BASC PROJECT EMERGENCE - PHASE 2

SOCIO-ECOLOGICAL NETWORK ADAPTATIONS IN A CHANGING WORLD (SENAC)

WP1 - Network and Knowledge Governance

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GENERAL AND SCIENTIFIC CONTEXT

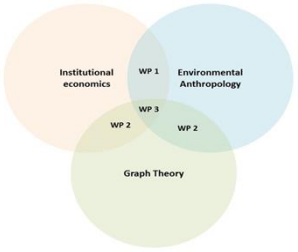
The adaptive Governance of Socio-Ecological Systems (SES) ï Ostrom (2005, 2009)

- Ecological processes are influenced by the institutional rules, mental models, norms and values advocated by the network actors
- The diversity, redundancy, network connectivity and governance affect the resilience of SES

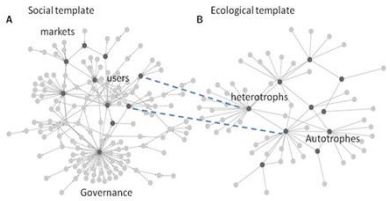
Key Governance issues:

- What is the influence of institutional rules, path dependencies and possible lock-ins in resource use?
- How do individuals and collective organizations deal with knowledge gaps and mutual learning processes towards a sustainable management of biological resources?

A Transdisciplinary project



The nature and diversity of Socio-Ecological Networks



➔ how networks of social agents interact with ecological networks within ecosystems, and how these social agents use knowledge to improve the resilience of the system after specific perturbations

RESEARCH PROJECT

Long term research question : how feedbacks between networks (socio-economic and ecological) shapes SES dynamics?

3 Related questions:

1. **Network Governance** : What are the institutional environments, structures, scales and relevant processes of network governance in each of the three study systems?
2. **Network Formalization** : How do we assign simultaneously social and ecological components in complex networks for formal analyses?
3. **Knowledge in Network Adaptation** : How is knowledge used and acquired by the networks of actors to respond to perturbations and enhance the resilience of each of the social-ecological systems studied?

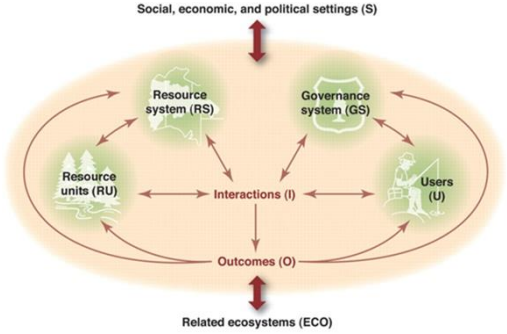


Figure: The IAD Framework (Ostrom, 2005, 2009)

- **Three field studies with different institutional environment:** Indigenous Cacao (Equator), Peasant wheat seeds (France), and Reindeer husbandry by indigenous Sami people (Sweden)
- A comparative IAD approach to be adapted using the same analytical framework (Ostrom, 2005, 2009)

Table 1. List of study sites with some perturbation characteristics for each system.

Network system	Zone	Perturbation	Effects	Frequency
Non-commercial wheat	Temperate	Seed regulations	Lack of options in seed supply; crop diversity reduction; social movement to face such constraints	Permanent
Cacao agrosystems (Equatorial America)	Tropical	El Niño/La Niña; market pressures on price and on certification of traditional varieties as genetic resources	Abrupt changes from drought to excess of precipitation impacting yields; biodiversity ownership conflicts	5-7 years, current strong El Niño event; permanent pressure from markets
Reindeer husbandry	Boreal	Uncertainty of availability of lichen resources because of increased warmer winters	Reduced grazing area and cumulative effects due to other land uses (forestry, mining, tourism…)	Annual

METHODOLOGY and EXPECTED OUTCOMES

An interdisciplinary approach for the analysis of Socio-Ecological Networks and their Governance (Ostrom, 2009; Bohan et al. 2015)

- A compative study in network governance and resilience responses to specific perturbations
- A seminar on the Network Governance of SES

Litterature cited

1. OSTROM, E. (2005) Understanding Institutional Diversity. Princeton University Press, Princeton, USA.
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3. PAHL-WOSTL , C. (2009) A conceptual framework for analyzing adaptive capacity and multi-level learning processes in resource governance regimes. Global Environmental Change 19: 354-365.
4. BOHAN et al. 2015. Networking Our Way to Better Ecosystem Service Provision. Trends in Ecology and Evolution Volume 31, Issue 2, p105–115, February 2016