Linking water and ecosystem-based management for sustainable development from source to sea

Birgitta Liss Lymer

Director, Water Governance
Coordinator of the S2S Platform Secretariat
Stockholm International Water Institute (SIWI)
80% of global populations exposed to high levels of threat to human water security (Vörösmarty et al, 2010)

Water quality severely affected in more than 80% of the world’s transboundary river systems (UNEP and UNEP-DHI, 2016)

Virtually no marine area is unaffected by anthropogenic activities (Halpern et al, 2008)

20% of the world’s aquifers are being overexploited, some massively so (Gleeson et al, 2012)

Plastics production increased twenty-fold over the last 50 years (WEF, 2017)

Dead zones in coastal areas have spread exponentially since 1960s (Diaz & Rosenberg, 2008)
Sustainable Development!

Economic growth
Consumption and production
Sustainable cities
Food
Energy
Water
Etc.

Climate change
Terrestrial ecosystems
Biodiversity
Oceans and fisheries

Economic growth
Resource use

Social and environmental sustainability
Land and oceans are connected by key flows

Ecosystem services

- water
- sediment
- pollutants
- biota
- materials

Land systems

Freshwater systems

Estuaries deltas

Coastline nearshore

Adjoining sea, shelf

Open ocean

Factors contributing to "source-to-sea" blind development

- Political priorities & power dynamics between (up- and downstream)
- Limited technical capacity to assess and address S2S priorities
- Staying in the "comfort zone" - jurisdiction and stakeholders
- Available financing tends to be sectoral

- Awareness, incentives, stronger global to local policy consensus
- Technical support
- Demonstrate benefit of local cooperation, issue-focus
- Funding streams prioritizing S2S measures
Necessity = the mother of progress

The new normal

Climate change

Population growth/urbanization

Increasing consumption/production
## Integration – segment by segment

<table>
<thead>
<tr>
<th></th>
<th>Land/terrestrial</th>
<th>Freshwater systems</th>
<th>Deltas/estuaries</th>
<th>Nearshore coast/Adjoining sea/Open ocean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common goals</td>
<td></td>
<td>Sustainable use and long-term productivity of ecosystems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Different areas of focus</td>
<td>Increased productivity (e.g. food), housing, infrastructure</td>
<td>Water allocation, Drinking water quality</td>
<td>Flood risk, Eutrophication, Salinisation</td>
<td>Allocation of uses of coastal/marine space, Fisheries, Eutrophication/ marine pollution</td>
</tr>
<tr>
<td>Different management approaches</td>
<td>Integrated land/forest/waste mgmt, urban and land use planning</td>
<td>IWRM, environmental flows</td>
<td>Delta management, IWRM, ICM, Marine Spatial Planning</td>
<td>ICM, Marine Spatial Planning, Ecosystem Approach to Fisheries Management</td>
</tr>
</tbody>
</table>

**Key flows**
<table>
<thead>
<tr>
<th><strong>Lessons learned from IWRM and ICM</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Links to national policy and legal system</strong></td>
</tr>
<tr>
<td><strong>Funding</strong></td>
</tr>
<tr>
<td><strong>Boundary definition</strong></td>
</tr>
<tr>
<td><strong>Institutional restructuring</strong></td>
</tr>
<tr>
<td><strong>Strong focus on process and procedural integration</strong></td>
</tr>
<tr>
<td><strong>How to evaluate success?</strong></td>
</tr>
<tr>
<td><strong>Gap between river basin and coastal management</strong></td>
</tr>
</tbody>
</table>
Base interventions on local context

Governance system

- Resource use & management
- Environmental protection
- Development policies
- Segment or sector governance
- Negotiated agreements & multi-stakeholder groups

Practices that alter S2S flows

Guiding principles for a source-to-sea approach

• **Holistic** – includes both upstream and downstream linkages, considers cumulative impacts
• **Participatory** – engage stakeholders from different segments, sectors
• **Context-dependent** – responsive to the local situation
• **Collaborative** – embed into existing institutions, established methods and on-going processes
• **Focused** – prioritise flows to address in the project or programme
• **Results oriented** – achieve intermediate outcomes
• **Adaptive** – learning by doing through pragmatic implementation

Thanks to:
S2S Platform

www.siwi.org/source-to-sea