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“Reconcile land system changes
with planetary health”

Unwatering the fields: analysing incentives for crop diversification amid groundwater crisis in India

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Abstract

Groundwater depletion has become a serious concern in north-western India, particularly in Punjab and Haryana, largely due to the dominance of paddy cultivation and unsustainable irrigation practices driven by agricultural electricity subsidies. This paper aims to assess the effectiveness of current incentive strategies for crop diversification in this region introduced by the government for the reduction of groundwater over-extraction. Using the plot-level cost of cultivation data for the period 2017–18 to 2019–20, obtained from the Ministry of Agriculture & Farmers Welfare, Government of India, we show that the current proposed incentives are inadequate for shifting from water-intensive paddy to less water-intensive crops, mainly due to the higher profitability of paddy cultivation in terms of high yields and lower production costs as compared to other crops. We find that the average proportion of area under paddy that would shift to less water-intensive maize or cotton in Punjab with the current policy would be about 17–20 percent, which is 33 percent lower than the 30 percent target area set by the government. The area that would shift to non-paddy crops in Haryana would be about 11–16 percent, which is even lower. Our results show that the cash incentives required for crop diversification could be as high as 2.5 times the amount offered under the current scheme in order to shift to even the most profitable non-paddy crop. Our study highlights challenges in the implementation of the crop diversification scheme and propose alternatives. Furthermore, we emphasise the importance of investing in research to improve the productivity of less water-intensive crops rather than relying solely on cash incentives, as this may offer a more sustainable way to achieve the objective of the policy in the longer term.

Keywords: Cash Incentives, Crop Diversification, Government Policies, groundwater Depletion, Water