

Institutional and policy challenges: how to become systemic around the water-energy-food nexus?

International Conference – *Sustainability in the Water-Energy-Food Nexus*

Parallel session: “The need for horizontal and vertical coordination in governing the WFF Nexus”



International Conference
Sustainability in the Water-Energy-Food Nexus
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SARAS²
South American Institute for
Resilience and Sustainability Studies

Uruguay: some general characteristics



Some features:

- 3.3 million population (estimated 2013)
- 176.215 km²
- # 51 Human Development Index (high HD, 2012)
- 45.3 Gini coefficient (2000-2010)
- Mid-1990 to 2007: increasing household income inequality. Recently reversing trend (?)
- GDP annual growth rate (4.4%, 2013)
- Growing relevance of natural resource intensive sectors in exports (77.1%, 2010)
- Institutional innovations: universal cattle traceability system (11 million cattle heads), national livestock information system

Recent evolution of the water's institutional setting



Source: Beder, Bianchi, Cedres, Fuentes, Pittaluga, Taveira 2013

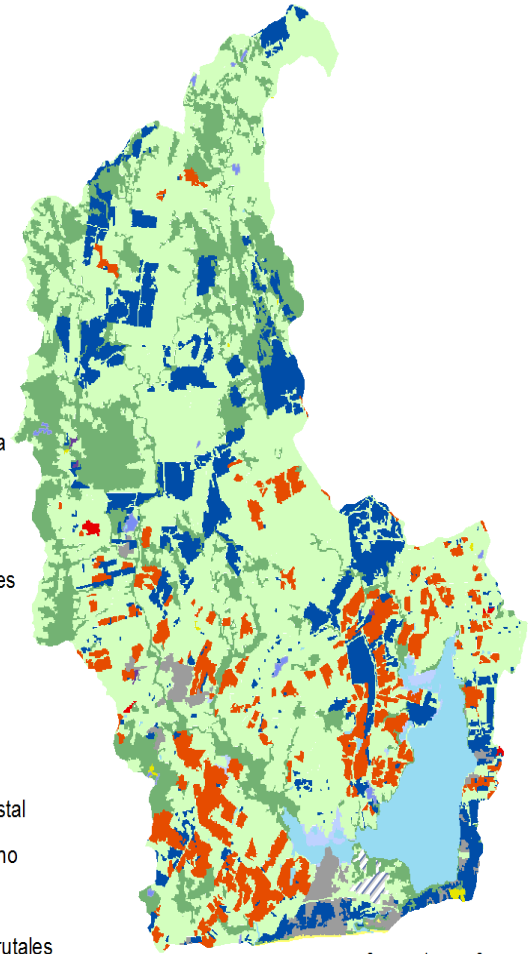
Institutional innovation: the building of a coordinated water governing body

The Laguna del Sauce



Leyenda

- Espejos de Agua
- Humedal
- Area Urbana
- Areas Industriales
- Aeropuertos
- Arena de Playa
- Suelo Desnudo
- Campo Natural
- Plantación Forestal
- Cultivo de Secano
- Monte Nativo
- Plantacion de Frutales
- Canteras, Areneras, Minas a Cielo Abierto



Institutional innovation (2)

The Laguna del Sauce

- Located in Maldonado department, basin of approx. 722 km²
- 3 connected lagoons (del Sauce, 4054 has; De los Cisnes, 205 has; Del Potrero, 411 has)
- Two main inflow streams: Arroyo Pan de Azucar y Arroyo del Sauce,
- Arroyo del Potrero outflows it to the Rio de la Plata

Institutional innovation (3)

The Laguna del Sauce

- Cattle production, main activity
 - small farmers
 - breeders
 - low reproduction rate
 - grasslands, decreased by 5622 has between 2009 and 2011
- Forestry
 - mainly Eucalyptus → for pulp and paper, and energy
 - 12% of the basin area, 2011
- Agriculture
 - Cereals: soy, wheat
 - Increase of soy production in the basin area: from 1745 to 6744 has, between 2009 and 2011
 - Recent growth at the basin's south area: high degradation risk, on the coast of the Laguna
 - Fruit: grape, olives, blueberry

Institutional innovation (4)

The Laguna del Sauce

- Urban area => 3090 has
 - 10 towns, 11,495 population, mainly located in the South
 - 29.5% of population growth between 2004 and 2011

SES Laguna del Sauce – focus on drinkable water

- It constitutes the main drinkable water reservoir in the Maldonado department, and the only one explicitly oriented to the population supply of drinkable water
- It is the only source of supply for the drinkable treatment plant, Usina Laguna del Sauce that reaches a population of 140,000 inhabitants (due to tourism, in Summer become around 300,000)

Institutional innovation (5)

The Laguna del Sauce basin commission

- Inter-institutional arrangement
 - Private-public arrangement
 - Users, suppliers, political bodies, regulatory agencies, academia, local and national government
 - Conceived as a policy tool
 - Deliberative and decision-making instances
- Created in 2010, first presidential decree
 - to guarantee drinkable water quantity and quality to the population
 - since 2000 environmental impoverishment of the basin, increased eutrophication
- Too early to assess, monitoring and evaluation is required

The environmental institutional setting: layers and sectoral structures and dynamics

Multiple actors and layers/modes of functioning: how to transit from discreteness to intertwinement?

Structural heterogeneity

Scope

Function

Politics, power relationships, interests and values

Scale

Cognitive (sectoral) approaches and referents, rationales

Practices, rules and norms

Policy domains, stakeholders, decision-making processes, embeddedness

Ministries (Environment, Agriculture, Industry, Transportation, Defense) –
National Directorates

Municipal governments

Regulatory Agencies

Non-government public agencies

Entities and decentralized organizations

Users

Academic community

The environmental institutional setting: layers and sectoral structures and dynamics (2)

- Scale mismatch between the management arena and the natural system dynamics (space, time, function, rationale-guiding principles)
- Unfit of the prevalent management paradigm: control command
 - Divorce between social and natural systems (seen as independent)
 - Institutional approach based on regulations and contracts, rigid and hierarchical arrangements
 - based on defined goals and objectives, with a projected ideal trajectory, and the expectation of setting management actions based on predefinitions and homogeneity
 - Academia conceived as a supplier: data and technical expertise offered to reach the predefined goals
 - A rigid and mechanical conception of the system, in which nature and social and human needs are divorced

Need to nurture the co-evolution of institutions and paradigms towards systemicness

- Democratic and participatory approach - civil society will participate in each and every instance of planning, management and control of resources
- Water as a fundamental human right
- Intergeneration commitment
 - Future generations should rely on the same or superior quantity and quality of the hydric resources
- Publicness of water-energy-food
 - Systemic nature
 - Public values as the foundation of a society's social contract, a set of natural rights (Bozeman 2002)

Need to nurture the co-evolution of institutions and paradigms towards systemicness (2)

Knowledge and policy gaps

- analytical understanding, monitoring and evaluation frameworks
 - Systemic, social-environment, beyond the within and between
 - beyond sectors and layers (vertical and horizontal)
 - beyond political and policy domains and rationales
 - beyond stakeholders' perspectives and private interests
 - stands on novel cognitive maps, and frameworks
 - Incorporates change, and uncertainty
- Social and policy contract for science, technology, innovation and the environment
- Strong public values

Thank you.

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