

Project Start Up Meeting, Udall Center, October 29, 2007

# Information flows & Policy

Use of Climate Diagnostics and Cyclone Prediction  
for Adaptive Water Resources Management  
Under Climatic Uncertainty in Western North America

## Task B


Assess Urban Vulnerability

The cases of Hermosillo & Cananea

Nicolás Pineda-Pablos



# Timeline

- ◆ Sept 07-Feb 08 Data Collection
    - ◆ Statistic overview
    - ◆ Document review
  - ◆ Mar 08 – Aug 08 Field Work
    - ◆ Visits and observation
    - ◆ Interviews/ focus groups
  - ◆ Sep 08 – Feb 09 Reporting
    - ◆ Draft writing
    - ◆ Peer reviews
  - ◆ Feb 09 – Sep 09 Outreach
    - ◆ Discussion panels
    - ◆ Workshops
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# Products

- ◆ Data collection
- ◆ Document analysis
- ◆ Field Work
  - Observation
  - Interviews
  - Surveys
- ◆ Discussion panels
  - Seminars and panels
  - Report peer reviews

- ◆ Statistical History
- ◆ Institutional Anal.
- ◆ Research Reports
  - Discussion drafts
  - Articles?
  - Book?
- ◆ Outreach/dissemination
  - Info meetings
  - Seminars and panels
  - Press releases

# Activities

- ◆ Data collection
- ◆ Document analysis
- ◆ Field Work
  - Observation
  - Interviews
  - Surveys
- ◆ Discussion panels
  - Seminars and panels
  - Report peer reviews

# Multiple Levels of Analysis

- ◆ Operational situations (How good outcomes?)
  - ◆ Operational rules in use:
  - ◆ Actions that affect physical conditions
  - ◆ Provision, production, distribution, appropriation, assignment, consumption, waste, treatment
- ◆ Collective choice situations (How good decisions?)
  - ◆ Collective rules in use:
  - ◆ Actions/Rules that affect operation
  - ◆ Prescribing, Monitoring, Enforcing
- ◆ Constitutional situations (How good rules?)
  - ◆ Actions/Rules that affect collective-choice situations
- ◆ Metaconstitutional situations (How good beliefs?)
  - ◆ Actions/Rules that affect constitutional situations



# Evaluation Outcomes

## ◆ Economic Efficiency

- ◆ Unaccounted for water
- ◆ Water not paid for
- ◆ Water waste

## ◆ Equity

- ◆ Coverage (people served)
- ◆ Privileged sectors

## ◆ Adaptability

- ◆ Remedial actions
- ◆ Social learning outlook
- ◆ Resilience



# Predicting outcomes

## Within the action arena

- ◆ Climate behavior
- ◆ Water supply patterns & projection
- ◆ Water demand factors
- ◆ Water availability
- ◆ Management adaptability
- ◆ Change challenges
- ◆ Threats/Risks/Vulnerability

# Main Actors

- ◆ Water utility
- ◆ Municipal government (Mayor)
- ◆ CEA (Comisión Estatal del Agua)
- ◆ CNA (Comisión Nacional del Agua)
- ◆ Large consumers
- ◆ Citizen organization?
- ◆ Local political opposition (parties)
- ◆ Local experts and media

# Action Arena

- ◆ Problem perception
  - ◆ Scarcity-waste
- ◆ Change goals
- ◆ Ideas on climate change
- ◆ Challenges



# Rules-in-use

- ◆ Water Planning
- ◆ Water management/decision-making (utility)
- ◆ Patterns of consumption
- ◆ Payment behavior/free riders
- ◆ Public participation
- ◆ Civil Protection (Preparedness)

# Attributes of Community

- ◆ Water consumers
  - ◆ Residential
    - ◆ Industrial
    - ◆ Other
    - ◆ Uncovered population
  - ◆ Unaccounted for water
  - ◆ Waste water
    - ◆ With treatment
    - ◆ Untreated
  - ◆ Vulnerability Assessment



# Physical/Natural Water Conditions (Cananea & Hermosillo)

- ◆ Precipitation historical records
- ◆ Temperatures historical records
- ◆ Water Fountains  
(river/aquifer/basin)
  - Size/cycle
  - Availability
  - Sustainability
- ◆ Water Extractions/Supply
- ◆ Disaster History/Memory

# Inputs so far?

## ◆ My questions:

- ◆ Is this compatible w/the rest of the project?
- ◆ Is task B only for Hermosillo and Cananea?
- ◆ Or is it for pairs of cities?



# Rules

## Where it comes from

- ◆ POLITICAL MANAGEMENT
- ◆ Run by politicians
- ◆ Political appointees
- ◆ High turn over of authorities
- ◆ Biased investment criteria

## Whither

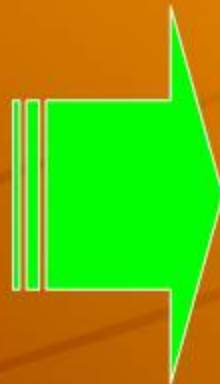
- ◆ CONSERVATION TECHNICAL MANAGEMENT
- ◆ Run by experts
- ◆ Incentives for good use
- ◆ More stable management
- ◆ Improved planning

# A model of analysis for Water management

Where from

Whither to

- ◆ POLITICAL-CONTROL MANAGEMENT
- ◆ Vote-harvesting-oriented
- ◆ Political Control
- ◆ Political Stability



- ◆ WATER-CONSERVATION MANAGEMENT
- ◆ Water-conservation oriented
- ◆ Water efficiency
- ◆ Sustainability

# Notes for theory building

How things are

Drought

Flood

Wasteful  
Consumption  
patterns

Lack of Run off  
Drainage/  
Storage

Lack of  
Planning

No  
Conservation

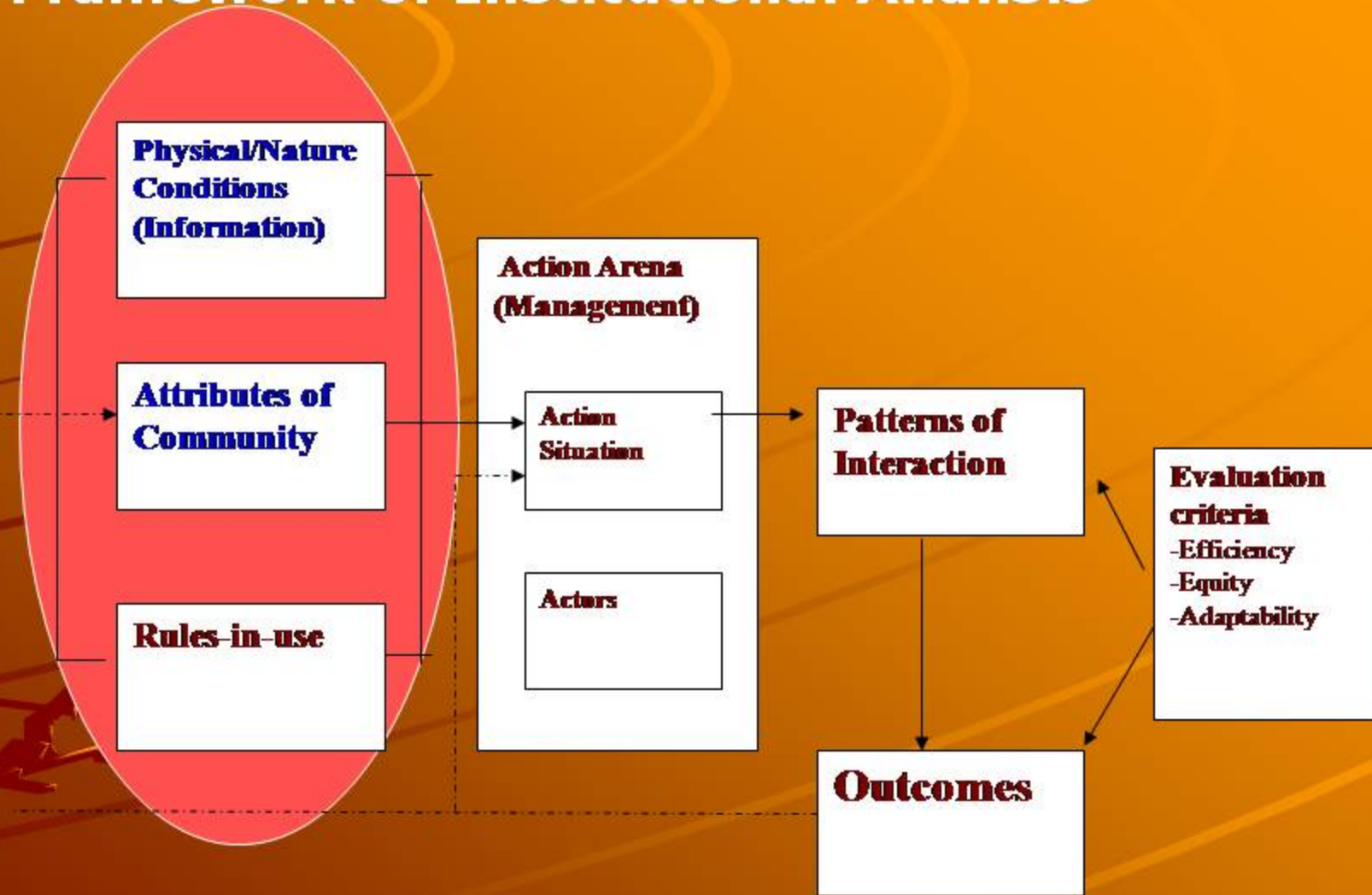
What to do

**Better use of  
Resource**

**Improve  
Planning/  
management**


**Change  
Rules**

# Framework of Institutional Analysis



Source: Ostrom E. 2007

# A previous caveat

- ◆ The next ideas are preliminary
  - ◆ They draw from my background and disciplinary orientation
  - ◆ However, my purpose here is to get inputs and project orientation
  - ◆ Any advise/comment/critique is welcome
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# Main claims

(Some according to IPCC 2007)

- ◆ Water is likely to become scarcer in the future
- ◆ Water demand is increasing
- ◆ There is lack of information, lack of fit and preparedness for threats of drought/floods
- ◆ There is room for improved efficient/adaptable management
- ◆ We can contribute to increase climate awareness and to improve water management

# Research Questions

- ◆ How adaptable is urban water management to scarcer water supplies due to climate variability?
  - What is current/future outlook of water availability/supply?
  - What is current/future outlook of water consumption/demand?
  - Which are the prospects/agents for change/adaptation?
  - Which are the main risks/threats and the preparedness for them?

# Objective

- ◆ To examine how climate variability affects scarce water supplies
  - Assess urban and industrial water demand
  - Explore climate effects on availability of water resources



# Resources

- ◆ Staff
- ◆ Equipment
- ◆ Budget

