

## Green Revolution Technology and Some Environmental Issues: A Note from Indian Experience

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*Although beneficial effects of green revolution have been well publicised, all estimates of macroeconomic costs associated with it have come out with rather modest figures. One does not have to go far to seek the reasons. Productivity augmenting effects of green revolution have far outpaced the environmental hazards posed by it. This view shared by a majority of researchers emanates from the fact that environmental studies were not in a developed state when the green revolution made its appearance. The present study adopts a completely different view in the sense that it believes future increases in productivity are conditioned by environmental depletion carried out today. The first dose of fertiliser applied to land leads to a net increase in productivity. But subsequent doses erode soil fertility and to overcome this effect higher doses of fertilisers may be necessary. Thus, costs of cultivation are likely to increase. Overuse of pesticides posed health hazards to human beings, as well as, to plant life in general. If one takes into account these productivity-reducing effects the green revolution might lose much of its shine.*

A large part of the increase in World food production since 1960 has been made possible by the 'Green Revolution'. Although the 'Green Revolution' is considered a great success story, yet it does have both positive and negative impacts on the economy, environment and society as a whole.

India owes greatly to chemical fertilisers and HYV seeds for her spectacular progress in agricultural production and achievement of self-sufficiency in food. Since Independence, the country has been witnessing a dramatic transformation in technological, structural and institutional aspects of the agricultural sector. In 1950-51, the country's net sown area was 119 million hectares and in 1970-71, that increased to 140 million hectares mostly through the reclamation of old fallow lands, cultivable wastelands and diversion of land with groves to agricultural use. Since 1970-71, the net sown area did not grow by any significant measure. Till 1992-93, the net sown area was around 142.5 million hectares. On the other hand, the gross cropped area increased from 131.89 million hectares in 1950-51 to 185.49 million hectares in 1992-93 (around 40.64 per cent increase over 43 years). The cropping intensity increased from 1.11 in 1950-51 to 1.30 in 1992-93. The net irrigated area continued to increase from 20.85 million hectares in 1950-51 to 31.10 million hectares in 1970-71 to 38.72 million hectares in 1980-81 and to 50.01 million hectares in 1992-93 (Source: Government of India-CSO, 1997). Out of total irrigated land in 1950-51, groundwater accounted for less than 30.0 per cent, but today it accounts for over 50.0 per cent (Vaidyanathan, 1996). The net sown area under HYVs constituted only 2.0 million hectares in 1960-61 and that increased to 60.0 million hectares in 1988-89 (Ghai, 1990). The quantity of chemical fertilizers (NPK) used in agriculture was to the extent of only 66.7 thousand tonnes in 1951-52, and that increased to 12.7 million tonnes in 1991-92 (Majumdar, 1994). The quantity of pesticides used in agriculture was merely

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