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

Astrid Hillers

GEF – International Waters

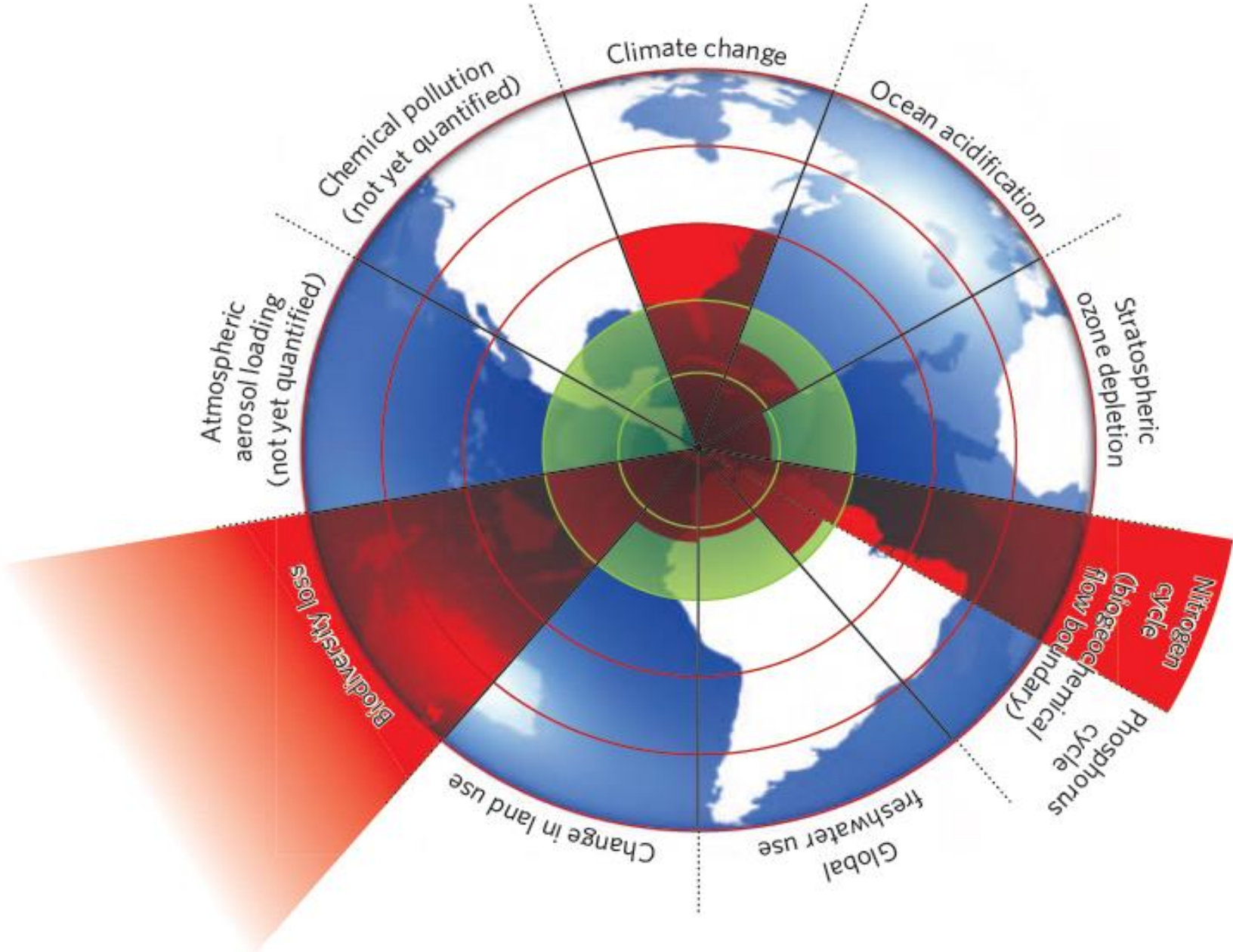
Sr. Environment Specialist - Program Manager

UNECE, Geneva, September 2014



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Rockstrom and Planetary Boundaries



PROPOSAL OF THE OPEN WORKING GROUP FOR SUSTAINABLE DEVELOPMENT GOALS, July 2014

Goal 2. End hunger, achieve food security and improved nutrition, and

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

Goal 6. Ensure availability and sustainable management of water and sanitation for all

6.3 ..improve **water quality** by reducing pollution

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

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

transbo

Goal 12. Ensure sustainable consumption and production patterns

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

Goal 7. **Goal 14. Conserve and sustainably use the oceans, seas and marine resources for**

7.1 by 2025 **sustainable development**

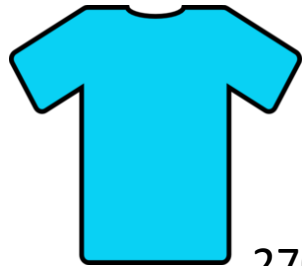
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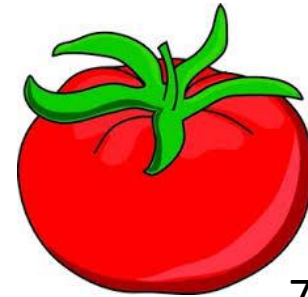
Estimates of Water Use



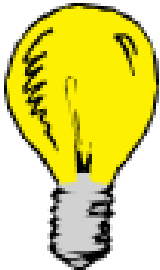
2700 L/ea



220
L/cup



70
L/ea.



X L/gigajoule –
varies widely by
Fuel source &
extraction



40 L/slice
~600 L/bread



13600 L/kg beef
960 l/kg goat



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Transboundary cooperation essential in face of global risks

CLIMATE SCIENCE

In New Report, IPCC Gets More Specific About Warming Risks

Eight Major Climate Risks

1. Death or harm from coastal flooding
2. Harm or economic losses from inland flooding
3. Extreme weather disrupting electrical, emergency, or other systems
4. Extreme heat, especially for the urban and rural poor
5. Food insecurity linked to warming, drought, or flooding
6. Water shortages causing agricultural or economic losses
7. Loss of marine ecosystems essential to fishing and other communities
8. Loss of terrestrial and inland water

... 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.**"

Table 1: Ten Global Risks of Highest Concern in 2014

No.	Global Risk
1	Fiscal crises in key economies
2	Structurally high unemployment/underemployment
3	Water crises
4	Severe income disparity
5	Failure of climate change mitigation and adaptation
6	Greater incidence of extreme weather events (e.g. floods, storms, fires)
7	Global governance failure
8	Food crises
9	Failure of a major financial mechanism/institution
10	Profound political and social instability

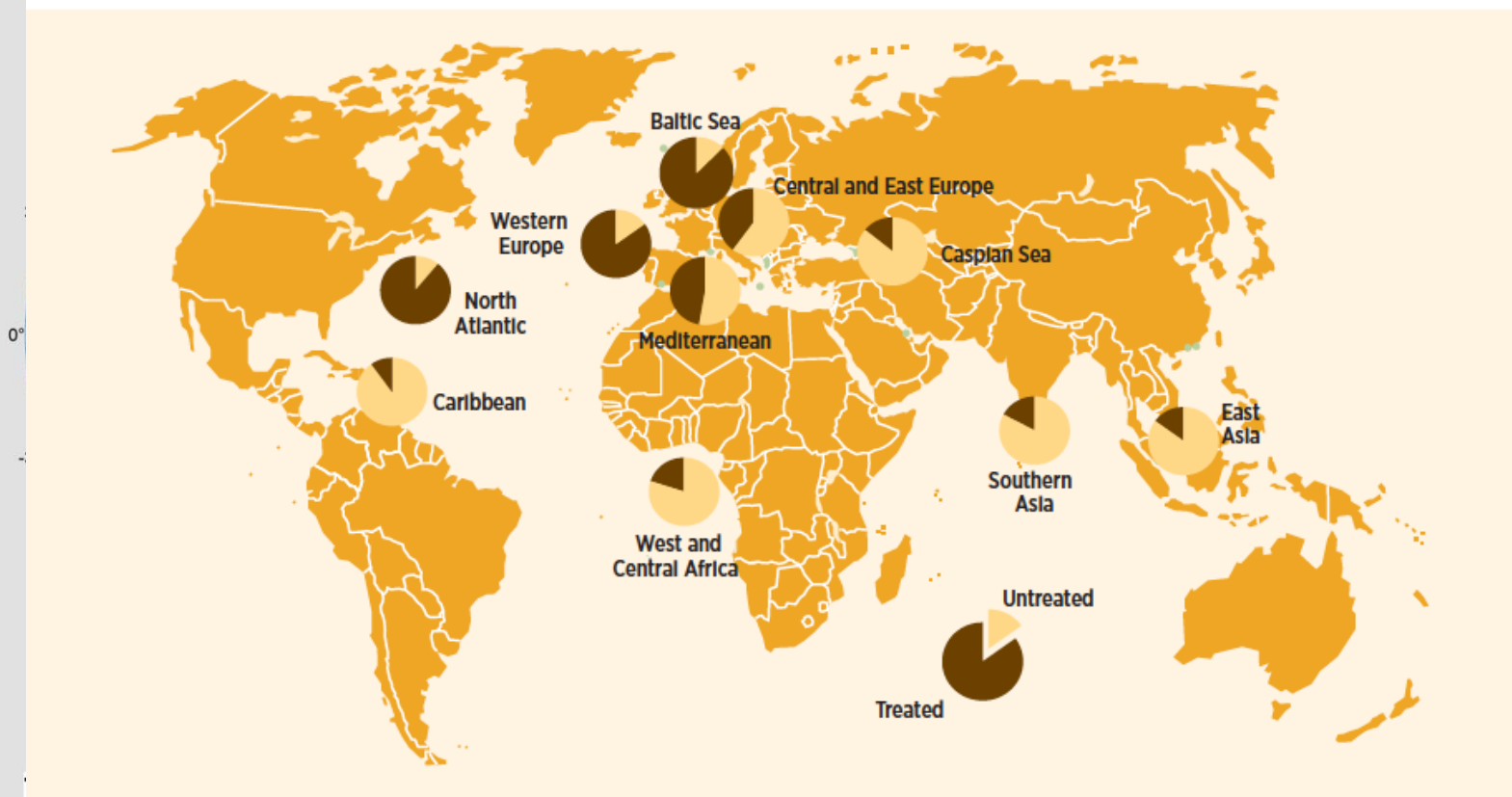
Moving from urgency-driven risk management to more collaborative efforts to strengthen risk resilience would benefit global society. Together,



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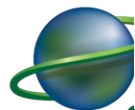
Transboundary Water Systems of the Earth

Ratio of treated to untreated wastewater discharged into water bodies



Note: Ratio of wastewater treatment (March 2010).

Source: UNEP/GRID-Arendal (<http://maps.grida.no/go/graphic/ratio-of-wastewater-treatment1>), adapted from a map by H. Alenius with sources UNEP-GPA [2004].



How to address the Nexus of Water-Food-Energy- Ecosystems through the GEF and its International Waters Focal Area ?



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GEF 6 - IW Strategy

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

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

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

1. Foster Cooperation for Sustainable use of Transboundary Water Systems & Economic Growth

3. Advance Conjunctive Management of Surface & Groundwater systems

5. Reduce Ocean Hypoxia

2. Increase Resilience & Flow of Ecosystems Services in Context of Melting High Altitude Glaciers

4. Water/Food/Energy/Ecosystem Security Nexus

6. Prevent the Loss and Degradation of Coastal Habitat

7. Foster Sustainable Fisheries

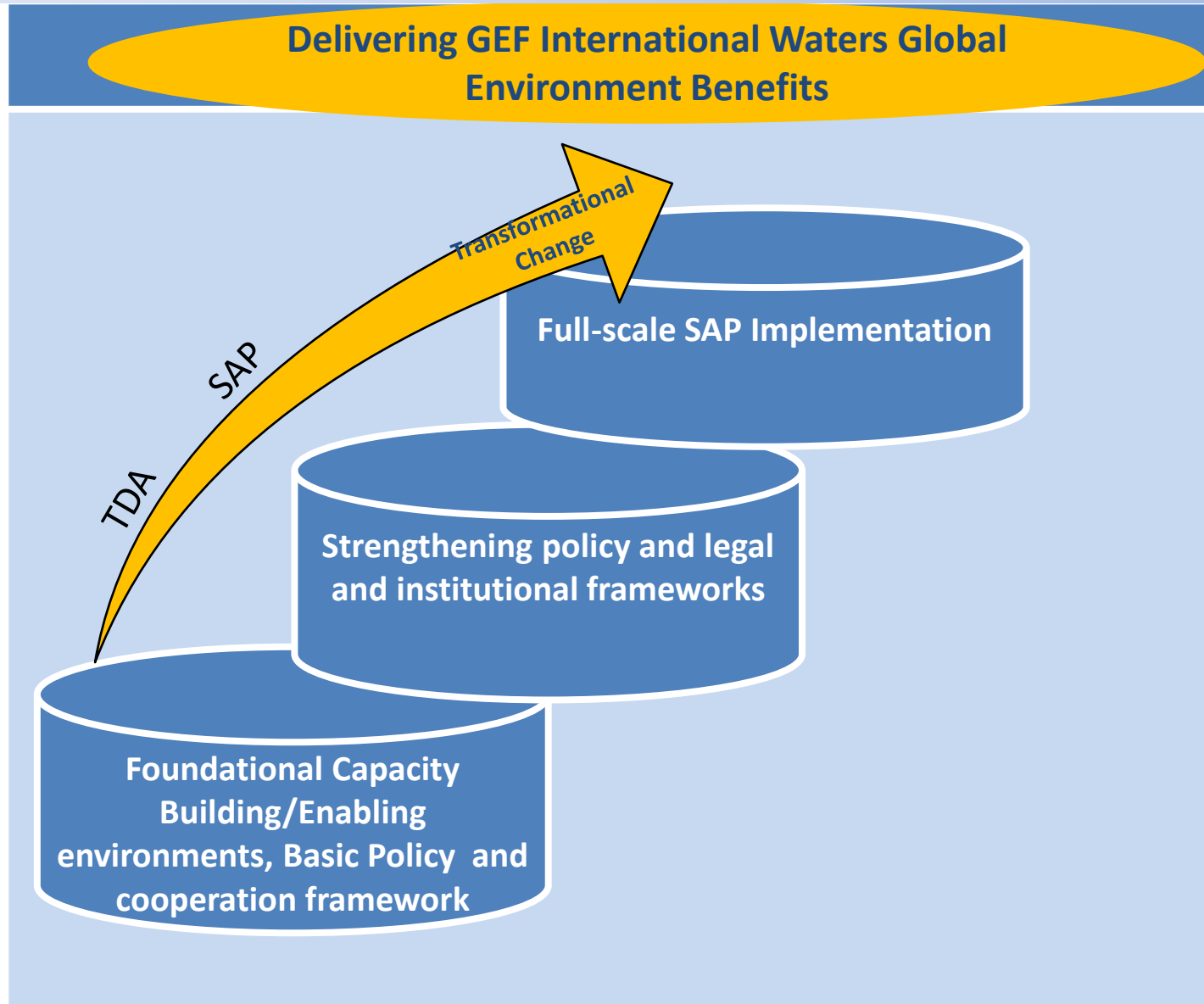
'Foundational' elements

- **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



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GEF IW investments through series of interventions

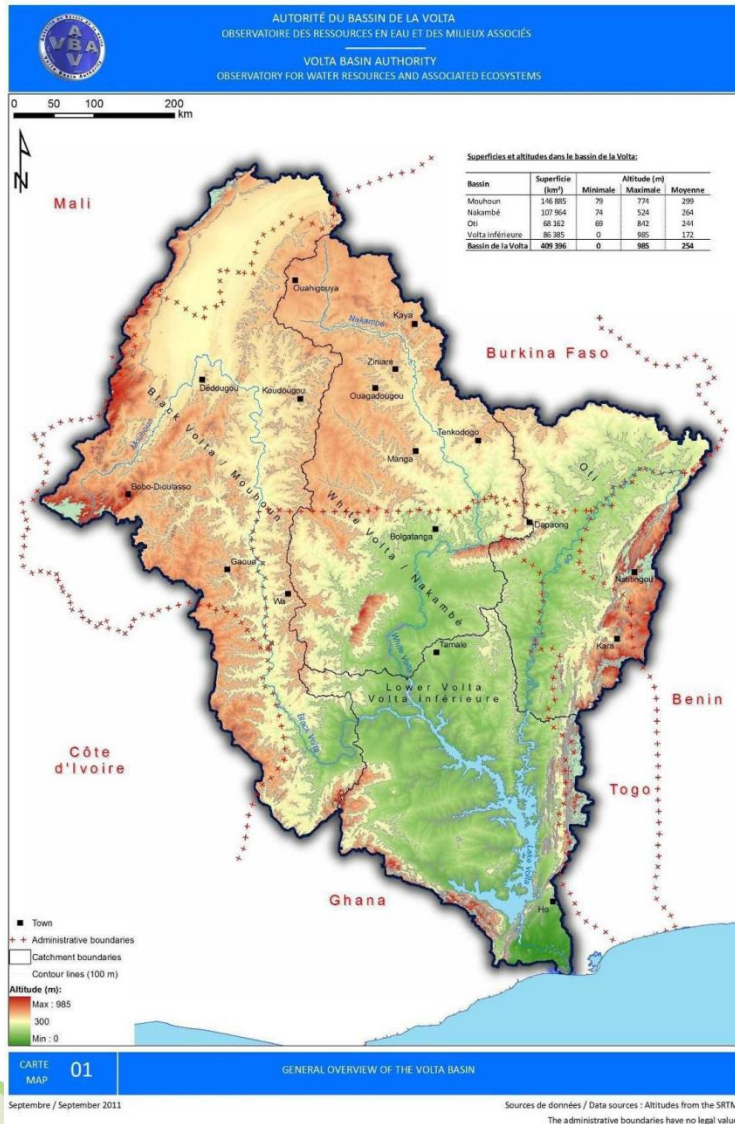


Sharing benefits beyond water



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More than MoW: Volta Basin

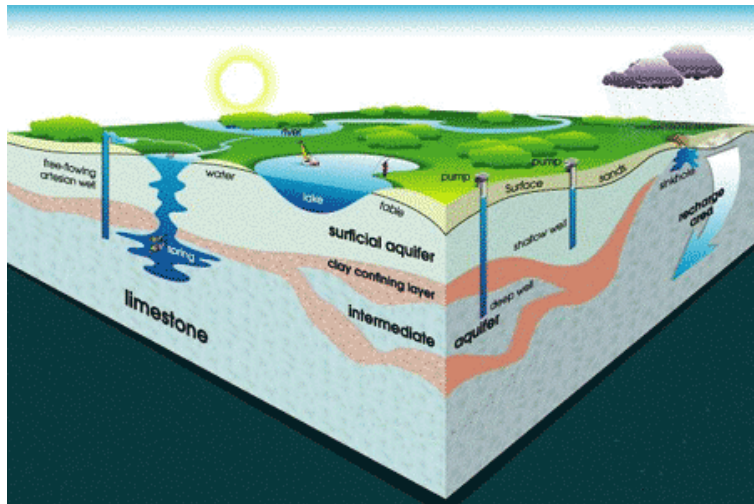


- To effectively address Nexus: need to not only have effective inter-sectoral cooperation on national, but basin-scale
- Watersheds \neq Energysheds \neq Food Systems --> may need to assess models and experiences to “institutionalize Nexus in governance” on all relevant levels
- **Example:** Volta Basin - SAP signed by **twelve** ministers in 2014 – MoW and MoEnv from six riparians all signed due to current & upcoming issues

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GEF 6 - Enhanced Groundwater Governance & Conjunctive Management

Water and Food Nexus:
expanding use of land for food production will increase use of surface and groundwater for irrigation

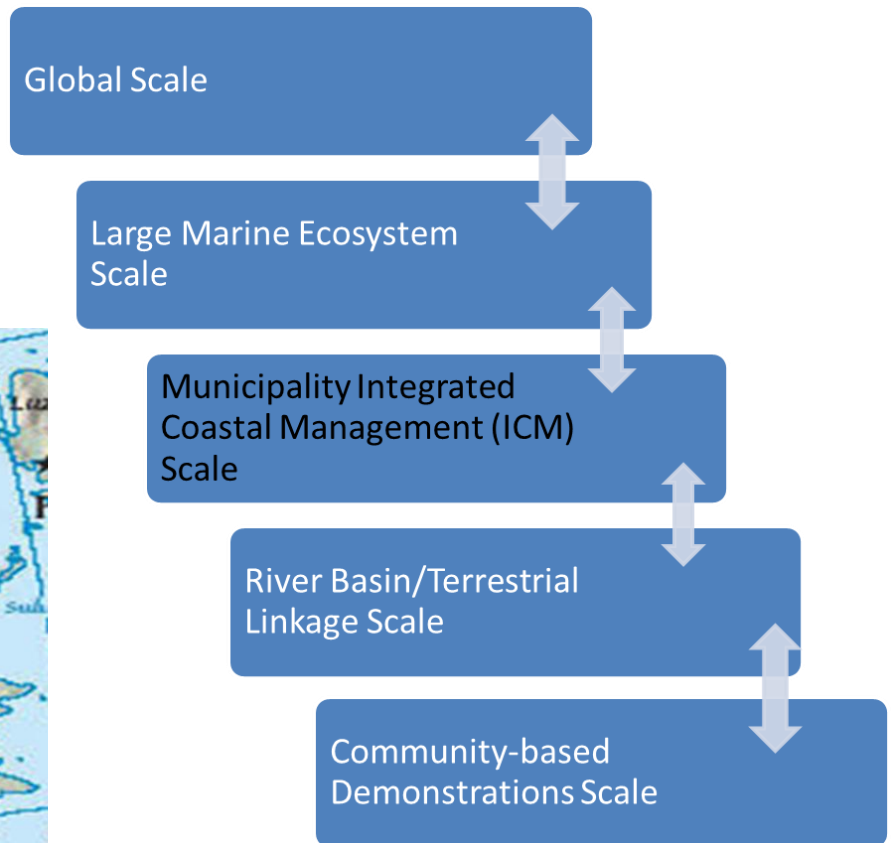
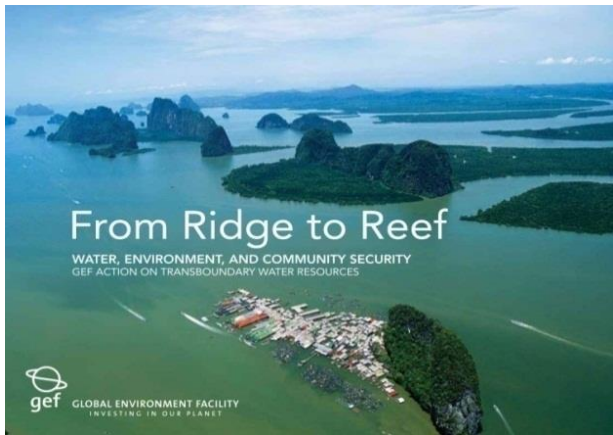


Example: Sustainable Groundwater Use - The Nubian Aquifer: Chad, Egypt, Libya and Sudan sign the Strategic Action Program September 18, 2013



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Source to Sea: Integrated approaches across sectors, states, and water bodies



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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.*



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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:

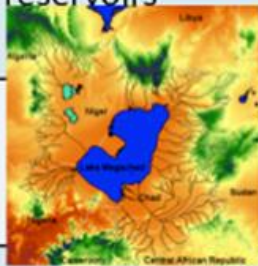

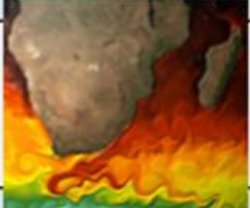
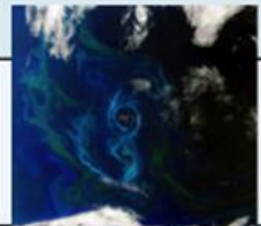

Up to 5 fold increase in farm income; 40 % reduction in water use (266 million m³ of water saved); Pollution load to the Bohai Sea reduced by 4700 tons/year for ammonia-nitrogen



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Global Assessments

Example: Transboundary Waters Assessment Programme - TWAP

Elements	Transboundary Aquifers:	Transboundary Lakes Basins & Reservoirs	Transboundary River Basins	Large Marine Ecosystems	The Open Ocean
Spatial coverage, 2010, 2030, 2050	166 aquifers 43 groundwater systems in SIDS	200 lakes/ reservoirs 	276 river basins 	66 LMEs, of which 55 are transboundary 	Global Open Ocean 
Biophysical indicators					
Socioeconomic Indicators (e.g.)	Water demand by economic sector	GDP Fisheries GDP Tourism	Access to water Access to sanitation	Deaths due to climate related natural disasters	Vulnerability to sea level rise
Governance architecture/ arrangement (e.g.)	For Water Quantity	For Water Distribution	For Habitat Destruction	For Fisheries	For Biodiversity



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Changes in GEF 6 related to Water-Food-Energy-Ecosystems Nexus...(1)

- ***GEF 6 IW strategy:*** explicitly addresses Water-Food-Energy-Ecosystems Nexus; link between freshwater and marine systems
- ***Advancing conjunctive management*** in tb basins/basin organisations & 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



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Water for future generations...



Thank You !



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