater is overexploited in a typical rice growing situation in India. We propose a novel method based on Input-Output model and Data Envelopment Analysis to derive at the efficiency parameters in a multicrop setting including rice and in monocropping situations of rice.

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