ASU SCHOOL of SUSTAINABILITY

ARIZONA STATE UNIVERSITY

In Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

Cathy Rubiños

Will defend her prospectus

Commons Governance for Robust Systems: Irrigation Systems Study Under a Multi-Method Approach

Abstract

Sustainability depends in part on our capacity to resolve dilemmas of the commons in Coupled Infrastructure Systems (CIS). Thus, we need to know more about how to incentivize individuals to take collective action to manage shared resources. Moreover, given that we will experience new and more extreme weather events due to climate change, we need to learn how to increase the robustness of CIS to those shocks. I propose to study irrigation systems to contribute to the development of an empirically based theory of commons governance for robust systems. My research questions are:

(1) For a given set of biophysical and ethnographic characteristics of a CIS, which institutions are necessary and/or sufficient to avoid over-appropriation of water and critical conflicts among users of an irrigation system?

(2) What makes an irrigation system robust or vulnerable to a shock? How did two Peruvian irrigation systems respond to a common shock, and why did they respond that way?

(3) What interventions can policymakers implement to make CIS robust to the shocks expected from climate change?

To answer these questions, I will perform a meta-analysis of 50 irrigation systems, do a longitudinal case-study comparison, and develop a mathematical model to analyze effects of potential interventions.

Wednesday, March 30, 2016
2:00 p.m.
ASU Tempe campus, LL 245

Faculty, students, and the general public are invited.

Supervisory Committee:
Marty Anderies (Chair)
Marco Janssen (Member)
Joshua Abbott (Member)