Emergence and Persistence of a Watershed Governance Network

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Emergence and Persistence of a Watershed Governance Network

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Research Questions

• What are the unique qualities of the Social-Ecological System of the Chagrin River valley and watershed?

• How did governance of the Chagrin River watershed emerge from this SES?

• How is this governance structured and how does it function?

• What are the qualities of governance in the Chagrin River watershed that has allowed this configuration to persist over time?
Framework

Policies and Outcomes: Ecological Resilience

Emergence of Governance

Network Structure and Function

Persistence and Adaptive Capacity

Watershed Social-Ecological System (SES)

Org. Roles

Legal/Institutional Norms

Knowledge/Social Learning

Ecological, Economic and Social Disruptions and Opportunities

Policies and Outcomes: Ecological Resilience Ecosystem

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Social-Ecological System

• Multi-scale pattern of resource use around which humans have organized themselves (Resilience Alliance 2007)

• Humans and nature co-dependent and *co-evolving* (Ostrom 1990; du Plessis, 2008; Folke 2006)

• Sustainability: maintaining system resilience
  — (Berkes, Colding and Folke 2000)
Governance Networks

• Governance structure and function:
  – Formal and informal rules and norms (Hufty 2011; Pahl-Wost et al 2007)
  – Stakeholders set norms of interaction and motives (Cooper and Kathi 2005; Ozawa 1991; Wondolleck and Yaffee 2000; Thompson and Perry 2006; Innes and Booher 2010)
  – Shared meanings and knowledge as basis for joint action (Wenger 1998)
  – Networks of inter-personal and inter-organizational relationships that channel resource flows
Emergence of Governance

• Self organizing
  – SES is a complex system
  – Things get organized in response to SES

• Complex patterns from simple rules
  – Micro-level interactions among people and organizations create structure (institutions, norms of behavior)
  – This structure creates constraints/opportunities for individual/organizational interaction
  – People change the structure over time
Persistence defined

- Emergent macro patterns persist *despite continual turnover in their constituents*

- Drivers?
  - Legal framework/mandates
  - Organizational positioning/influence
    - Success in mobilizing resources
  - Adaptive capacity of network
    - Leadership
    - Learning capacity of network
Data Collection

• Review Historical documents
• 20 stakeholder interviews to date across type of organization, geographic range
  – Semi-structured, recorded, transcribed
  – Reviewed by three researchers for themes and data
• Web pages, linked in, interviews to map network relationships
  – Analyze with UCINET software
Chagrin River Watershed

Lake Erie

Chagrin River

Geauga

Cuyahoga

Summit

Portage

Source: USGS NHD, US Census Bureau
Results: SES

• SES: AT THE EDGE!
  – local urbanization and farming landscapes
  – impervious cover threshold
  – still something worth preserving

• Fragmented geography & fragmented cultures tied to landscape and history

• Fragmented government authority

• Strong agreement among stakeholders on conditions and trends
Results: Emergence of Current Governance

• NETWORK FACTORS: convergence of stakeholder interests, trends and disruptions
  • Large land holders
  • Headwater land trusts
  • Downstream flooding communities
• UNIQUE to SES: Chagrin River Watershed Partners
• EXTERNAL FACTORS
  – Phase II regulations and funding opportunities
Chagrin River Watershed Partners

- Member organization of municipalities and townships in watershed; local government dues
- Formed in 1996; all but two local govt. are members
- Sponsoring members: private and nonprofit organizations (engineer, planning, ecological services)
- Membership dues hire small staff to assist local governments in storm water management efforts
  - Project management, grant writing, model regulations, technical assistance, networking, facilitation of processes, land owner outreach, research on stormwater and stream restoration
- [http://www.crwp.org](http://www.crwp.org)
Governance Structure

• What did our interviews tell us?
  – Strong role of CRWP STAFF in leading activities, bridging function, mobilizing resources (money and expertise); watershed perspective
  – Not one watershed network
    • Rather differentiated by geography (e.g., upstream/downstream), by county boundary (county, Metroparks & SWCD)
    • Differentiated by communities of practice
      – Except when these come together for specific projects
Governance Function

• Little mention of federal and state agencies for bridging function, but serve as source of scientific information and $, and therefore have influence

• Network operates informally, through personal connections, with limited formal opportunities for knowledge exchange or sharing

• Various types and levels of interaction: cooperation, coordination and collaboration (how does this shape structure?)
Network Analysis of Five Projects

- Aurora Branch Restoration
- Great Lakes Mall
- Kenston Lake
- Save Sunny Lake
- IVEX Dam Removal

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Persistence

• Legal mandates
  – Continuing influence of CWA Phase II

• Mobilizing resources
  – $20M over 15 years into CRV
    • CRWP responsible for most of this
  – Highly-connected network of scientific and technical expertise
Persistence: Adaptive Capacity

• Adaptive Capacity
  • of *people* and *institutions* to manage human actions so to enhance ecological system sustainability and resilience
  • *Network of organizations* capable of accumulating the experiences and collective memory needed to cope with surprise and turbulence (Pahl-Wostl et al 2007) through *distributed cognition* (Agyris and Schon 1996)
Adaptive Capacity: Leadership

• CRWP: four executive directors over 15 years
  – New director hired this summer; first one who wasn’t involved at the beginning or didn’t serve as a staff or assistant director at CRWP
  – In each case prior, the leader was just what they organization needed to adapt to trends

• How? Strong and continued presence of board members who began the organization has provided continuity, avoided mission drift
Adaptive Capacity: Diversity

- *Engagement* of a diversity of stakeholders, geographies, interests (*significant evidence*)
- Diversity of expertise of staff at CRWP and in network
  - Multiple communities of practice
Adaptive Capacity: Norms and Rules

• Norms of behavior
  – *Shared* rules and norms for interaction among diverse organizations that *flex to address changing conditions and opportunities* *(significant evidence)*

• Local government relationships changed through creation of CRWP
  • Beginning to see interaction among local governments on other types of shared projects, based on interaction on storm water management projects
  • All local government members adopted riparian setback ordinances to protect Chagrin from land development negatives

• Trust *(interpersonal)* for instrumental knowledge and shared interests is very high
AdapIve Capacity: Networked Learning

• Based on social learning
  – Building and sharing instrumental (scientific and technical) and relational (management and personal interactions) (Pahl-Wostl et al 2007)

• Key knowledge (as perceived by participants)
  – *Scientific and technical information* from park districts, state agencies and county engineers
  – *Social learning*: shared knowledge base, joint generation of new knowledge, innovation, cross-disciplinary (some evidence in projects)
  – Appreciation of *local culture* when working in different parts of the watershed (key)
  – Tacit, experiential knowledge to organize and fund large restoration/stormwater projects (CRWP)
Challenges to Adaptive Capacity

• No clear vision of how to incorporate uncertainty into shared planning and decision making
  – But all respondents expected they could adapt to changing conditions based on their trust of expertise and good working relationships

• Still no overall shared understanding of ecological risks or watershed-level perspective among local governments or citizens according to respondents
Challenges to Adaptive Capacity

• Knowledge “situated” geographically and in sub-networks
  – New knowledge gains not broadly shared across the entire watershed
  – Formal knowledge-sharing uncommon
  – Retirement of agency professionals

• Over-reliance on a few key organizations or key people can reduce flexibility of governance structure and function
  – Network position of CRWP and flexibility?
Three Types of Networks and Resilience?
Conclusions: Enhanced Governance

• Unique role of CWRP as membership organization of local governments places land use authority at core of collaboration and coordination in watershed; this is GOOD!

• Strengthen sharing of instrumental and tacit relational knowledge over a wider geography and into organizations
  – Continue to foster watershed perspective among local governments and other stakeholders; Chagrin Summit?
  – Debrief project successes and failures to professionals and local decision makers (CRWP): what can be learned?
  – State agencies: work with CRWP to ensure transfer of social knowledge about working in the Chagrin River to new state agency personnel; locally-generated projects are key to success
Publications/Future Research

• Publications:
  – Book chapter
  – Journal article: Emergence and Persistence
  – Journal article: Structure theory (bridge literatures)
  – Journal article: Structure application
  – Journal article: Social learning through projects

• Continued Research
  – Environmental history of the Chagrin River
  – Compare governance in Chagrin with other watersheds in Ohio
Thank You!

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