Approaching the water-food-energy-ecosystems nexus in the Niger Basin

2nd MEETING OF TASK FORCE ON WATER-FOOD- ENERGY-ECOSYSTEM NEXUS
IN TRANSBoundary BASINS UNDER WATER CONVENTION

Frank van Weert 8 September 2014
Approach - what

1. Identify the intersectoral linkages, impacts and trade-offs
2. Policy compatibility (cross-sectoral and cross-border)
3. Conceptual picture of dynamics
4. Limited quantification using indicators, mapping of hotspots
5. Develop/test scenarios of potential trade-offs as demands, management and biophysics change
6. Institutional mapping

- Expected change and the capacity to absorb and manage the change:
- Identify jointly with sectors and countries actions that could enhance synergy and build on existing structures and avoid unintended consequences
Approach - how

- Desk top study
- Survey to collect additional data and prepare experts
- Workshop
- Analysis of results and reporting
Approach - who

- NBA
- UNECE
- KTH and Wetlands International
- National sector experts
- Regional sector experts
- Others
Nexus dynamics
Utility and cost

food  water  energy  ecosystem
Nexus dynamics

Meet food demands with higher cost
Nexus dynamics
Meet food demands with higher cost

food  water  energy  ecosystem
Nexus dynamics

Meet food demands with higher efficiency

food  water  energy  ecosystem
Nexus dynamics

Meet food demands with higher efficiency
Nexus dynamics

Meet food demands with higher cost in all sectors
Nexus dynamics

Meet food demands with higher cost in all sectors
Nexus dynamics

Environmental degradation

- Water availability and timing -> salinisation and siltation
- Water quality aspects -> food chain
- Encroachment -> reducing natural habitats
- Blocking of migratory routes
- Deleting migration stepping stones
Nexus dynamics

Meet demands with environmental degradation
Nexus dynamics
Meet demands with environmental degradation

food  water  energy  ecosystem
Nexus dynamics

Costs of environmental degradation
Nexus dynamics

Costs of environmental degradation?

food  water  energy  ecosystem
Nexus dynamics
Utility from Ecosystems by the services they provide

- Provisional services
- Regulating services
- Cultural services
- Supporting services
Nexus dynamics
Efficient production by improved ecosystems
Nexus dynamics

Efficient production by improved ecosystems
Nexus dynamics
Transboundary externalities

upstream

downstream
Nexus dynamics

Transboundary externalities

upstream

food  water  energy  ecosystem

downstream

food  water  energy  ecosystem
Nexus dynamics

What is the optimal mix?

upstream

food  water  energy  ecosystem

downstream

food  water  energy  ecosystem
Nexus dynamics

What is the optimal mix?
Nexus dynamics

Extractive Industries?

upstream

food  water  energy  ecosystem

downstream

food  water  energy  ecosystem
Nexus dynamics

Extractive Industries?

upstream

downstream

food  water  energy  ecosystem  extractive

food  water  energy  ecosystem
Suggestions

- Include ecosystem services
- Focus on real issues like Fomi-dam
- Focus on Upper Niger / IND
- Make use of existing models and studies
Thank you for your attention

Questions?