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# URBAN FOREST CONNECTIONS

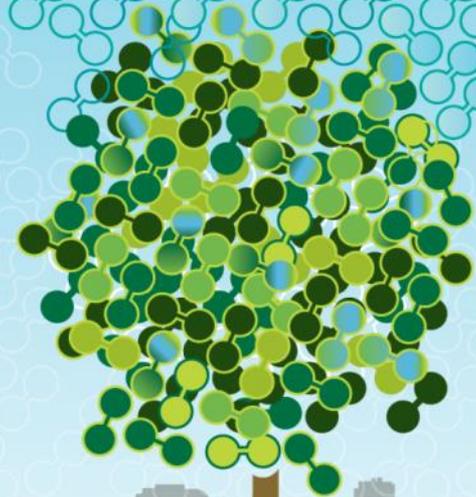
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# SOCIAL NETWORKS AND KNOWLEDGE SYSTEMS FOR URBAN STEWARDSHIP AND SUSTAINABILITY



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# LINKING SCIENCE AND PRACTICE: THE IMPORTANCE OF KNOWLEDE-ACTION SYSTEMS FOR ACHIEVING SUSTAINABLE SOLUTIONS

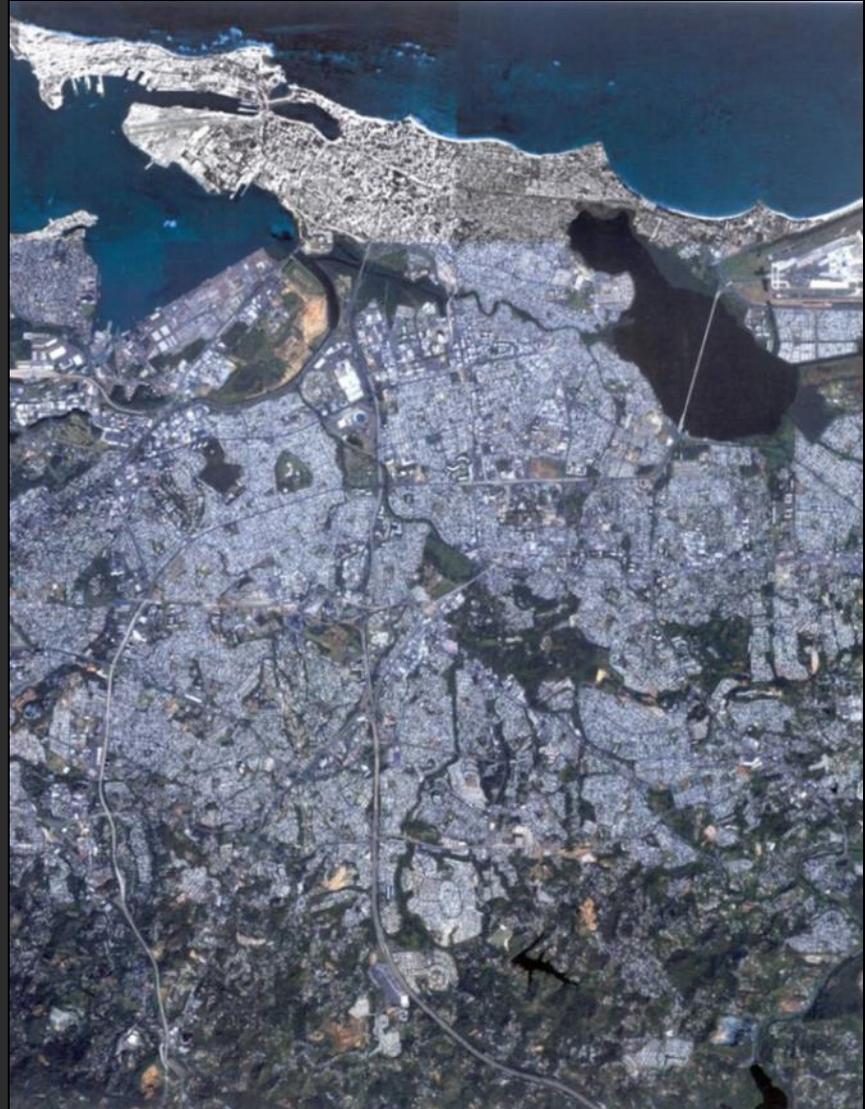
TISCHA A. MUÑOZ-ERICKSON  
INTERNATIONAL INSTITUTE OF TROPICAL FORESTRY  
URBAN FOREST CONNECTIONS WEBINAR  
JANUARY 14, 2014



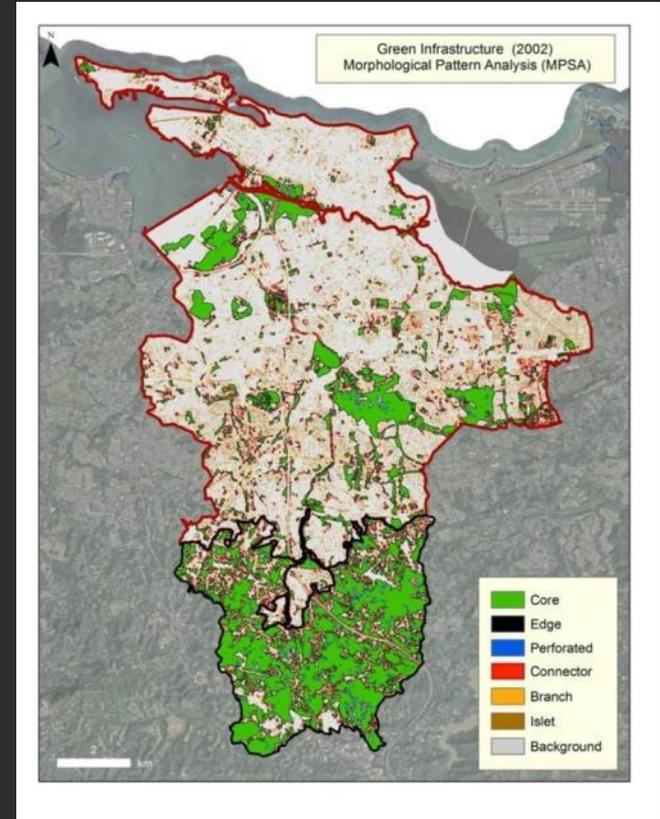
# Overview

- Background on San Juan land use governance
- Rationale for research and tool development
- Knowledge-action system analysis (KASA) tool and methodological steps
- Results from San Juan (2009)

# Municipality of San Juan, Puerto Rico



# Urban Development, Flood Risk, and Green Infrastructure



Ecosystem-based Adaptation Strategies

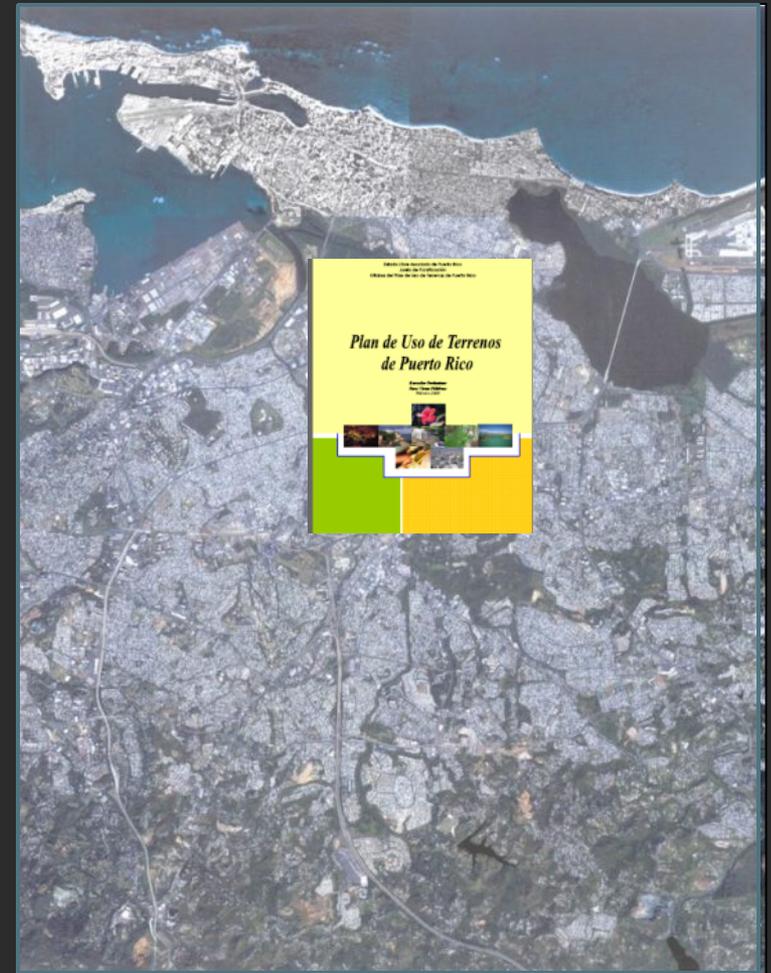
# The Land Use Governance Landscape in San Juan

## State-level Land Use Management:

PR Planning Board

PR Dept. of Environmental and  
Natural Resources

PR Environmental Quality Board



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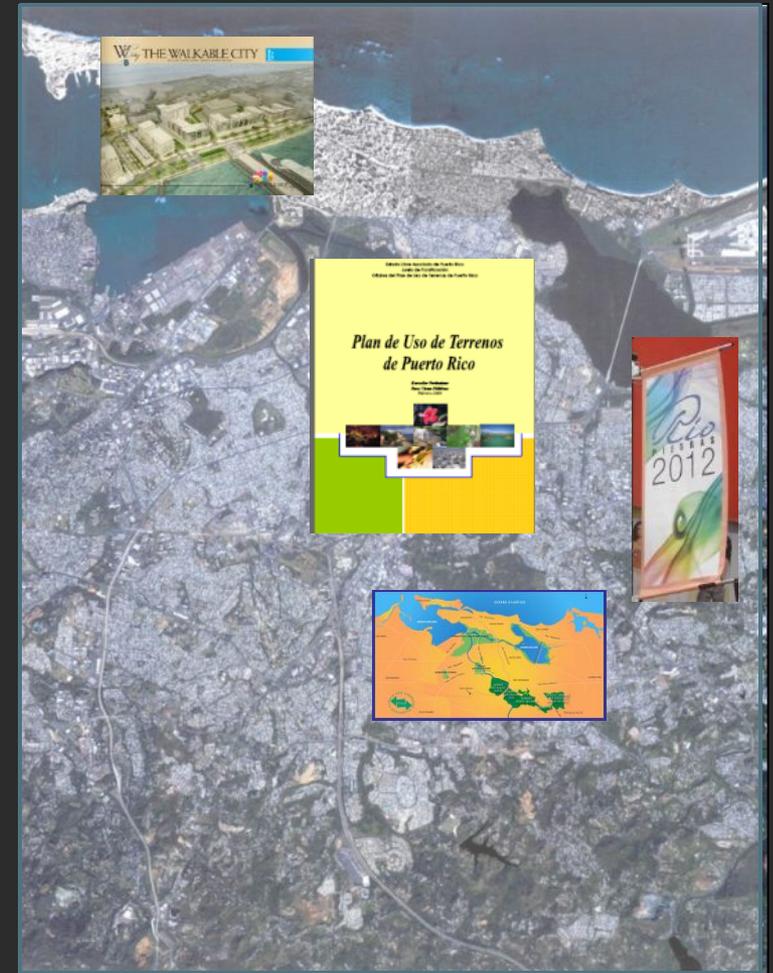
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## Decentralization – Municipal Authority:

San Juan Territorial Ordinance Plan in 2003

Municipality gains Autonomy in 2009



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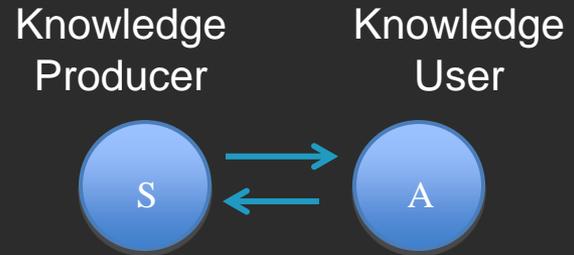
Municipality gains Autonomy in 2009

**Emerging stewardship:** Civic groups  
(NGO's, community-based, neighborhood  
associations) and private initiatives taking  
a role in managing green areas



# Barriers to Linking Science and Practice

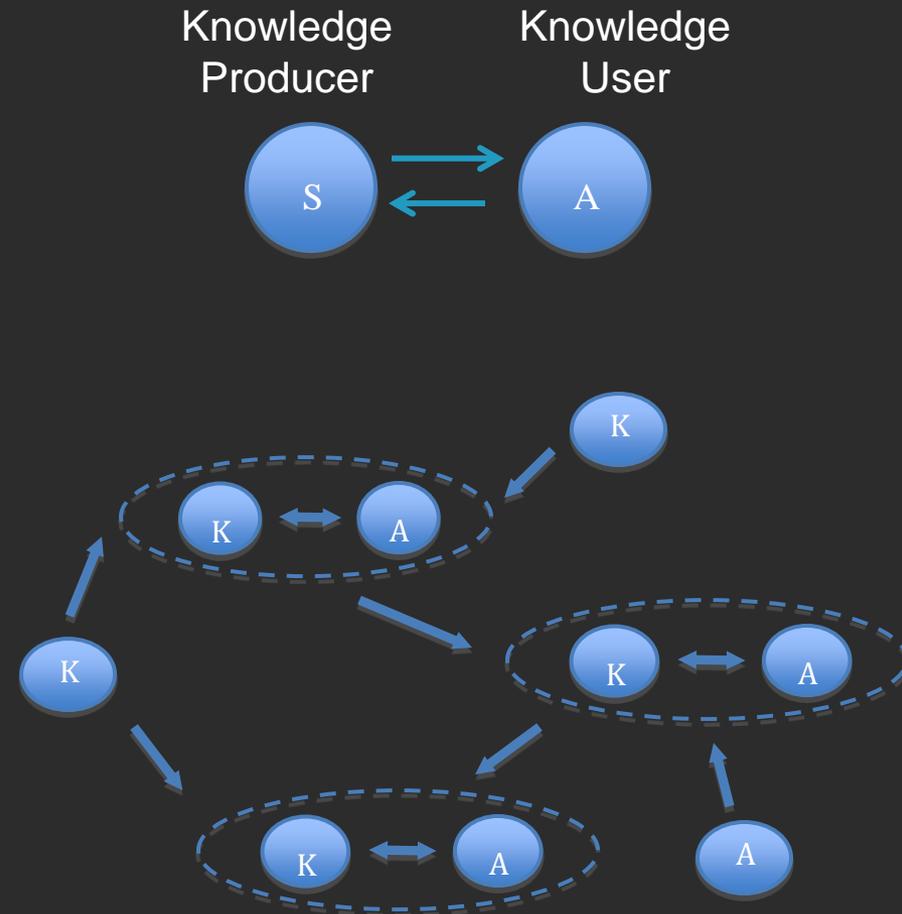
View that relationship between science and practice is linear



# Barriers to Linking Science and Practice

View that relationship between science and practice is linear

- Knowledge flows across networked (web-like) relationships
- Multiple ways of knowing and of producing knowledge shaping governance
- Actors are both knowledge producers and users – many 'experts'



How do we design and create knowledge-action systems for urban sustainability?

**more specifically,** how do existing knowledge-action systems work and how do we analyze them?

# Knowledge-action systems analysis (KASA)

KASA



knowledge networks

knowledge systems

framing and visioning

boundary practices

# Methodological Steps for Implementing KASA

**Step 1:** Knowledge network mapping – *surveys and social network analysis*

**Step 2:** Identify central actors and knowledge systems – *surveys and social network analysis*

**Step 3:** Analyze dominant and marginal frames and visions for the future of the city - *interviews and document analysis*

**Step 4:** Explore influences of knowledge systems on vision divergence – *interviews and document analysis*

**Step 5:** Assessment of boundary practices in the network– *interviews and participant observations*

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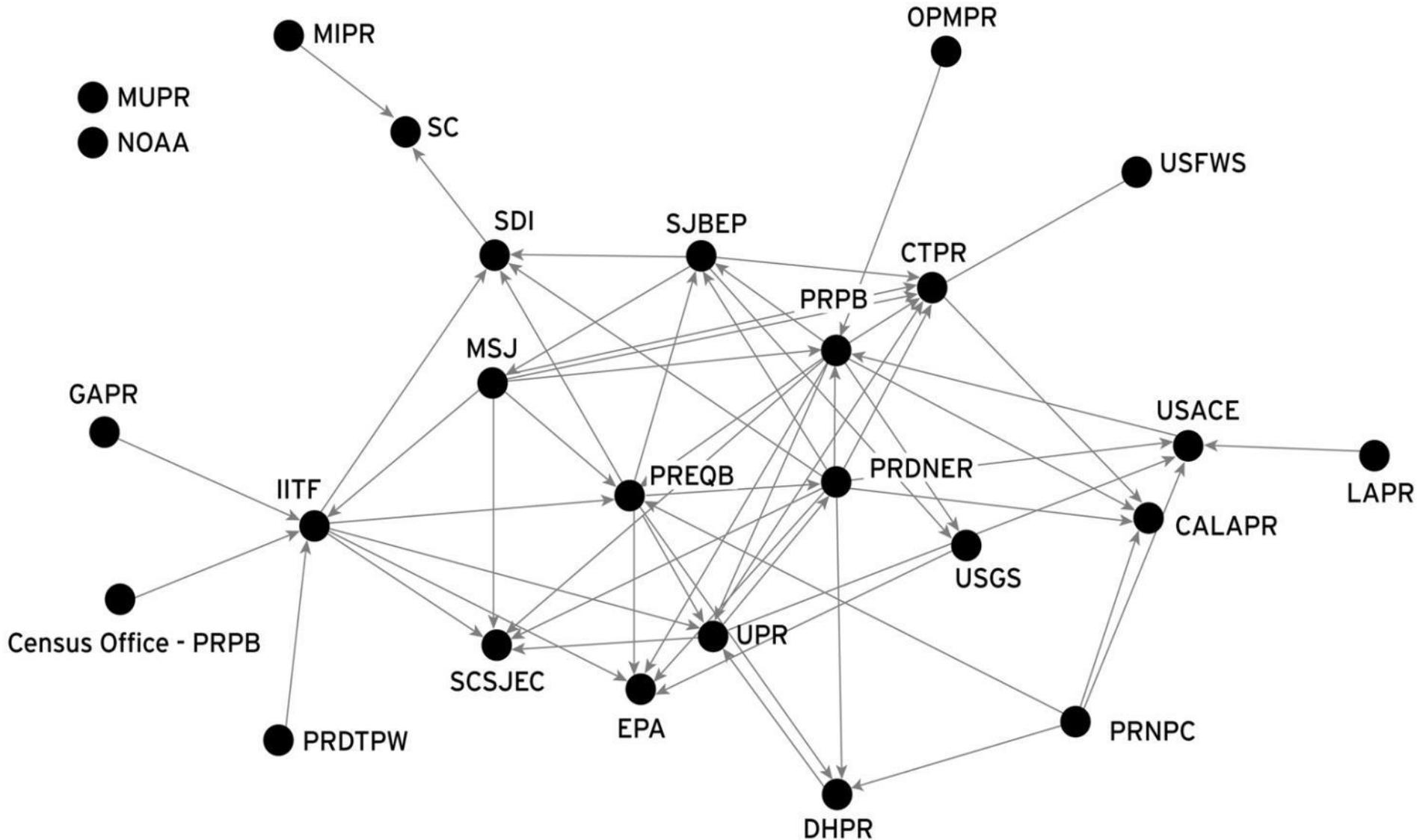
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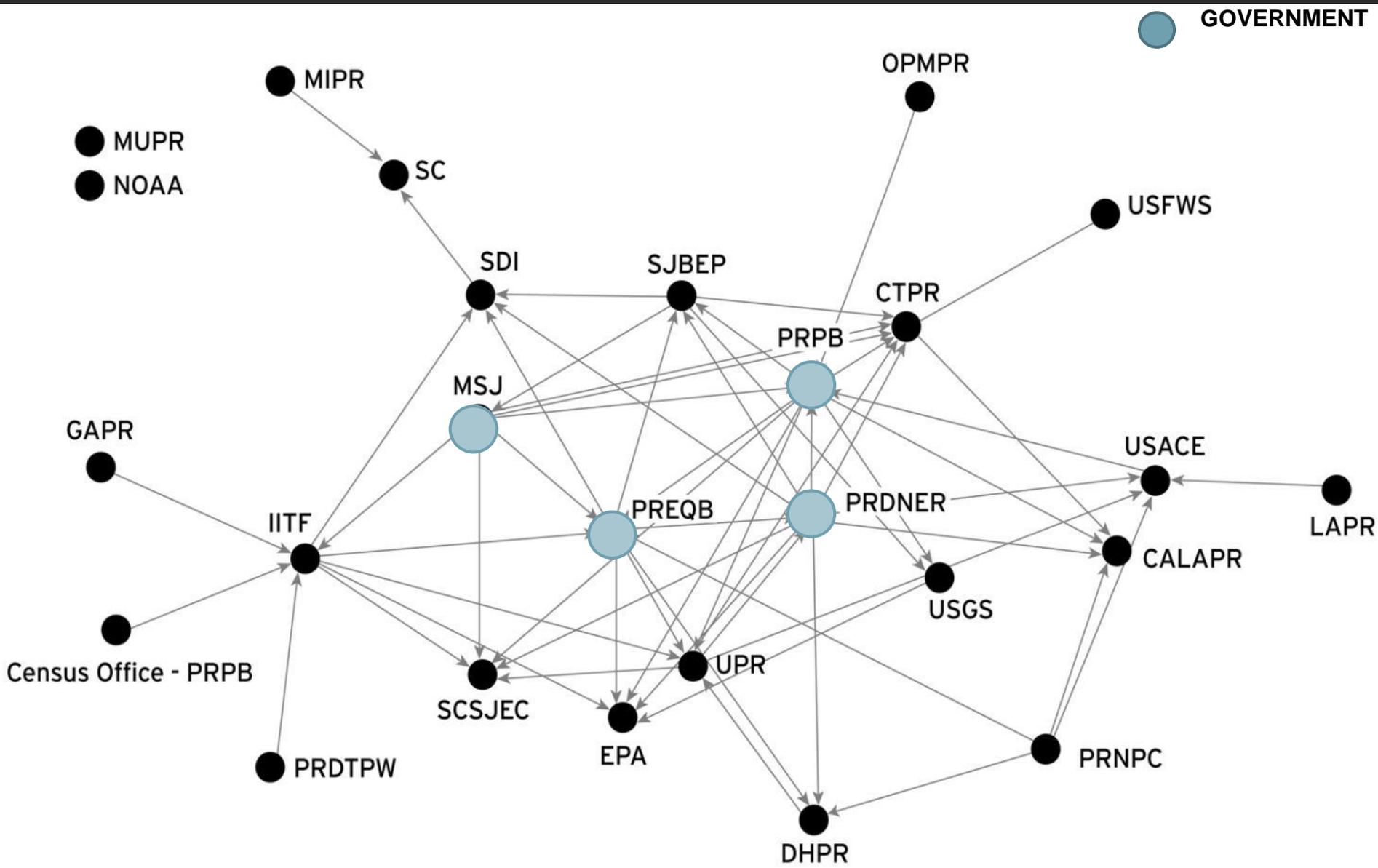
# Knowledge network map of organizations involved in land use governance in San Juan

N = 26



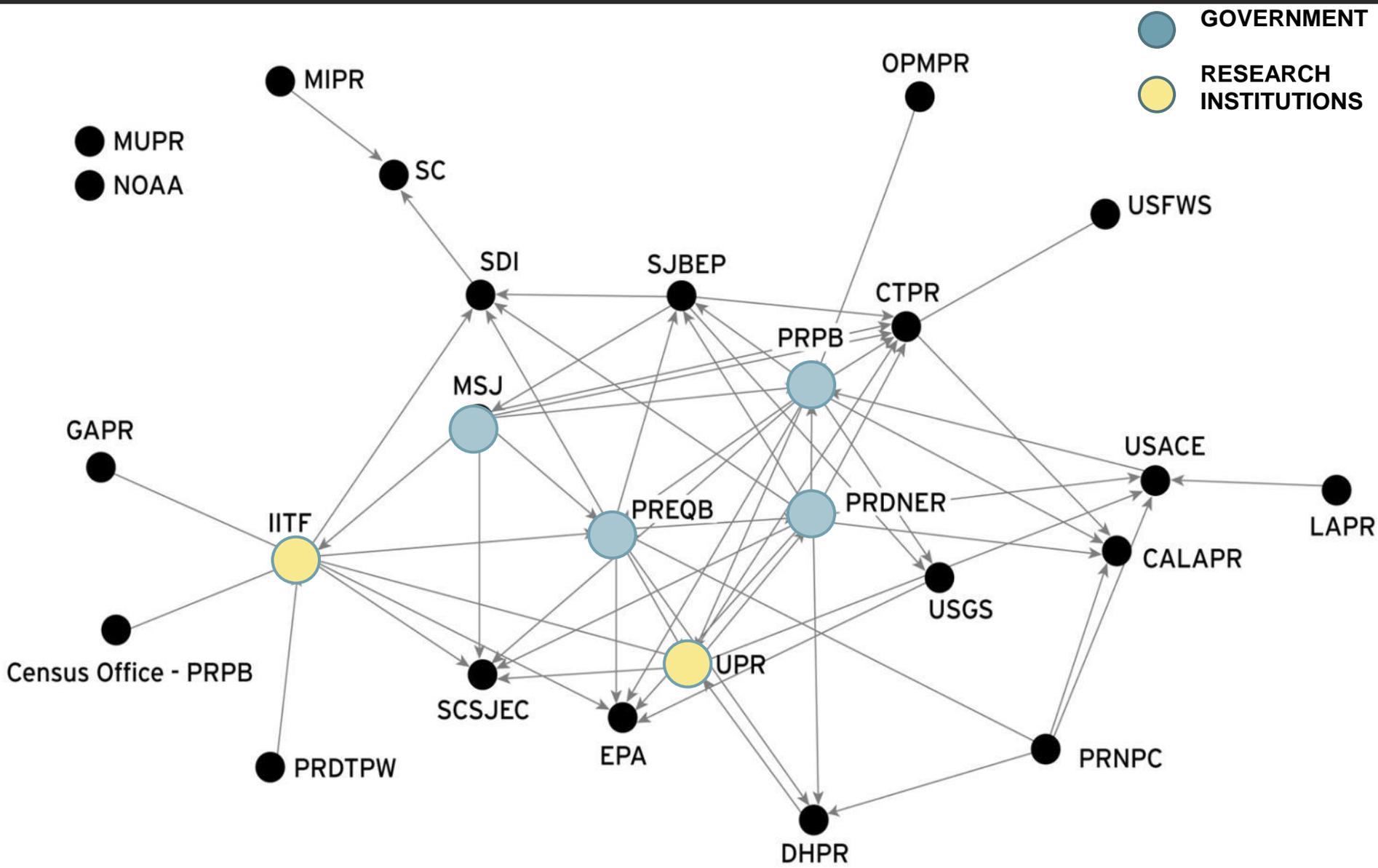
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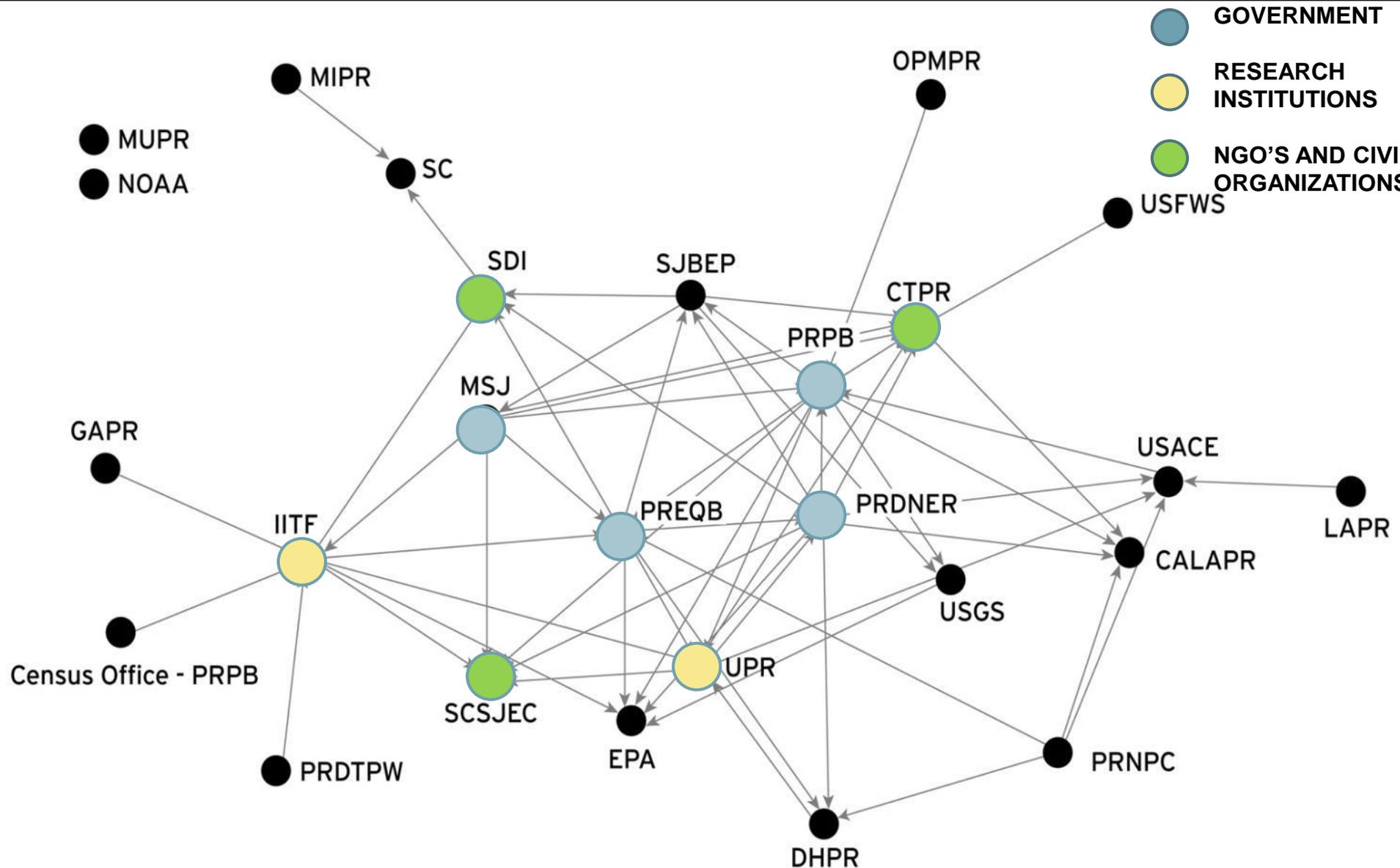
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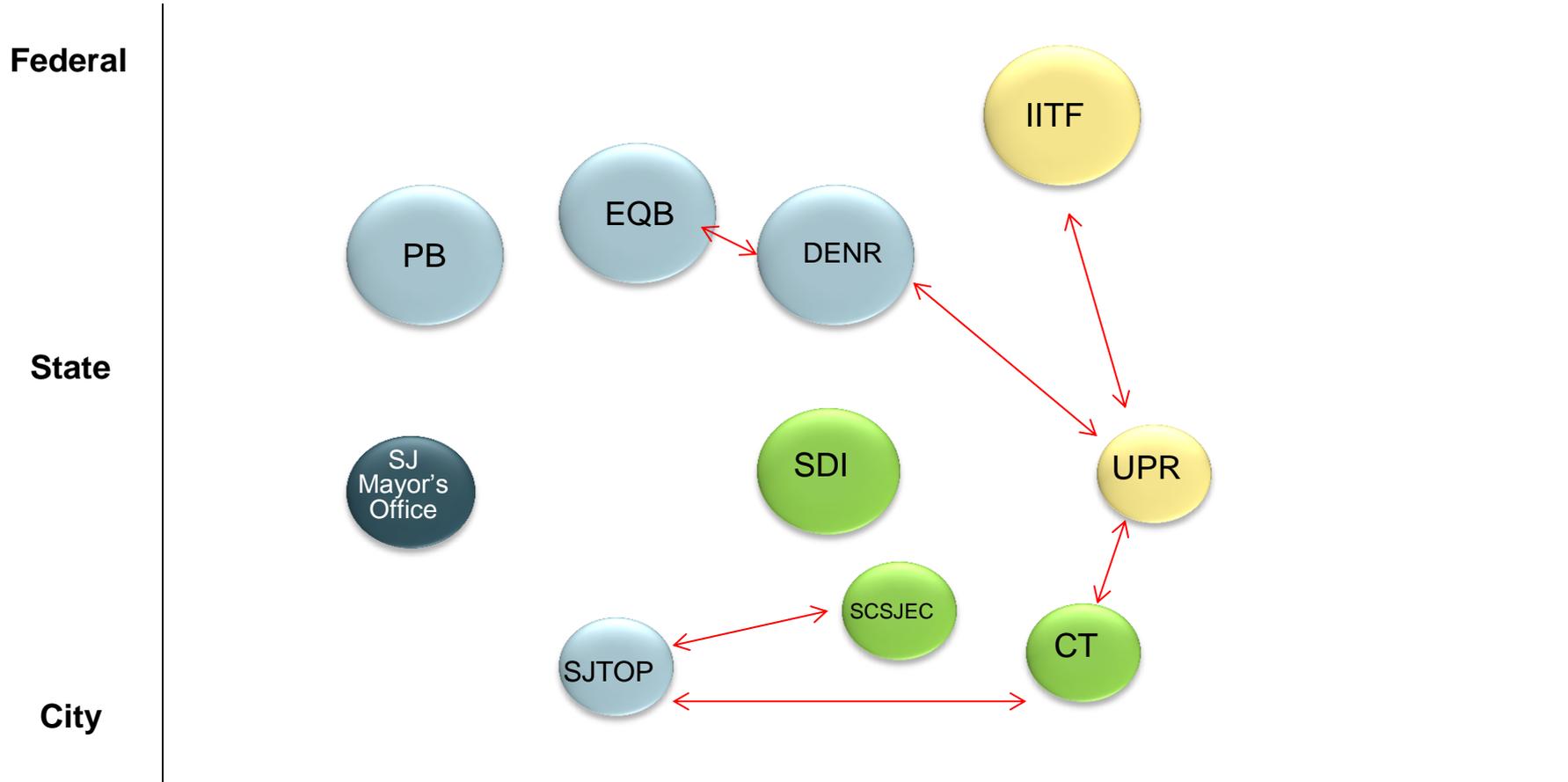


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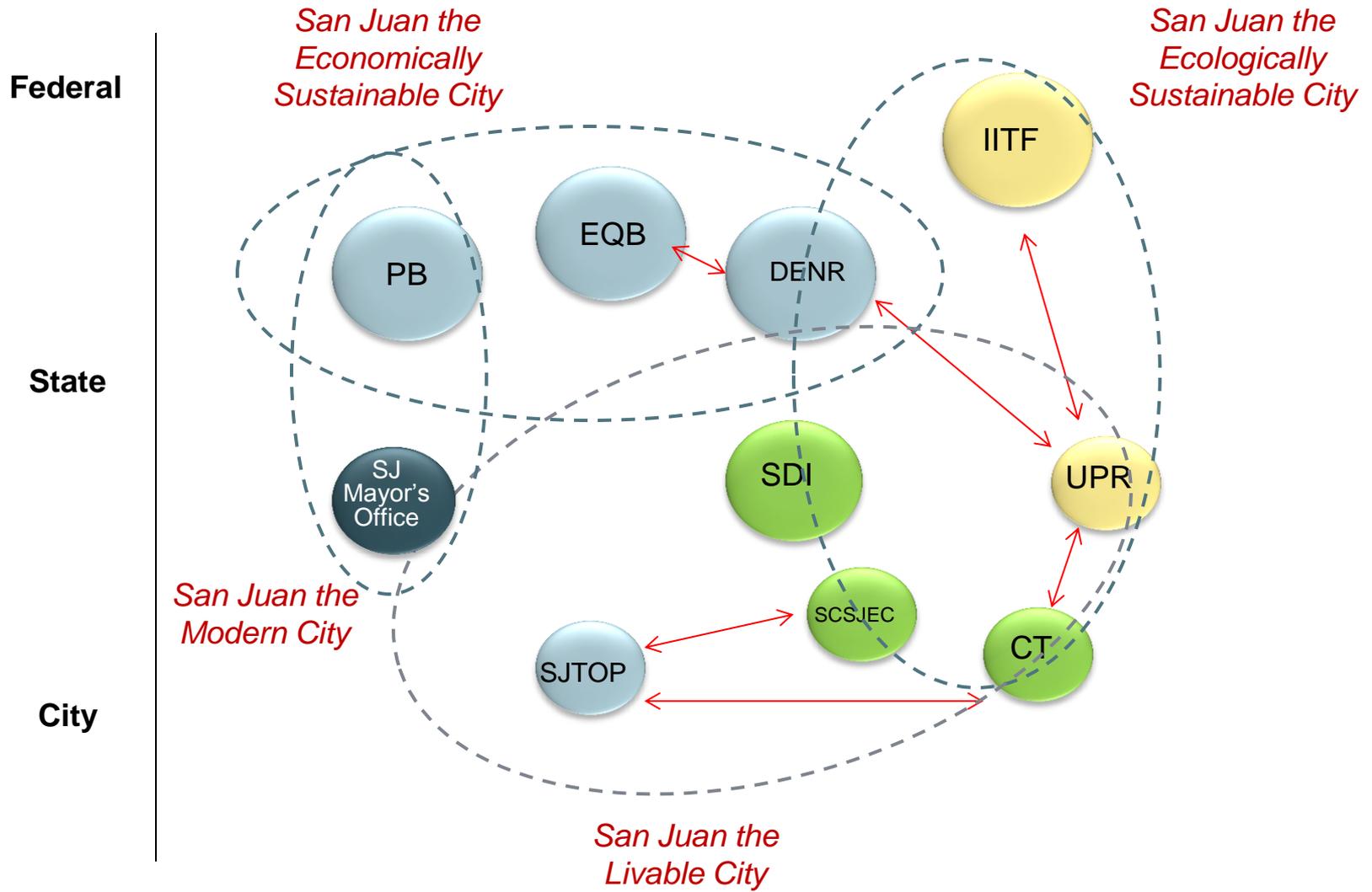
# Key players in the knowledge network and their level of influence (power) and breakdowns in information flow.



● **PB:** Planning Board; **EQ:** Environmental Quality Board; **DENR:** Dept. of Env and Nat Resources; **SJTOP:** San Juan Territorial Ordinance Planning Office

● **SDI:** Sustainable Development Initiative; **SCSCJEC:** San Juan Special Commission for the Ecological Corridor; **CT:** Conservation Trust

● **UPR:** University of Puerto Rico; **IITF:** International Institute of Tropical Forestry



# Summary: Future Urban Visions for San Juan

	<b>Economically Sustainable City</b>	<b>Livable City</b>	<b>Modern City</b>	<b>Ecologically Sustainable City</b>
<b>Values and Strategies</b>	Regional economic growth	Quality of life; vital and safe: sustainable development	Efficient and aesthetically pleasing development	Ecological health; ecological footprint
<b>Scales</b>	20 years Metropolitan	Not specified Municipal	~20 years Urban cores	Not articulated Watershed
<b>Procedure</b>	Expert consultation	Consultative participation	Expert consultation	Scientific research
<b>Knowledge Systems</b>	Bureaucratic-planning	Civic-stewardship	Bureaucratic-aesthetic	Scientific-managerial

# Concluding Thoughts...

- Need to move beyond linear models towards networks of knowledge.
- KASA is a tool to examine existing knowledge networks, how they are (or are not) shaping decision-making and action.
- Aid stakeholders in understanding the ‘landscape’ of knowledge – what is known, who has relevant knowledge, how does knowledge/information flow through networks, what are opportunities and constraints, what new linkages and capacities are necessary.
- KASA helps improve designs and processes (e.g., science delivery strategies) for knowledge co-production



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