



In Partial Fulfillment of the Requirements for the Degree of

Master of Science

Haley Paul

Will defend her thesis

Agricultural Water Use and the Groundwater Management Act: Balancing Institutional Trade-Offs to Reach Sustainability

Abstract

Present day human societies face many challenges in effectively managing resources that exhibit characteristics of “common-pool resources” (CPR), of which groundwater is a critical example. The seminal 1980 Groundwater Management Act (GMA) in Arizona, USA sought to curb groundwater mining through a combination of conservation strategies, augmentation and supply development, and reduction in agricultural water use through strict prohibition of its expansion in designated areas. Today, with urbanization pressures and the halting of agricultural expansion, agriculture uses less water on the whole than in 1980. However, in spite of the conservation and efficiency regulations imposed on agriculture by the GMA, on a per-acre basis, agriculture uses approximately the same amount of water it did in 1980. Employing analytical frameworks used to evaluate the contribution of institutions to the maintenance of social-ecological systems, this thesis examines how the institutional arrangements in the GMA have created trade-offs between farmer robustness in flexible water use (due to climactic and economic variability) and long term sustainability of the aquifers. Through interviews with water and agricultural stakeholders and an analysis of policy documents, the thesis documents the difficulty in designing institutions that manage the trade-off between the short term interests of particular actors in the system, especially when the public infrastructure providers are not the same people as the resource users. The research concludes with insights into how these institutions might be better designed to mediate such trade-offs in the management of groundwater resources.

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Faculty, students, and the general public are invited.

Supervisory Committee:
Dr. Marty Anderies (Co-chair)
Dr. Hallie Eakin (Co-chair)
Dr. Rimjhim Aggarwal (Member)