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ENVIRONMENTAL IMPLICATIONS OF AGRICULTURAL DEVELOPMENT IN PATIALA DISTRICT, PUNJAB, INDIA
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The green revolution in India, one of the most remarkable achievements in the field of agriculture has led to self sufficiency in food production which increased from mere 51 million tonnes in 1950-51 to 210 million tonnes in 2006-07. The new technology has not only increased agricultural production, but also created a wide range of environmental problems viz., deforestation, water logging, salinity, alkalinity and ground water pollution in the fertile tract of Punjab. Intensification of land development over the years has led to degradation of the fragile agro-ecosystem of the state. The present study of Patiala district is mainly an agricultural district as 82.61 per cent land area is under cultivation. The blockwise consumption of ground water shows that out of nine blocks, eight blocks were categorized as overexploited blocks where the ground water development is above 100 per cent, whereas only one block was under white category. High yielding varieties of water intensive crops like rice and wheat require larger amounts of ground water that has resulted in ground water depletion. It was analyzed that certain blocks like Derabassi and Ghanaur obtained a very high growth rate (1994-95 to 2006-07) of 35 per cent in terms of areal extent of cultivation of rice. Similarly, blocks like Rajpura has a high growth rate of 18 per cent in wheat cultivation during the same time period. The two hypotheses postulated were tested with the help of correlation technique. One of the hypotheses regarding the relationship between agricultural development and ground water depletion was found to be positive relationship as the calculated r value was 0.06. This suggests that there is a positive or direct relationship between the level of agricultural development and ground water depletion. The other hypothesis regarding the relationship between environmental degradation and level of agricultural development proves to be negative (r = -0.05) which means that there is an indirect relationship between the two. In other words higher is the level of environmental degradation lesser will be the level of agricultural development. The problem related to burning of crop residue especially rice straw which is adding poisonous gases into the atmosphere but is also responsible for depleting soil nutrients from the soil. This local issue has large global implications. It can be dealt through the alternative use of straw as a fuel in factories or consumed by animals as fodder after refinement.

キーワード: Green revolution, Land intensification, Environmental degradation, Crop residue burning, Punjab, India
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