Capacities, institutions and development trajectories affecting the transformation of irrigated agriculture in the urbanizing SW United States

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Abstract

The prospect of unprecedented environmental change, combined with increasing demand on limited resources, suggests that incremental adaptation will not be enough to avoid negative outcomes: many natural resource-based populations require additional capacities – transformational capacities – to respond altered livelihood opportunities. Irrigated agriculture is at the heart of the history and identity of the American Southwest, although the future of agriculture is now threatened by the prospect of "mega-droughts," urbanization and associated inter-sector and inter-state competition over water in an area of climatic change. In this context, we use survey data, interviews and document analysis to explore the cross-level dimensions of transformative capacity in the rural-urban nexus of central Arizona. We analyze the attributes of farm-level adaptive capacity (risk perception, confidence in ability to respond, responsibility to act) in relation to farmers’ responses to recent dynamism in commodity and land markets, and the institutional and social contexts of farmers’ water portfolios. The surveyed farmers demonstrate foresight, entrepreneurship and flexibility, suggesting some capacity for land use and livelihood transformation. Nevertheless, their individual choices about the future are influenced by policy and planning choices made at more aggregated levels of administration and in geographically distant locations. Some of these choices were made decades ago in reference to specific scenarios of groundwater depletion and urban growth; new policy decisions are now on the horizon concerning inter-state water allocation and the priorities of economic development. These higher-level decisions anticipate transformations in water availability and demand, and thus also create pathways of development with significant inertia, influencing farm-level choices not only through institutional legacies, but also through expectations, beliefs and thus formal scenarios of agriculture’s future. Our work thus highlights the interaction of both endogenous and exogenous pressures for transformation, and the role of institutions in influencing how we understand what transformation is or could be.

Keywords: adaptive capacity, transformability, path dependency, cross, scale, water management, agriculture

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