Using functional linkages of hydrological ecosystem services to solve integration problems of Integrated Water Resources Management

Workshop D2: The Role of Ecosystem Services in Governing the Nexus

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Background

Integrated Water Resources Management (IWRM):
“a process which promotes the coordinated development and management of water, land and related resources, …

…in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.” (GWP definition)

- IWRM and Nexus approach emphasize integration across different sectors and scales to achieve sustainability goals.
- IWRM focuses on water as principle link to other sectors, the Nexus approach establishes additional links between the energy and food sectors.

(UN-Water, 2014)
IWRM and the Nexus approach

- What can be learned from IWRM implementation?

- How can integrated management truly be achieved? At which physical scale and political level?

IWRM implementation lessons

1. Improvements in water governance through effective institutions (formal and informal):
   - Institutions have to respond to specific contexts (natural and human system properties, especially their interactions)

2. Appropriate management instruments to operationalize:
   - Need to address institutional reform, incentives and behavioral change, sensitive to prevailing constraints.
   - Based on natural and human system’s contexts, considering people and ecosystems (participatory and ecosystem-based).
Problem analysis and methodology – Institutional Fit and Interplay (Young, 1999)

- **Fit** = **Matching** of institutions with ecosystem properties
- **Interplay** = **Coordination** of institutions of different sectors

IWRM implementation: Fit and Interplay are **solved in sequence**
→ regardless of context, overly complex
Hydrological Ecosystem Services – Fit and Interplay through functional linkages
Payments for Hydrological Ecosystem Services

- Focus on direct, **user-financed** regional payments.
- **Voluntary agreements** on specific land uses and compensations between suppliers and uses of ecosystem services

→ Typical implementation and functional role
2. Execution phase: Rule making, active policy design, organizational structures
Payments for Hydrological Ecosystem Services - Implementation

2. Execution phase: Rule making, active policy design, organizational structures

- Ecosystem function (upper catchment)
- Measures to improve ecosystem service supply (Supervision by technical committee)
- Payment fund (Management committee)
- Contractual agreement
- Supplier (Land user)
- Beneficiary (e.g. irrigation agriculture)

Payment / compensation
Contribution to IWRM implementation in Nicaragua – Fit and Interplay

Cross-sectoral Interplay

National Water Council

Interplay between policy levels

National Water Authority

River Basin Organizations
Contribution to IWRM implementation in Nicaragua – Fit and Interplay

- National Water Council
- National Water Authority
- River Basin Organizations
- Cross-sectoral Interplay
- Interplay between policy levels
- Payments for Hydrological Ecosystem Services
- Fit at the level of sub-catchments
- Identification of appropriate implementation scale

Cross-sectoral Interplay

Interplay between policy levels
Summary

- The concept of Hydrological Ecosystem Services is promising to effectively solve problems of Fit and Interplay
- Ecosystem Services are suitable to identify appropriate management scales through functional linkages across different resource sectors
- Payments for Hydrological Ecosystem Services are a suitable complementary instrument
  - Coordinative function and synergies with integrated management tasks
  - Reasonable complement to existing institutions and for building up specific organizational structures
Thank you for your attention!
Questions?