

Overview of Food-Water-Energy Nexus in India: With Special Reference to Punjab and Tamil Nadu

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A new analytical framework called "Food-Water-Energy Nexus" became popular in agricultural science in India. These three issues are inextricably linked each other, and change in one issue has impacts on the other two. This study aims to illustrate overview of food-water-energy nexus in India, based on the statistical data and results obtained from field work in Punjab and Tamil Nadu. Groundwater irrigation has played critical role in Green revolution since mid-60s, and agricultural production in these two states were indebted to such technical changes. Rice yield in these states are still at the highest level in India, however, it is currently maintained by the free electricity supply for pumping groundwater. Groundwater level in Punjab has been continuously decreased since late-90s. This is caused several factors: free electricity supply from 1997, increase in operational holding influenced by oversea migration and etc. Power of electricity pump and the bore depth are more than those required for current groundwater situation, and it can be considered as farmers' adaptation strategy under free electricity policy. Even if this policy is abolished, estimated electricity charge is not so high to affect agricultural production. In case of Tamil Nadu, tank deterioration has physically declined groundwater level. In addition to this, relatively active land market among different communities fragmented the operational lands and resulted in the inefficiency of electricity use. These two case studies revealed the diversified structure of food-water-energy nexus in India, and needs for the integrated management based on the regional characteristics in environment, economy and society.