Strategic Workshop on "Accounting for water scarcity and pollution in the rules of international trade"

The different values of water

SIWI work in progress

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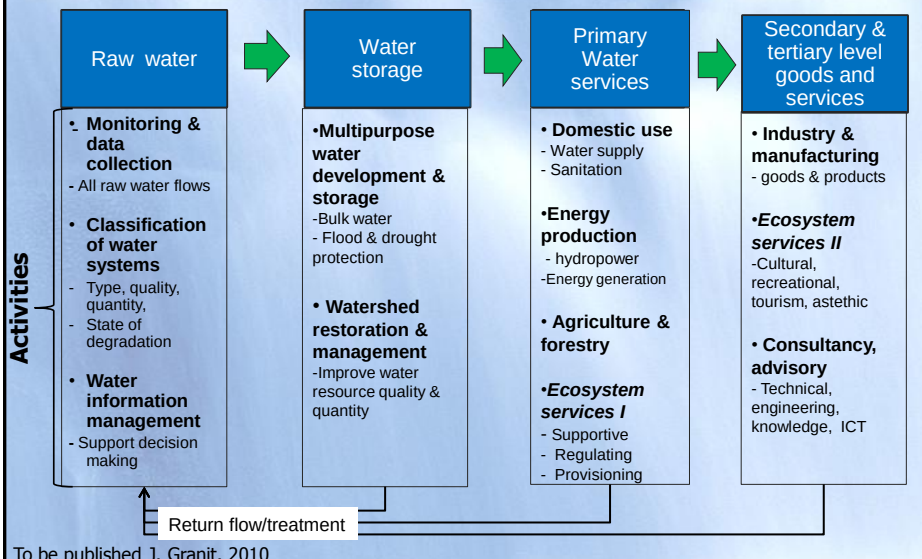
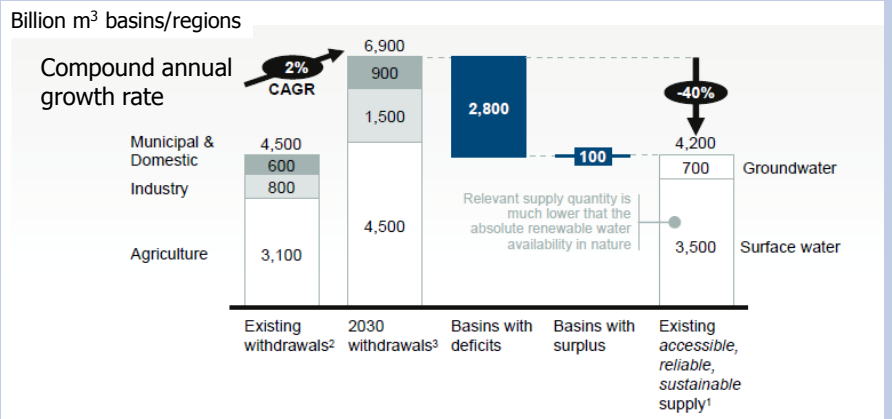
Jakob Granit
Project Director
Stockholm International Water Institute
jakob.granit@siwi.org

Water Value Chain – an Analytical Framework



To be published J. Granit, 2010

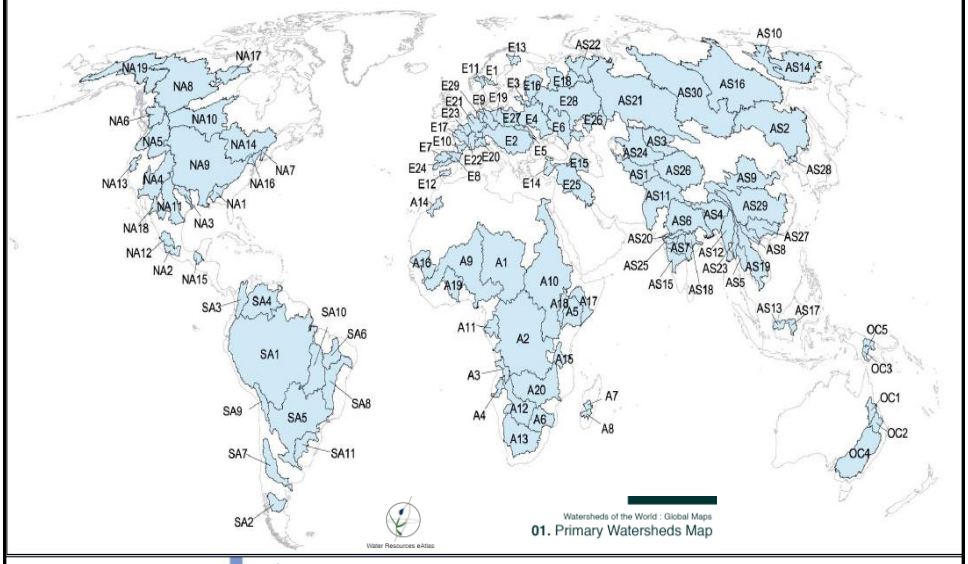
We know this story…..the aggregated global gap between accessible, reliable, supply and demand of water in 2030 is 40% assuming no efficency gains



1 Existing supply which can be provided at 90% reliability, based on historical hydrology and infrastructure investments scheduled through 2010; net of environmental requirements
2 Based on 2010 agricultural production analyses from IFPRI
3 Based on GDP, population projections and agricultural production projections from IFPRI; considers no water productivity gains between 2005-2030

SOURCE: Water 2030 Global Water Supply and Demand model; agricultural production based on IFPRI IMPACT-WATER base case

and that …water challenges are regional/local but with global implications



and that there are ….technical solutions/efficiency measures to close a growing water gap (quantity & quality) in a basin/region

New Water	Efficient use of water	Other sources
•Desalination •Inter basin water transfers •Fossil groundwater •Bulk water transport leakage •Direct sea water use (industry)	**Agriculture water management** •Canal lining •Drip irrigation •Improve fertiliser use •Irrigation scheduling •Mulching •Improved crops with less water demand •Precision farming •Soil techniques/minimum till •Pricing **Industrial water management** •Dry cooling at power plants • Better housekeeping, technology improvements • Industrial process efficiency •Close loop, waste water reuse •Pricing **Municipal & domestic water demand management** •Leakage detection public and commercial •Faucets, showerheads •Dual flush WC, retrofit •Household machines •Waste water reuse Pricing?	•Blue Water (not yet allocated, re-allocated) •Green Water, •New large and small scale water storage; •Rain water harvesting •Energy saving schemes that reduce water need in energy production • Reduce food waste

Based on TWO methodology (SIWI, CSIR, DPA) 2030 Water Resources Group

and ….that there are political and economic solutions to close the water gap (quantity & quality) – some examples

- **Regional integration**
  - World Development Report 2009 - Reshaping Economic Geography

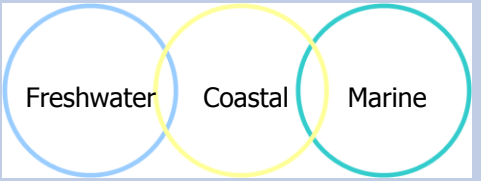
    "regional integration like in North America, Western Europe and North East Asia brings economic success, prosperity and stability"

  - Sharing benefits and value generated from transboundary water management, use & development
- **Economic incentives**
  - The role of water in building value in primary, secondary & tertiary goods and services
  - Water prizing

Some illustrative SIWI knowledge projects in progress with relevance to the workshop theme

1. **The role of Regional Economic Communities in water management and development**
   - EU Baltic Sea Strategy – water quality concerns
   - Kaliningrad Oblast, Russia
2. **Generating value and trading benefits from transboundary water resources management**
   - Euphrates and Tigris Rivers System – water scarcity and quality concerns

Report (forthcoming): The Baltic Sea Region Implementing the Environment Pillar of the EU Baltic Sea Strategy

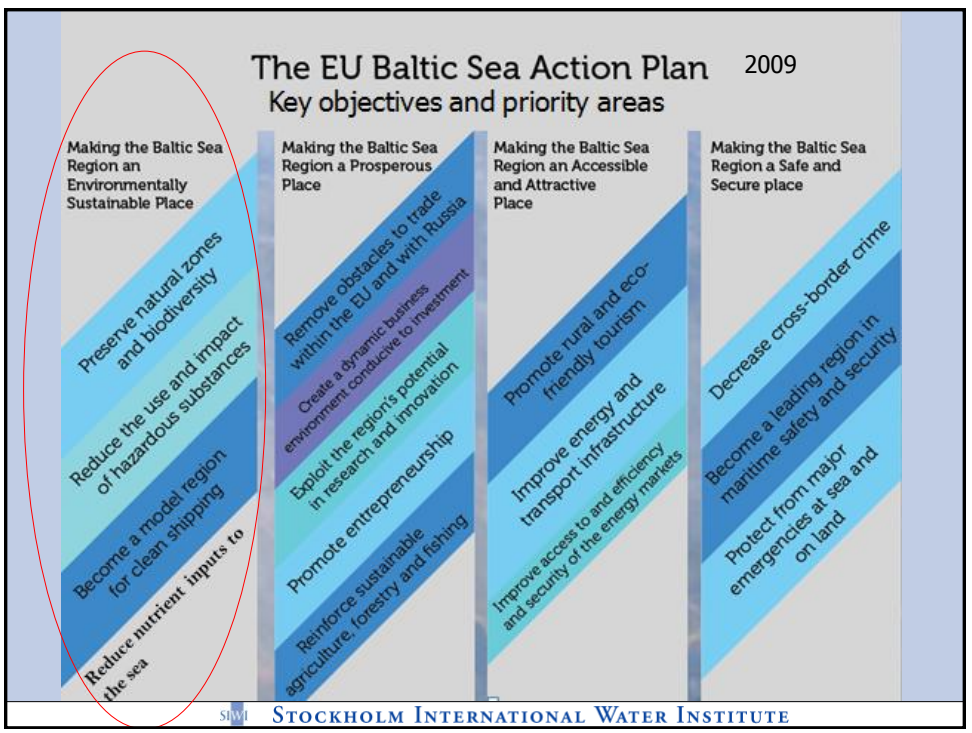


- **14 Basin countries**
- 9 Litoral states
- 8 EU member states
- 85 million inhabitants

Jakob Granit, Project Director
Megan J. Walline, Esq., Fulbright Scholar and Visiting Researcher
Stockholm International Water Institute

Cooperative Steps: Baltic Sea Region

- **Initial cooperation focussed on the environment**
  - Dialogue East/West
  - Establishment of HELCOM - joint policy recommendations (non-binding)
- **Cooperative identification of "hot spots"**
  - Collective approach, regional public good
  - Backed up with domestic, IFI and bilateral project financing
  - Good progress on point source pollution
- **Political geography changed with EU enlargement, 1995, 2004**
  - Opportunity taken to strengthen & broaden cooperative framework
  - Implementation of EU framework directives
  - From non-binding to binding commitments
  - Regional environmental challenges continue



Elements of 2010 nested governance framework for Baltic Sea Region (BSR) sustainable development

EU Baltic Sea Strategy Heads of State (8 countries)	HELCOM Ministers for the Environment 9 countries + EC	Ex. other arrangements
EU BSR Action Plan & binding directives eg. Water Framework and Marine Strategy Directives	Baltic Sea Action Plan, non-legally binding commitments	CBSS Northern Dimension EU Neighborhood program

National Legislation
Binding

National Investment Plans

Recommendations in support of the implementation of the EU BSR Strategy

- **Clarify the roles of existing Baltic Sea governance bodies and institutions , their linked legal framework and options for governance improvements**
- **Clarify the relationship between specific EU Directive requirements, priority HELCOM Plan of actions, and targeted provisions of international law to meet environmental pillar objective**
- **Strengthen existing Directive implementation through solid regional coordination mechanisms supporting national efforts**

Forthcoming SIWI paper
Jakob Granit,
Megan J. Walline

Report (forthcoming): Managing and Developing the Water Resources Assets in Kaliningrad Oblast, Russia in Support of Economic Growth and Environmental Sustainability with Lithuanian, Polish and Swedish Examples

Kaliningrad Oblast Water sector challenges

Supply Deteriorating supply network UAFW	**Health** Water related disease Exposure to toxic waste products
Pollution Point source pollution Significant industrial and domestic load Minimal waste water treatment	**Impacts on economic growth** Tourism potential not developed Manufacturing sector impacted
Environmental degradation Failing ecosystems Loss of flora and fauna	**Governance** Federal vs Region Government law Transboundary issues Lack of coordination

Report recommendations to the administration

- **Focus on the economic values of good WRM&D to create commitment for change**
  - Job creation in tourism, improved health, quality of manufacturing
    - Demonstrated by BSR riparians
  - Ecosystem services
- **Learn from EU water framework implemenation processes in Lithuania and Poland**
  - Pregola and Neman river basin system
  - Wider Baltic Sea Region cooperation in which Russia is a part
  - EU Baltic Sea Strategy, security and sustainable economic development
- **Build on existing good Russian Federal Water Management Act & increase stakeholder participation**
  - In the enclave and with Federal government
  - With EU neigbours in Poland, Lithuania and wider BSR

Transboundary Waters Opportunity Analysis/Hydroeconomic modelling for the Euphrates and Tigris Basin

Objective: Explore cooperative paths & economic integration opportunities

Study stages:

- **Basin characterization utilizing remote sensing, macro scale ("one basin")**
  - Overcome data constraints
- **Conceptual distributed lumped hydrologic modelling**
  - Remote sensing input and verification through literature
- **Hydro-economic model**
  - Characterisation of basin wide baseline values generated today (HEP, Ag products, ecosystem services)
  - Basin wide estimation of net benefits resulting from efficiency and productivity gains at the sub-basin scales
- **Macro economic modelling,**
  - trade flows of goods and services, compensation
- **Barrier analysis for realizing benefit sharing & integration with riparians**

Concluding remarks with relevance to the policy objectives of the workshop

- **How can the value of WRM&D in society be better defined?**
  - In primary, secondary & tertiary sectors including ecosystem services
    - Water as an input in creating value, still more or less a free good
  - In increasing investment in WRM&D
    - To reach MDGs and water quality objectives
  - In climate change adaptation and mitigation
- **What can we learn from RECs & how transboundary water assets can contribute to regional integration?**
  - Incentives: trading the benefits from WRM&D
    - virtual water in goods e.g. agr. products and electricity generation (HEP, input in energy production, power markets)
  - Compensation issues: quality, quantity, downstream/upstream
  - Political economy of cooperation: working beyond the basin (water, energy, food & security nexus)