

Managing Land and Water Resources for Sustainable Agricultural Development : Issues and Options

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This paper addresses the issues related to dimensions, causes and consequences of groundwater over-exploitation and land degradation and strategies for managing these common production resources in Haryana.

The results indicates that fresh groundwater areas witnessed comparatively high rate of groundwater exploitation. The over exploitation of groundwater in the State has largely been the consequence of more intensive cultivation of land, large scale shift in cropping pattern towards rice-wheat and installation of large number of private tubewells. Rainfall and canal irrigated area have significantly negative effect on groundwater exploitation. The consequences of over-exploitation of groundwater are : (i) fall in water table forcing the farmers either of deepen the well or abandon it depending upon the accessibility of financial resources, (ii) adverse effects on equity issue, and (iii) abandoning agriculture itself and becoming agricultural and non-agricultural labourers. Therefore, for sustainable use of groundwater based farming systems, we have to conserve the groundwater resources and simultaneously explore ways and means for enhancing groundwater recharge.

Salt affected soils are estimated to occupy an area of about seven million hectares in the country, but the major problem is in arid and semi-arid tracts of Indo-gangetic plains where alone 40 per cent of the total affected area is encountered. In Haryana more severely affected districts are Karnal, Kurukshetra, Jind, Hissar, Sonapat and Rohtak. Problem of waterlogging is also assuming, gigantic proportions in the State. The study also indicated that canal irrigated area and rainfall lead to increase in area under critical water table depth whereas number of tubewells decreases the land degradation by reducing the water table. The adverse consequences of land degradation due to salinity and waterlogging are decline in farm production and income, unemployment and migration, disparities and ecological imbalance.

Depletion of renewable natural resources takes a serious toll throughout the developing world. Land degradation hampers the ability of many countries to meet expanding demand for agricultural commodities (Lal, 1989) and the benefits of water resource development in Asia, Africa and Latin America are jeopardized by pollution (Sfier-Younis, 1985).