



Boundaries in the Nexus

Finding Convergence Through Collaboration

UNECE Transboundary Adaptation Workshop □
Geneva, Switzerland

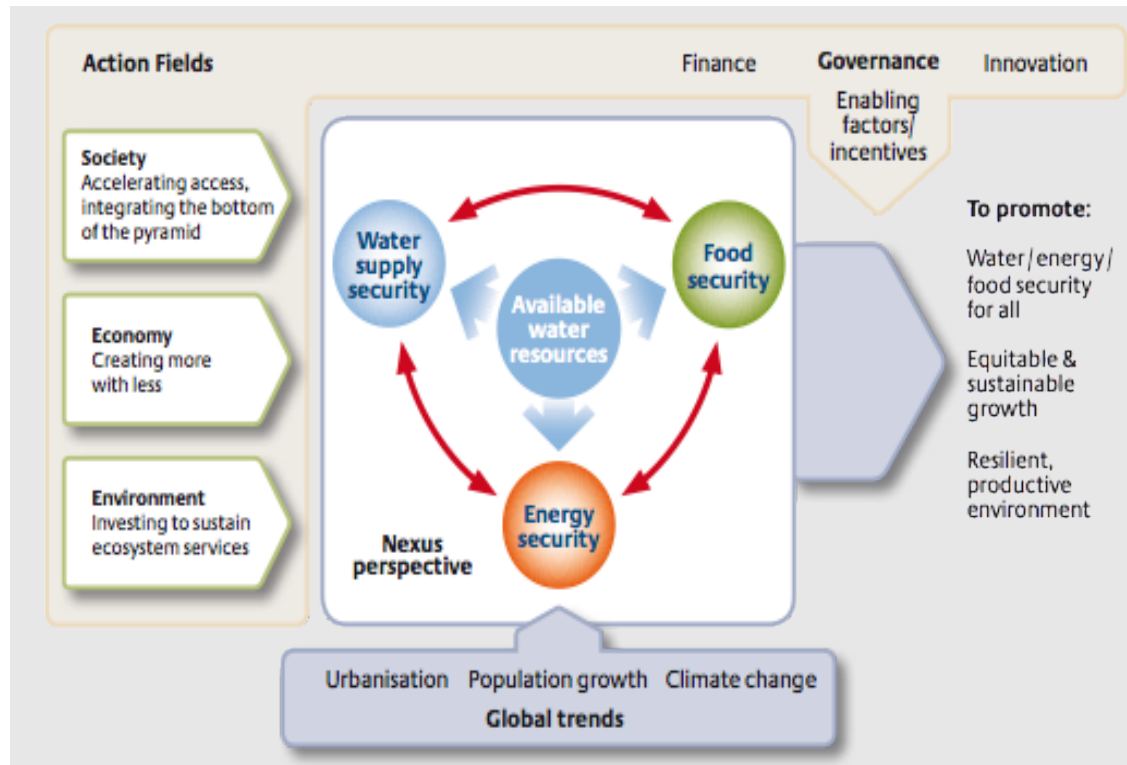
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The “water-food-energy” nexus



Hoff, 2011

- Mostly focused on high-level policy tradeoffs, particularly negotiating priorities among “virtual” water consumers
- Energy includes water-intensive thermal generation systems as well as hydro; agriculture includes forestry
- Limited discussion of ecosystems, environment, and climate adaptation
- Little explicit mention of transboundary issues

Are the nexus issues relevant to transboundary adaptation?

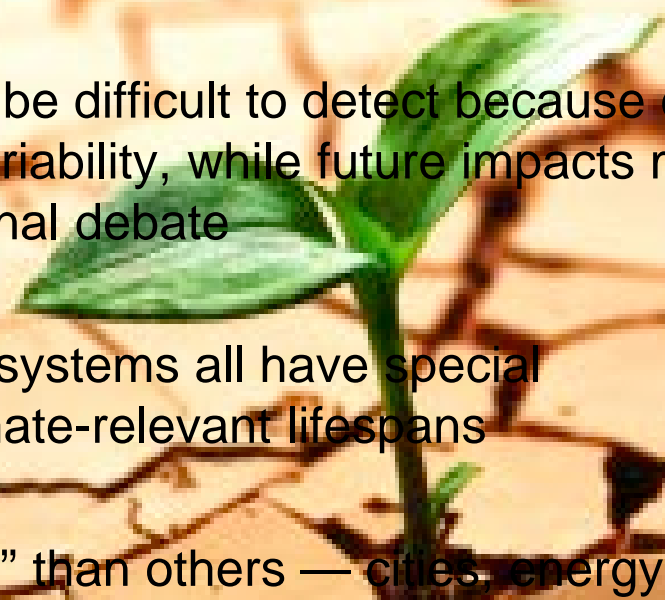
Climate change often provides a “worsening” factor for many basins

Unfortunately, impacts to date can be difficult to detect because of limited historical records or high variability, while future impacts may be a source of intra- and international debate

Institutions, infrastructure, and ecosystems all have special vulnerabilities given their long, climate-relevant lifespans

Some voices in a basin are “louder” than others — cities, energy, and agriculture are typically more powerful constituencies than livelihoods, ecosystems, and poor groups

Upstream-downstream relationships are often very sensitive

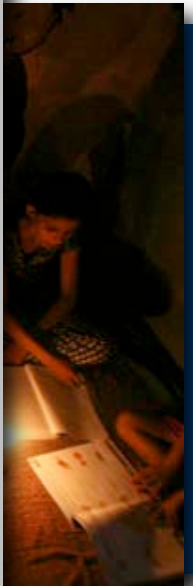


Some transboundary basins may already be showing significant “nexus” impacts



Syria: worst drought in centuries led to mass migration of 1.5 million to cities, collapse of food & energy subsidies, contributed to the Arab Spring

Increase in
decrease in
increase in
+ inadequate
p
without



Collaboration: a key nexus target

- “Capacity building and social learning can help to deal with the increasing complexity of cross-sectoral approaches, and also to level the playing field among the nexus sectors and actors.”¹
- Expertise on topics like climate change remains isolated within disciplinary, institutional, and sectoral silos, compounded by political barriers
- Colla of clir Should we shift to focus on “**nexus+**” issues — that would include the environment and climate adaptation? “blems”
- Scales are shifting from policy: nexus “infrastructure” process with US Dept of State, IWA, and IUCN

¹Hoff, H. (2011). Understanding the Nexus. Background Paper for the Bonn2011 Conference: The Water, Energy and Food Security Nexus. Stockholm Environment Institute, Stockholm.

Case Study: Okavango Basin

Background

- Delta largely contained by Angola, Botswana, Namibia
 - Climate models have mixed projections
 - Global circulation models predict decreased rainfall *but...*
 - Statistical downscaling predicts an *increase* in rainfall
 - Agriculture and ecosystems are directly affected by shifts in seasonality, variability, and quantity of precipitation
 - Planned urban diversions, hydropower
 - Population dynamics, land-use change, poverty, and climate change are all problems that must be addressed from a cross-boundary perspective within Okavango Basin
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- An aerial photograph of the Okavango Basin, showing a wide, winding river flowing through a dense, green forest. The river meanders across the landscape, creating a complex network of channels and oxbow lakes. In the lower center of the image, a small boat with a white cabin and a red hull is visible on the river. The sky is blue with scattered white clouds, and the overall scene is a lush, natural environment.

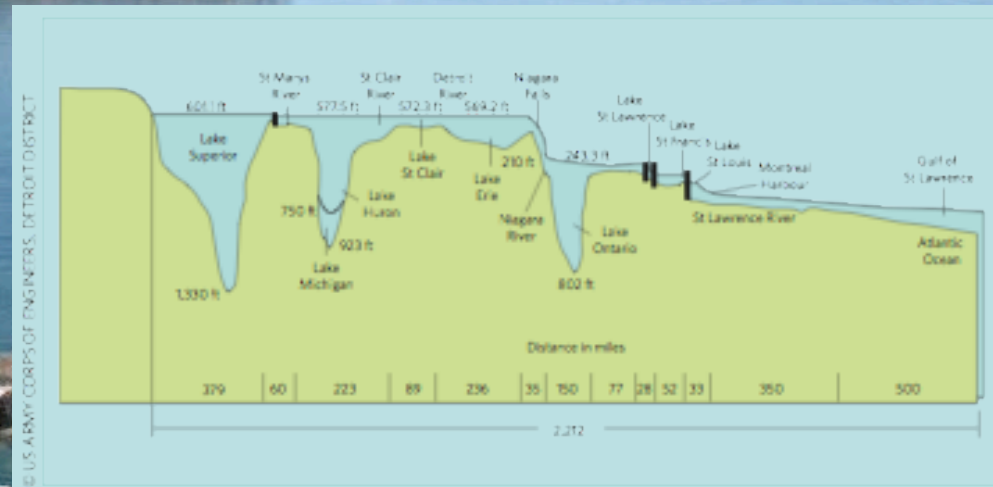
Case Study: Okavango Basin

- Basins must be managed as a whole, even in cross-boundary contexts
 - Risks felt in one place often arise from shifts in management in another part of the system
 - Handling of environmental allocations uneven
- Energy and agriculture are expanding, altering available quantity, quality, timing of water
 - The basin's shape implies hydrological "control" of critical zones
 - Some types of investments and decisions could permanently alter basin hydrology, with drastic impacts on ecosystems and livelihoods
- Okacom is the Permanent Okavango River Basin Water Commission
 - Key goal is to transform the mindsets of basin stakeholders to adopt a trans-boundary point of view both in planning and management ²
 - Intergovernmental approach
 - Developed the Strategic Action Programme (SAP) over three years to promote and strengthen the integrated, sustainable management, use and development of the Cubango-Okavango basin at national and trans-boundary levels according to internationally recognized best practices ²

² "Thinking Transboundary: Information and Communication Strategy for Okacom." (2012). Okacom. Maun: OKACOM Secretariat.

Case Study: Lake Superior

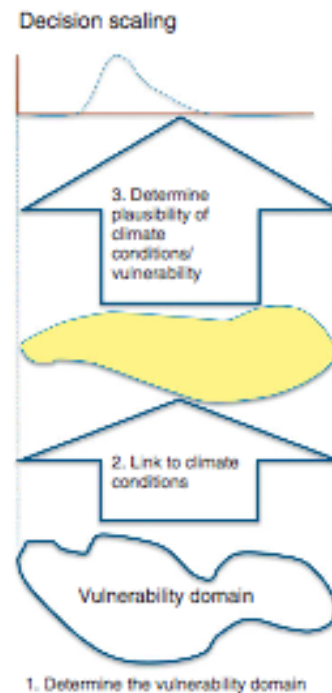
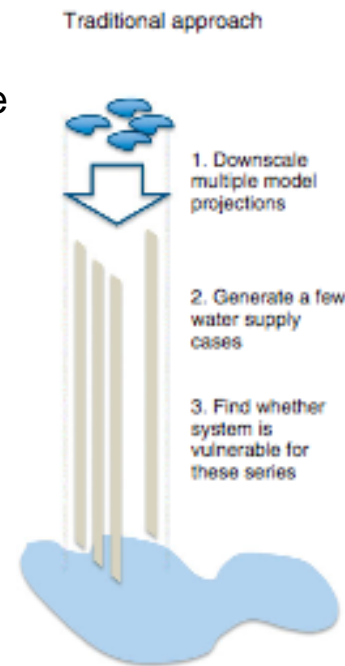
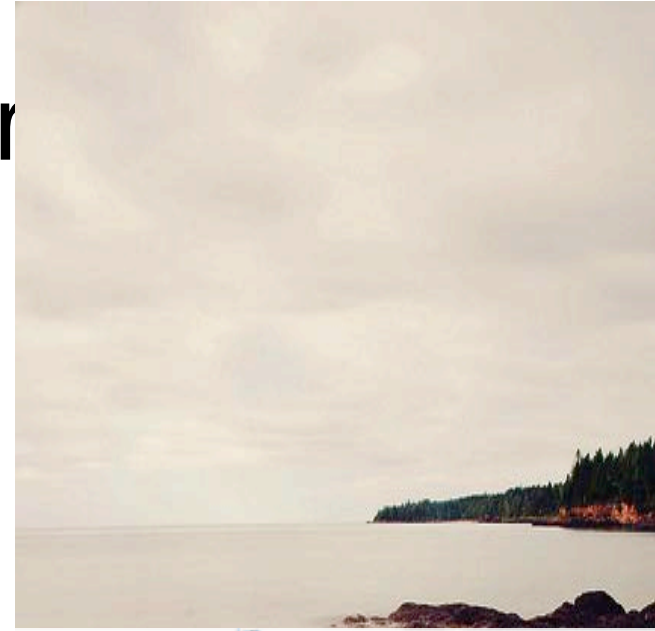
- Planning and supervision done by both United States and Canada
 - Problems with regulation of Lake Superior outflows
 - Concerns about climate change's effects on water levels
 - Several issues of focus:
 - Fish habitat
 - Multiple large cities across two countries
 - Agriculture/forestry
- How can all these issues and parties be represented when making regulation plans?



Case Study: Lake Superior

Outcome

- International Upper Great Lakes Study (IUGLS)
 - Developed framework considering the water-food-energy nexus, plus climate change and environment
 - http://www.iugls.org/Lake_Superior_Results
 - Adaptable management capable of addressing changing climate
 - Benefits fish habitats and other key interests like commercial navigation, hydroelectric energy generation, and coastal interests
 - Public, private, and government sectors represented for both countries in decision-making panels
 - Potential applicability towards regulating other lakes
- Early example of a “nexus+” approach
- First large-scale usage of a bottom-up, **decision-scaling** methodology



Does a “nexus+” framing add value to adaptation?

- Water-food-energy nexus is incomplete without incorporating ecosystems, livelihoods, and a dynamic water cycle
- Infrastructure investments and planning horizons are critical components in a transboundary setting — many of these investments are core nexus themes for energy, forestry, and agriculture
- Climate change vulnerabilities are often **hidden** within larger issues, such as food production and trade, but the attribution and prediction of climate change represents a significant obstacle to find consensus for political and sectoral competition



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many thanks

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