WATER USE AND BANKING IN THE TUCSON BASIN: A SOCIETAL METABOLISM APPROACH

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From last year workshop…. Key questions

- How is water demand affected by changes in the social and economic structure?
- How is the spatial dynamics of groundwater banking system? How does this pattern constrain a distributed achievement of safe yield?
- How do patterns of abstraction and recharge affect the conservation of valuable biodiversity areas?

From last year workshop…. Key information gaps

- Spatial information on:
  - Groundwater pumping and recharge dynamics
  - Water demand
  - Groundwater credits

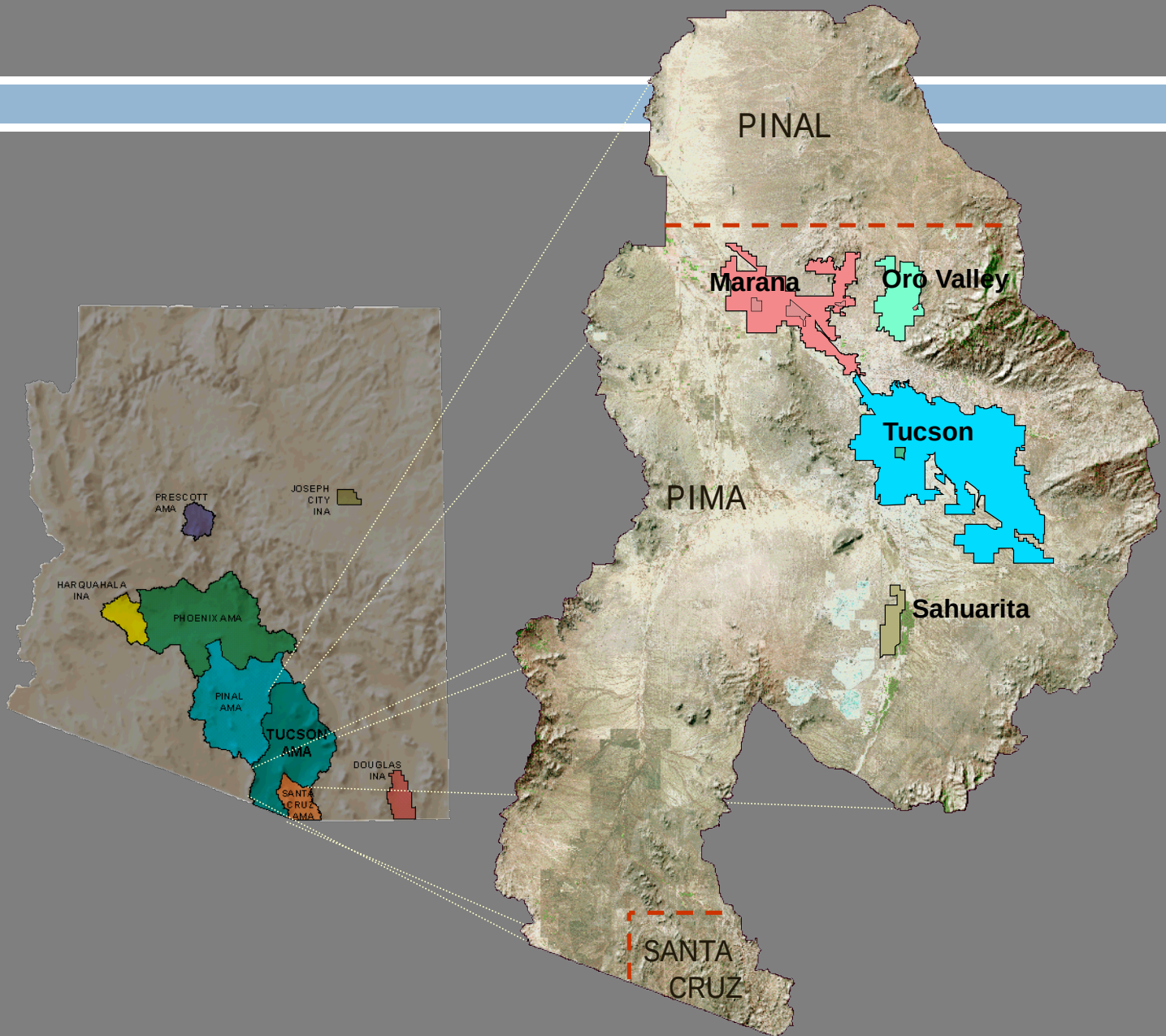
Research objectives

Quantitative analysis of water demand and banking evolution in the Tucson basin in relation to socioeconomic variables

Spatial analysis of recharge and pumping

Assess spatial information gaps and potential impacts on the achievement of spatially distributed Safe Yield

Scale: Tucson Active Management Area



Were are we?

- Consolidating outline
- Reviewing literature
- Data model ready. Data partially collected

Tentative timeline:

- Data collection Nov-Dec. 2014
- Interviews and analyses Jan-Feb 2014
- Paper writing until June 2015

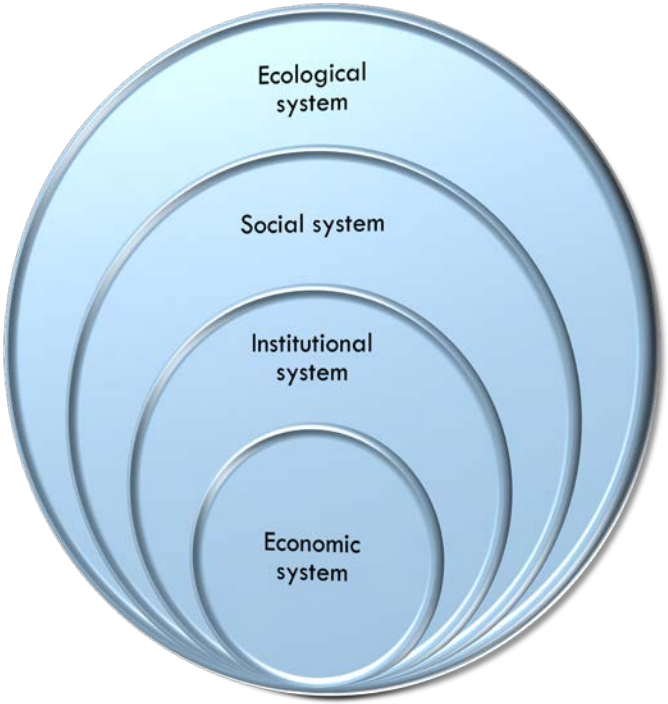
Key players

- Pima County
- Arizona Water Resources Department (water budget, groundwater modelers)
- Groundwater Banking Authority
- Groundwater Replenishment District

A socio-ecological systems approach

- Multi-scale analysis of societal and ecosystems metabolism →
  - Water use, demography, economic productivity, water price, land use
  - Groundwater dynamics and shallow groundwater areas

- Water banking → institutional framework and operational analysis



Data and information needs

- Water budget, census and economic census
- Groundwater recharge, pumping, water table levels
- Shallow groundwater areas
- Water credits accounting

Spatial break up!?