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

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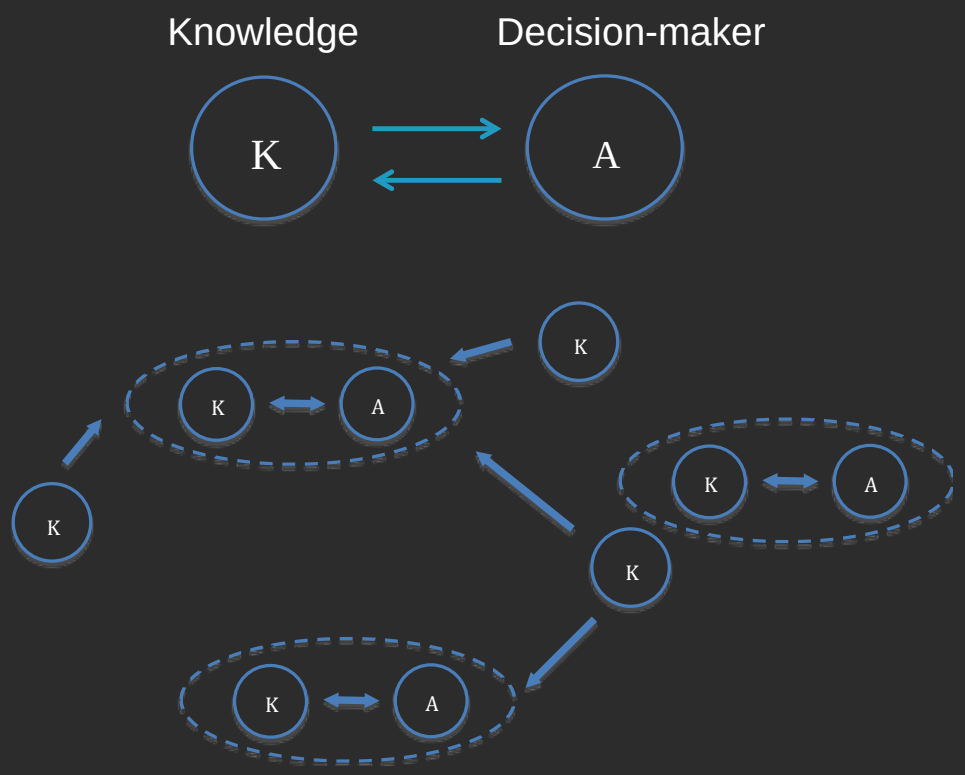
Progress in Linking Science and Practice

- From linear model to networked (web-like) social interactions

- Examples of institutional arrangements: agricultural extensions, boundary or bridging organizations



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Barriers to Linking Knowledge and Practice

- Knowledge viewed as a neutral resource that can be transferred.
- More attention to scientific and technical knowledge – need to integrate other knowledge systems.
- Lack of attention to the social practices that underlie production of knowledge – *how* we produce knowledge
- Context of Ecosystem Services decision-making – networked and contested - multiple players, values, and knowledge shape articulation of ecosystem services and evaluation of trade-offs.

How do we design knowledge-action systems for the dynamic and contested context of sustainability?

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

Knowledge-action systems analysis (KASA)

KASA

knowledge networks

epistemic cultures

framing and visioning

boundary practices

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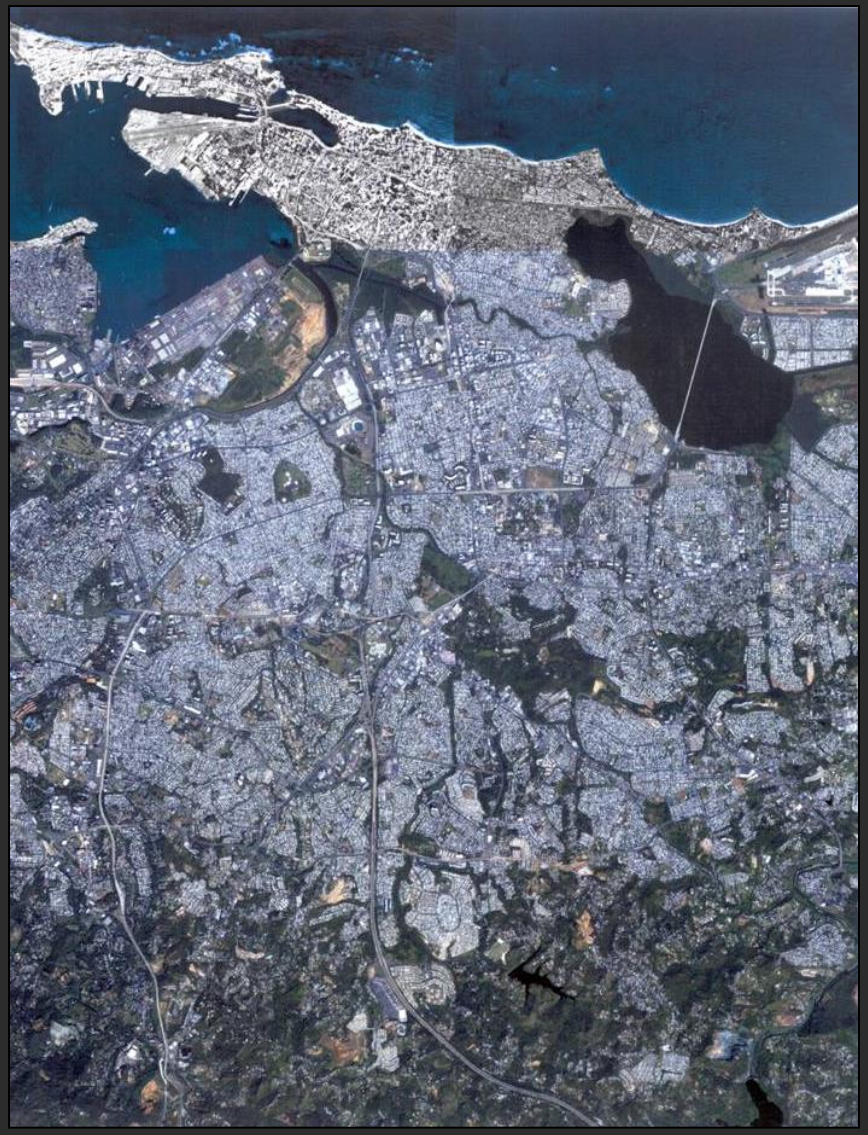
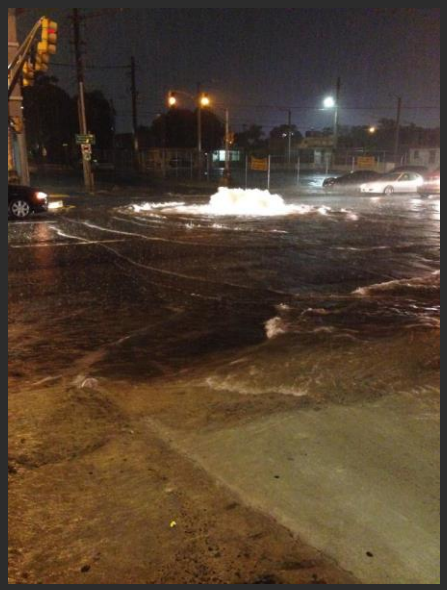
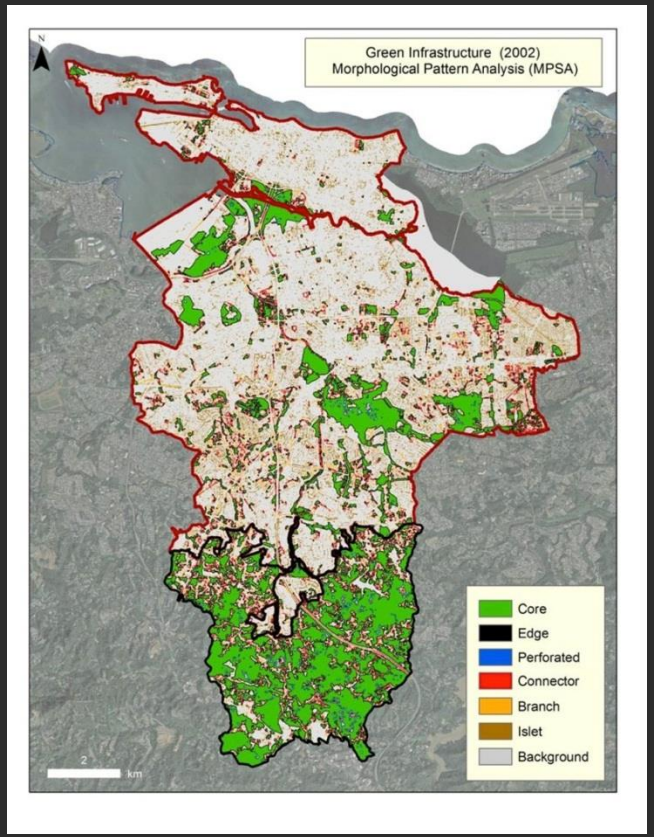
Municipality of San Juan, Puerto Rico



Urban Development, Flood Risk, and Green Infrastructure



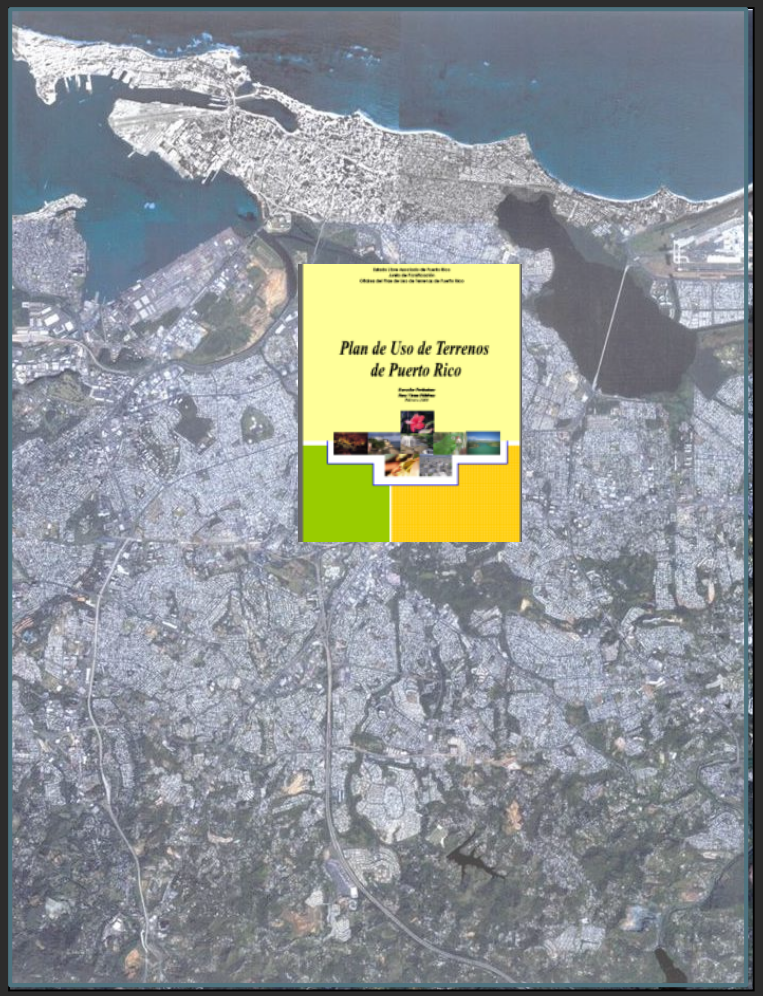


Ecosystem-based Adaptation Strategies

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

Federal agencies



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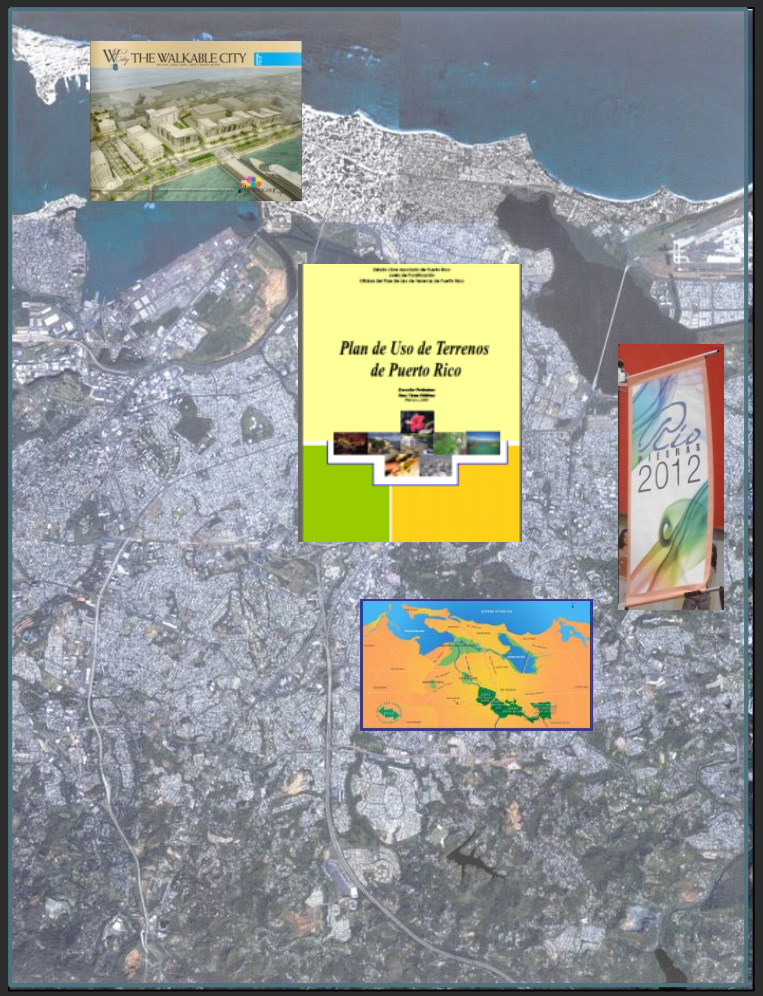
Decentralization – Municipal Authority:
San Juan Territorial Ordinance Plan in 2003
Municipality gains Autonomy in 2009



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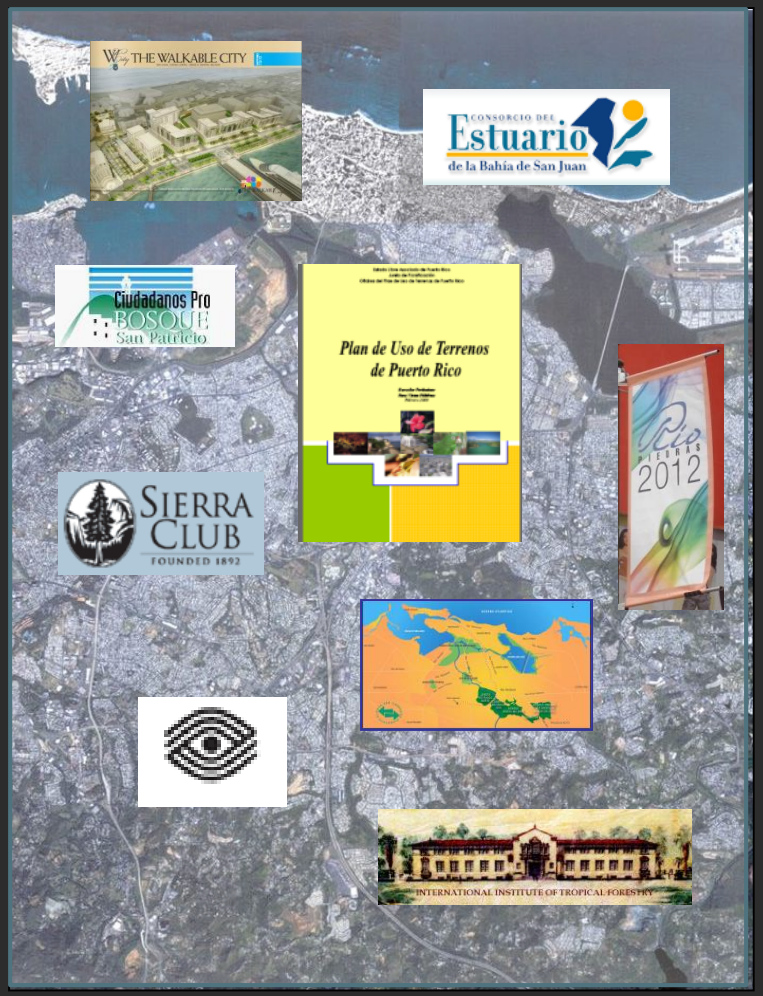
Emerging stewardship: Civic groups (NGO's, community-based, neighborhood associations) and private initiatives taking a role in managing green areas



Methodological Steps for Implementing KASA

Step 1: Knowledge mapping – *social network analysis*

Step 2: Identify central actors and examine knowledge-power relations in the network – *social network analysis*

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

Step 4: Explore influences of epistemic cultures on vision divergence – *interviews and document analysis*

Step 5: Boundary assessment: dynamics in the knowledge-action system – *interviews and participant observations*

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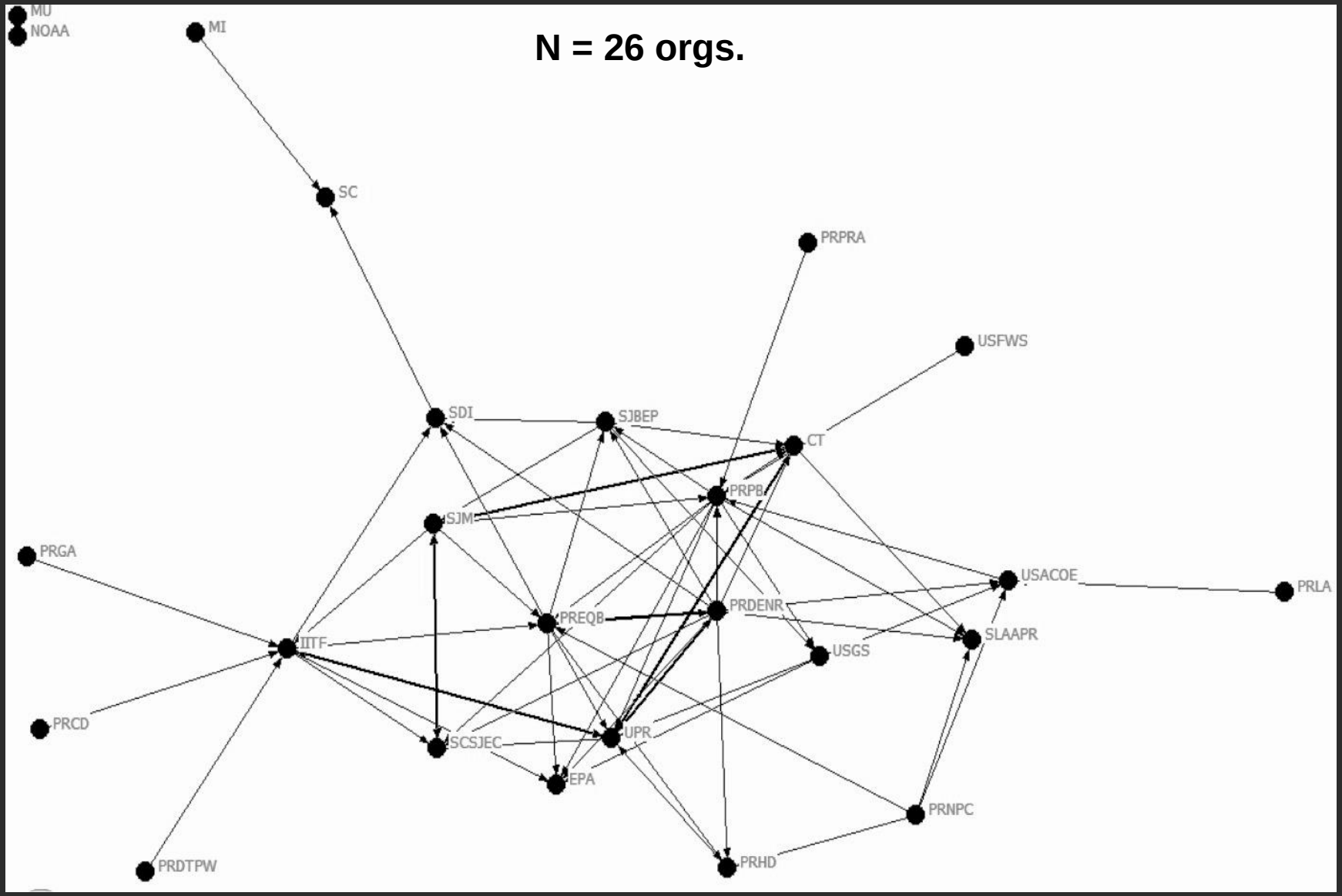
Knowledge network map of organizations involved in land use governance in San Juan



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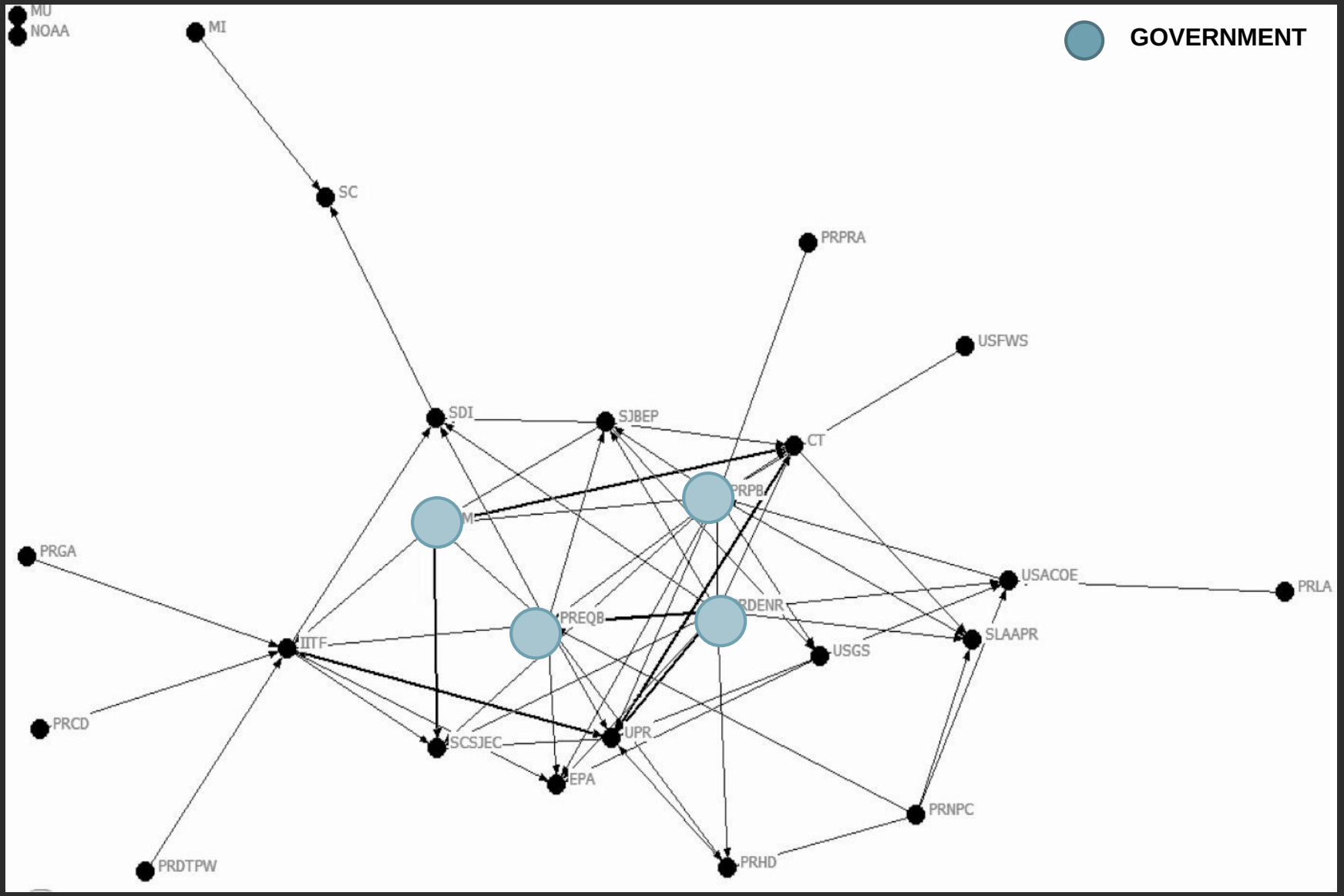

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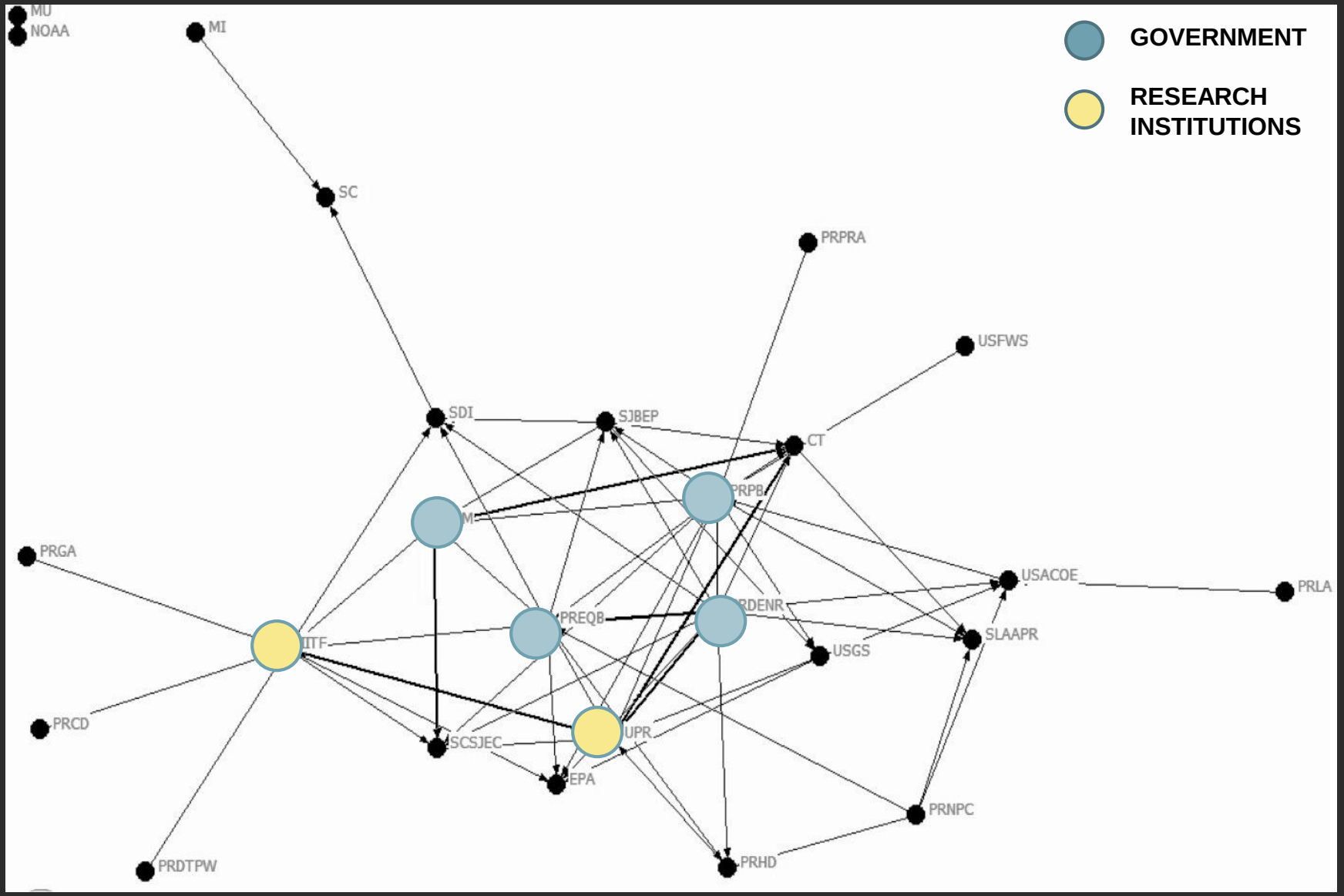

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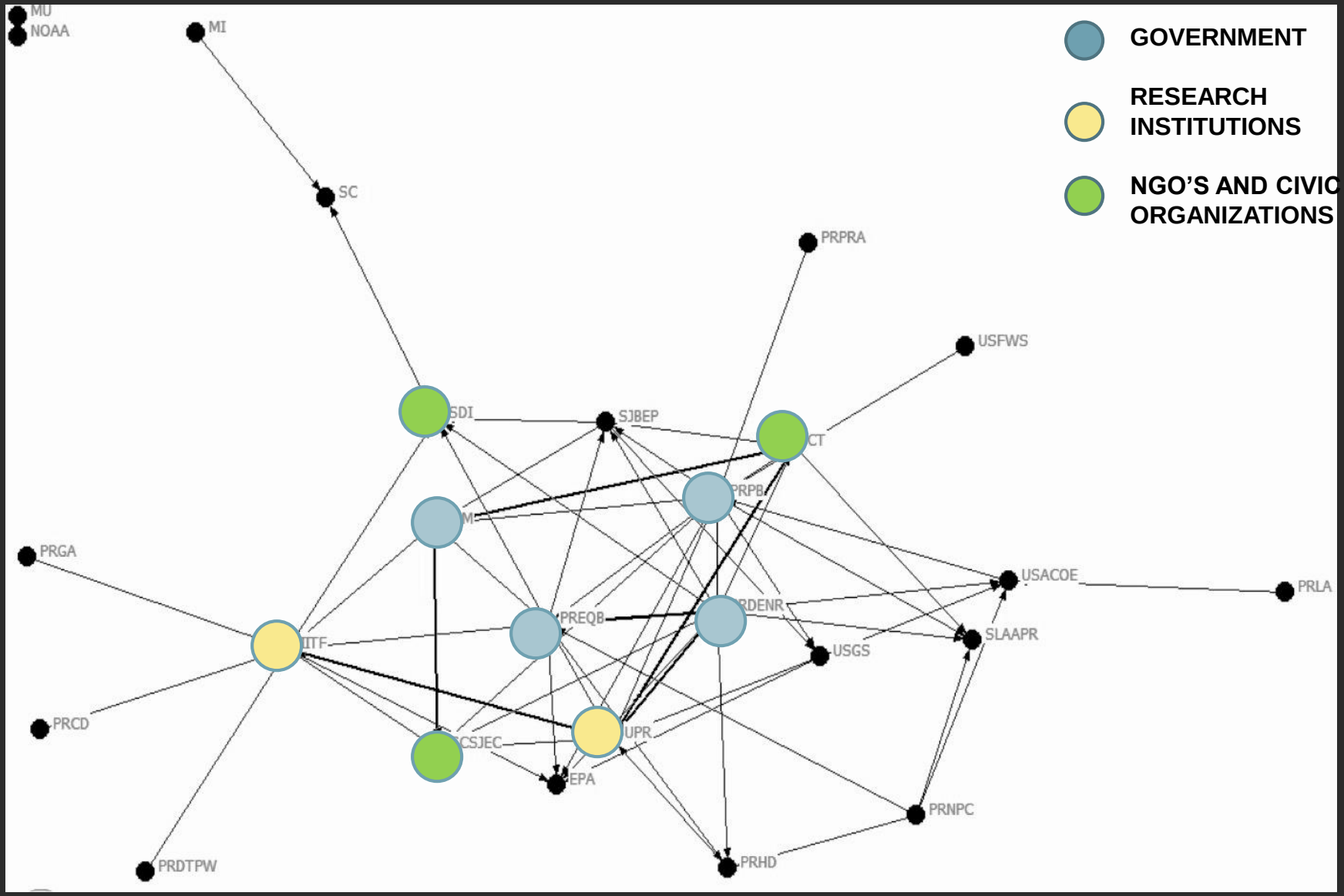
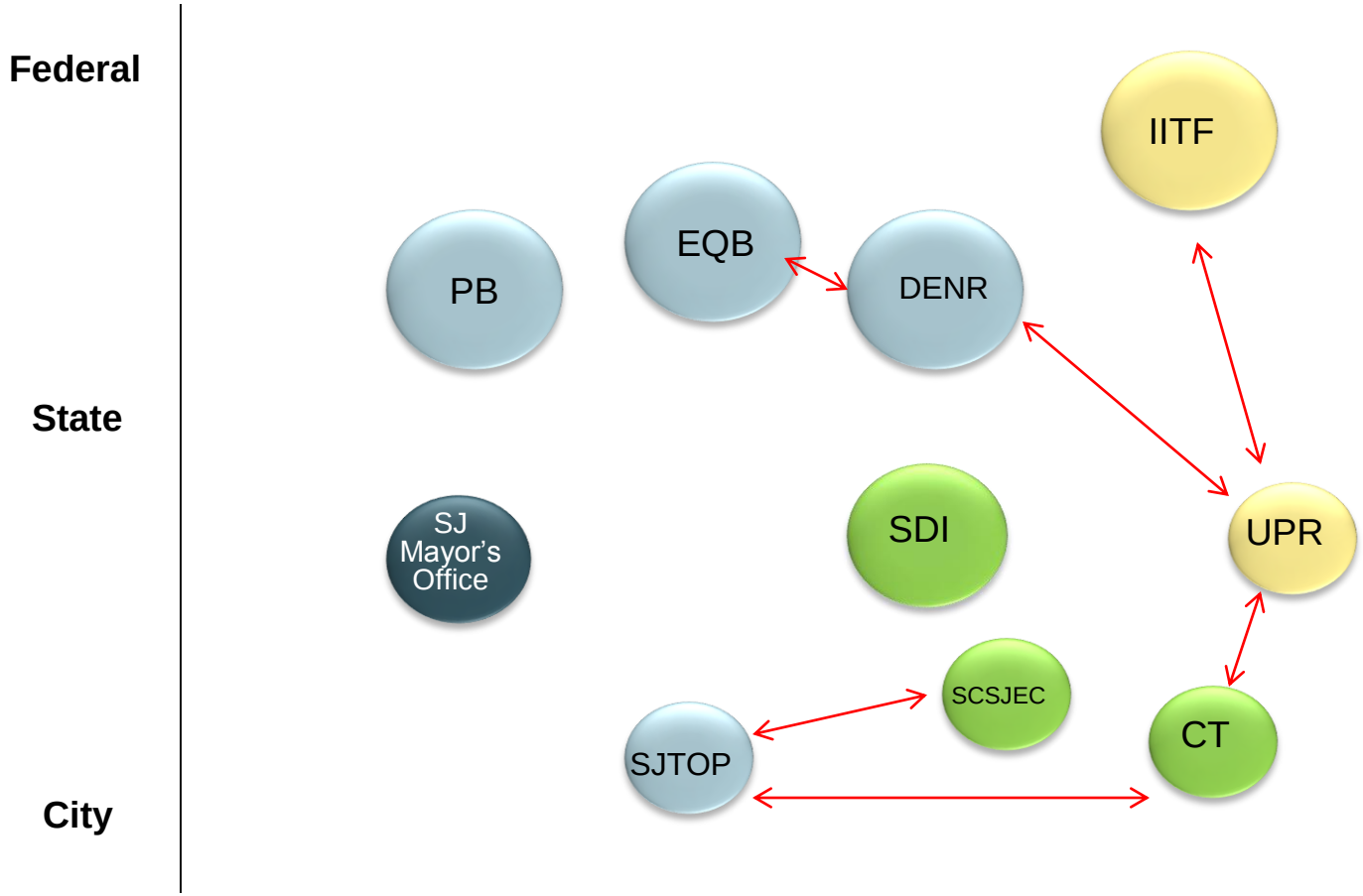


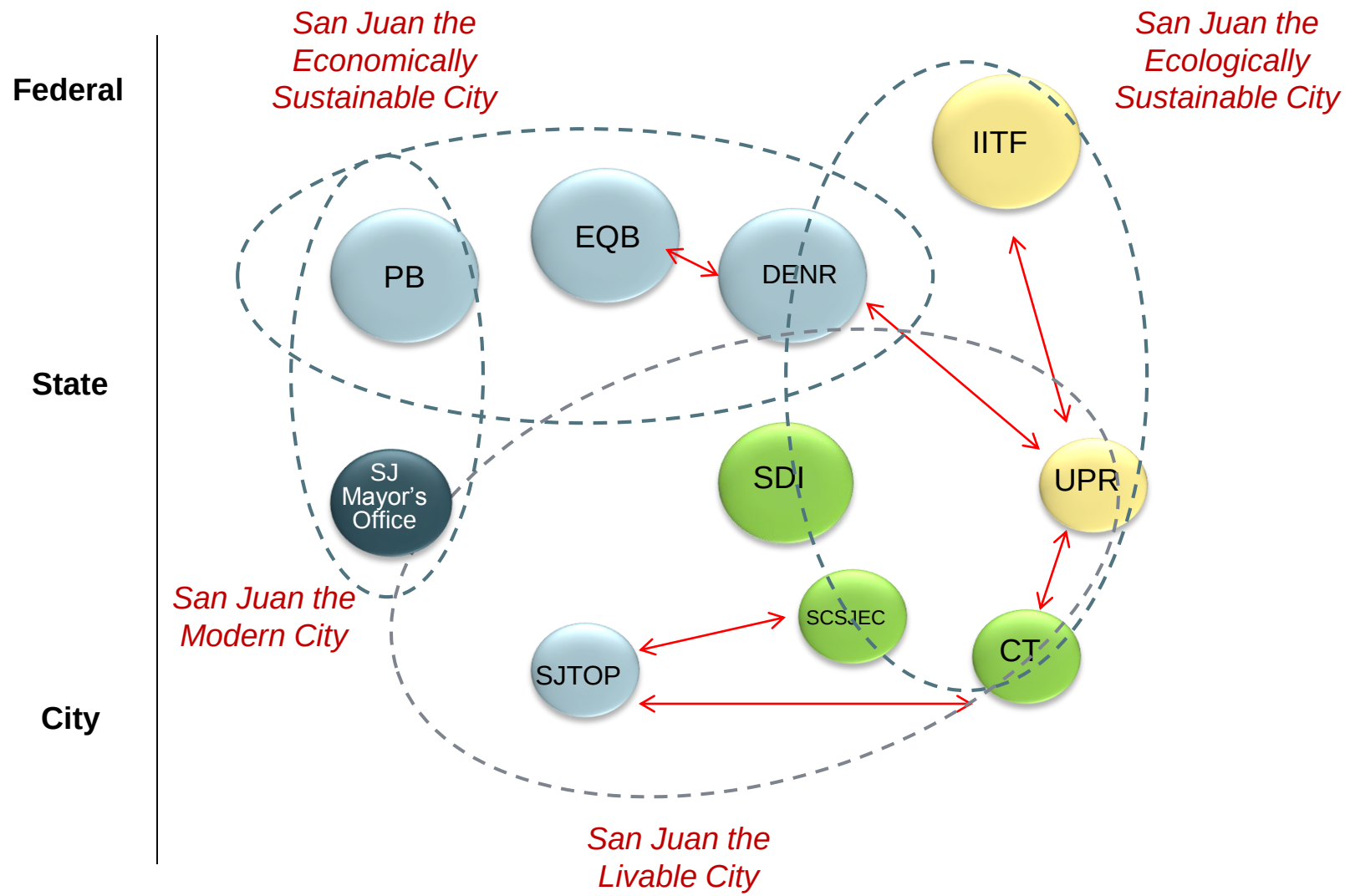
Key players in the knowledge network and their level of influence (power) and breakdowns in information flow.



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


Federal
State
City
San Juan the Economically Sustainable City
San Juan the Ecologically Sustainable City
San Juan the Modern City
San Juan the Livable City
PB
EQB
DENR
IITF
SJ Mayor's Office
SDI
UPR
SCSJEC
CT
SJTOP

Summary: Future Urban Visions for San Juan

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

Concluding Thoughts…

- Need to make more progress in understanding the interplay – and politics – of multiple knowledge systems
- KASA is a tool to examine existing configurations of knowledge networks, how they are (or are not) shaping decision-making and innovation.
- 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.
- Ultimately, how we might improve the process to put knowledge into action.

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QUESTIONS?