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Adaptive capacity of apricot farming communities in response to changing water availability in Kyrgyzstan

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Abstract

Apricot cultivation serves as a key source of income for the rural communities nestled within the Ferghana valley of southwestern Kyrgyzstan. Surface irrigation plays a crucial role in these agricultural systems drawing upon the vital glacial and snow-fed runoff from nearby mountains as the primary water source, crucially supporting irrigation needs particularly during the spring season. However, progressing climate change and increasing water demand propelled by population growth jeopardise these irrigated agricultural systems due to changes in water availability and its intra-annual distribution, thereby posing a threat to the sustainability of apricot cultivation in the region for the future. In the light of these challenges, this study aimed at better understanding the capacity of farmers to adapt their practices to the increasing uncertainty of water availability in order to secure their livelihood in the area.

Against this background, we embarked on a comprehensive exploration of farmers' current coping mechanisms and adaptation strategies to varying water availability for irrigation and related weather shocks. Employing a mixed-methods approach integrating qualitative (focus group discussions, key expert interviews) and quantitative (household surveys) tools, we assessed differences in coping as well as adaptation strategies and resulting adaptive capacity. Results provided insight into farmers' adaptive capacity in the light of their farming systems, socio-economic settings and the hierarchical structures within the irrigation scheme that farmers encounter themselves in, both spatially and in terms of decision-making power, which all affect their room to manoeuvre towards sustainable water management. Our findings derived from this research provide valuable groundwork for policy makers and other stakeholders to target interventions for enhancing the resilience of these apricot farming communities in the face of increasing uncertainty of water availability and weather extremes in the Ferghana valley.

Keywords: Agroforestry systems, Central Asia, climate change adaptation, irrigation, water management