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“Development on the margin”

Options for Enhancing Resilience of Rural Populations to Reduced Water Availability in Uzbekistan

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Abstract

Central Asia is considered to be one of those most vulnerable to climate change and its anticipated effect, such as more frequent and prolonged drought events and reduced water availability. Reduced water availability will lead to crop failures and severely undermine livelihood of rural population. Modification of existing agricultural policies, that currently determine the water-intensive agricultural production, could make the rural population more resilient to reduced water availability. In this paper, we address the issue of fostering food security via agricultural policy solutions on the example of modifications in the state regulations over cotton production in the Khorezm province of Uzbekistan. To identify the grain prospects of modifying the cotton policy and the impact of the policy changes on land and water use in agriculture, we applied an integrated bio-economic model developed at scale of a water users association in Khorezm. Simulation results show that abolishment of cotton policy seems more viable option to improve food production rather available options to modify its settings. The study revealed that the same amount of cotton could be produced if the farm-gate cotton price was at world market level. This would allow an increase in total grain production without putting stress on water. The more flexible settings of cotton policy are likely to reduce land values meaning a potential loss of farmers' interest in investing in land improvement and conservation technologies. Consequently, there is a risk of exacerbating the vulnerability of irrigated agriculture in Uzbekistan due to land degradation, when cotton-growing policies are changed, not only abolished. However, if farmers are released from cotton production targets, the gross farm income may increase at the expense of higher demands for irrigation water. Supplemental agricultural policies and institutions are required for promoting more efficient water use and farm investments in land improvement.

Keywords: Agricultural policy analysis, Cotton production, Food security, Integrated farm model