

Research
Paper

Impact assessment of intensive agricultural growth in Punjab

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ABSTRACT

Adoption of modern farming techniques in Punjab, involving improved irrigation, high yielding varieties, agro-chemicals and farm mechanization has made significant contributions towards raising food production. More than 83 per cent of the total land in the state is under agriculture. The total land under agriculture increased by 5 per cent between 60's and 70's but has remained more or less constant thereafter. However, barren, unculturable, fallow and other uncultivated lands have recorded a sharp decline between 1960-61 to 2006-07. For a state that spearheaded the green revolution in the 1960's and 1970's, Punjab today is facing a major crisis on the agricultural front. Rice-wheat crop rotation has become dominant due to assured prices and marketing of these crops. With increased cropping intensity, requirement of water for irrigation purposes has increased manifold. Punjab is experiencing a deficit of 1.25 m.ham between demand and supply of water for agriculture. This gap is met through over exploitation of underground water resources leading to a decline in the water table in the state. Out of 137 blocks, 103 are overexploited, 5 blocks are critical, 4 blocks are semi critical and only 25 blocks are in safe category. The nutrient status of soil is also a key element in agriculture. Consumption of chemical fertilizers has increased by more than eight times during the past 35 years in the state. Similarly, pesticide consumption has also increased from 3200 MT in 1980-81 to 6080 MT in the year 2007-08. The state has highest per hectare usage of fertilizers (192.55 kg) and pesticides (923 gms) in the country. But this higher use has led to presence of residues in human beings, milk, water and other food products at all levels, which are posing threat to the human and cattle health in the state. This large scale use of pesticides has also caused development of pesticide resistance in various insects and pests. Adoption of safety norms and effective stewardship practices would go a long way to preserve the environment and protect the agricultural community from devastating situation.

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Key words : Cropping pattern, Groundwater, Fertilizer use, Pesticide

INTRODUCTION

Punjab is the most stunning example of green revolution in India. Adoption of modern farming techniques in Punjab involving improved irrigation, high yielding varieties, agro-chemicals and farm mechanization has made significant contributions towards raising food production (Bajwa, 2002). The total cropped area in Punjab which was 5.678 million hectares in 1970-71 has increased to 7.912 million hectares in 2008-09. More than 83 per cent of the total land in the state is under agriculture (as compared to the national average of 40.38 per cent). The cropping intensity in Punjab has increased from 140 in 1970-71 to about 189 in 2008-09 as against national average of about 133 per cent. But the state's agriculture has reached a plateau under the available technologies and natural resource base and has become un-sustainable and non-profitable. Over intensification of agriculture over the years has led to overall degradation of the fragile

ecosystem of the state and high cost of production are affecting the socio economic conditions of the farmers. The major driving forces, which have affected the natural ecosystem and prevalent agricultural practices are increase in demand for food grain due to increase in population, intensive and extensive agriculture as a result of green revolution, good irrigation facilities, procurement facilities for grain, easy availability of credit and subsidies for input intensive agriculture. These driving forces have induced several pressures on the agricultural pattern and environment.

Therefore, the present study has been undertaken to examine ecological crisis arising due to the process of development in the state. More specifically the objectives are: to study the cropping pattern in the state, to analyze the impact of intensive use of farm inputs on various parameters of environment and to suggest policy measures to check the environmental degradation in the light of these effects.