Investments to address the Water/Food/Energy/Ecosystem Nexus in the Global Environmental Facility’s programming

Astrid Hillers
GEF – International Waters
Sr. Environment Specialist - Program Manager
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Goal 6. Ensure availability and sustainable management of water and sanitation for all

6.3 ..improve water quality by reducing pollution

6.4 ..water use efficiency across all sectors and ensure sustainable withdrawals

6.5 ..implement integrated water resources management at all levels, including through transboundary cooperation

6.6 by 2020 protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes ..

Goal 7. 

7.1 by 2020 ..

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12. Ensure sustainable consumption and production patterns

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
Estimates of Water Use

- 2700 L/ea
- 40 L/slice ~600 L/bread
- 220 L/cup
- X L/gigajoule – varies widely by Fuel source & extraction
- 70 L/ea.
- 13600 L/kg beef
- 960 l/kg goat

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Transboundary cooperation .... 

... essential in face of global risks

... Some transboundary impacts of climate change, such as changes in sea ice, shared water resources, and pelagic fish stocks, have the potential to increase rivalry among states, but **robust national and intergovernmental institutions can enhance cooperation and manage many of these rivalries.**
Transboundary Water Systems of the Earth

Data sources: IGRAC 2012 for aquifers, Transboundary Waters Assessment Program Lakes Group, Natural earth data for rivers, NOAA for large marine ecosystems

Note: Ratio of wastewater treatment (March 2010).
How to address the Nexus of Water-Food-Energy-Ecosystems through the GEF and its International Waters Focal Area?
Goal: To promote collective management of transboundary water systems and implementation of the full range of policy, legal and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services.

Objective 1: Catalyze Sustainable Management of Transboundary Waters

1. Foster Cooperation for Sustainable use of Transboundary Water Systems & Economic Growth
2. Increase Resilience & Flow of Ecosystems Services in Context of Melting High Altitude Glaciers

Objective 2: Balance Competing Water-uses in the Management of Transboundary Surface and Groundwater

3. Advance Conjunctive Management of Surface & Groundwater systems

Objective 3: Foster Sustainable Fisheries, Restore and Protect Coastal Habitats, and Reduce Pollution of Coasts and LMEs

5. Reduce Ocean Hypoxia
6. Prevent the Loss and Degradation of Coastal Habitat
7. Foster Sustainable Fisheries
‘Foundational’ elements

• **Shared Vision** – beyond water
• **Trust** – e.g. if to produce power upstream/food downstream; with trade across countries
• **Common fact base**
  • From perceptions to facts
  • Prerequisite to assessing opportunities and trade-offs
• **Information and its exchange**
  • Cooperation: what?, when ?, aggregated/averaged – real-time ?
• **Institutional and legal frameworks** –
  • Leveling the playing field – from risks & costs to opportunities & benefits
  • National and regional inter-sectoral cooperation – challenge
  • Translate regional commitments and/or obligations into national and local actions
GEF IW investments through series of interventions

Delivering GEF International Waters Global Environment Benefits

- Foundational Capacity Building/Enabling environments, Basic Policy and cooperation framework
- Strengthening policy and legal and institutional frameworks
- Full-scale SAP Implementation

Transformational Change

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Sharing benefits beyond water ....
More than MoW: Volta Basin

- To effectively address Nexus: need to not only have effective inter-sectoral cooperation on national, but basin-scale

- Watersheds $\neq$ Energysheds $\neq$ Food Systems --> may need to assess models and experiences to “institutionalize Nexus in governance” on all relevant levels

- Example: Volta Basin - SAP signed by twelve ministers in 2014 – MoW and MoEnv from six riparians all signed due to current & upcoming issues
Example: Sustainable Groundwater Use - The Nubian Aquifer: Chad, Egypt, Libya and Sudan sign the Strategic Action Program September 18, 2013
Source to Sea: Integrated approaches across sectors, states, and water bodies
Increase in integrated programs

Example: Amazon Project integrating climate variability and change ... no longer is the past a predictor of the future: ...to strengthen, in a coordinated and coherent manner, the institutional framework for planning and executing activities for the protection and sustainable management of the water resources of the Amazon River Basin, endeavoring to realize a shared vision of sustainable development in the region based upon the protection and integrated management of transboundary water resources and adaptation to climatic changes.
Innovation

Increased Private Sector Engagement in GEF interventions with (e.g. working across supply chains in agriculture & fisheries; Water Stewardship & Disclosure; in urban development; ..)

*Invest in new technologies & approaches* - Need to *take risks & fund innovation* and learn from successes & failures - e.g. through funding single country pilots with transboundary impacts and/or prospects for replication

*Example: Hai River Basin project* - Changing agricultural practices combining remote sensing satellite technology and a new water allocation system.

*Win-win* for livelihoods and environment improved:
Up to 5 fold increase in farm income; 40% reduction in water use (266 million m3 of water saved); Pollution load to the Bohai Sea reduced by 4700 tons/year for ammonia-nitrogen
# Global Assessments

**Example:** Transboundary Waters Assessment Programme - TWAP

<table>
<thead>
<tr>
<th>Elements</th>
<th>Transboundary Aquifers:</th>
<th>Transboundary Lakes Basins &amp; Reservoirs</th>
<th>Transboundary River Basins</th>
<th>Large Marine Ecosystems</th>
<th>The Open Ocean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spatial coverage, 2010, 2030, 2050</td>
<td>166 aquifers</td>
<td>200 lakes/reservoirs</td>
<td>276 river basins</td>
<td>66 LMEs, of which 55 are transboundary</td>
<td>Global Open Ocean</td>
</tr>
<tr>
<td>Biophysical indicators</td>
<td>Water demand by economic sector</td>
<td>GDP Fisheries GDP Tourism</td>
<td>Access to water (sanitation)</td>
<td>Deaths due to climate related natural disasters</td>
<td>Vulnerability to sea level rise</td>
</tr>
<tr>
<td>Socioeconomic Indicators (e.g.)</td>
<td>For Water Quantity</td>
<td>For Water Distribution</td>
<td>For Habitat Destruction</td>
<td>For Fisheries</td>
<td>For Biodiversity</td>
</tr>
</tbody>
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Changes in GEF 6 related to Water-Food-Energy-Ecosystems Nexus...

- **GEF 6 IW strategy**: explicitly addresses Water-Food-Energy-Ecosystems Nexus; link between freshwater and marine systems
- **Advancing conjunctive management** in tb basins/basin organizations & on national level and strengthening groundwater governance
- **Cooperation takes time: Long-term** approach of GEF IW remains relevant – not one off projects
- **Increased programmatic and multi-focal approaches across GEF Focal Areas to address drivers (GEF 2020)**
- **Internal reorganization within GEF** for greater integration
Changes in GEF 6 related to Water-Food-Energy-Ecosystems Nexus...(2)

- **Private Sector** and Supply Chains – seek greater synergies
- **Civil Society** – public participation; awareness & outreach
- **Innovation** – institutional, finance, and technology...
- **Bridge science-policy gap** –
  - From perceptions to facts
  - Advance economic evaluation – *underpins benefit sharing*
- **KM and Learning & Targeted Research** – disseminate what worked and what did not; research/global assessments - stay ahead of curve
Water for future generations...

Thank You!