



Source-to-Sea Management



Summary

A source-to-sea (S2S) system is comprised of the drainage area, its lakes and tributaries, connected aquifers as well as the downstream deltas, estuaries, coastlines, adjoining sea, and open ocean. The S2S management is an innovative approach to identifying interconnections and the underlying challenges within a S2S system and suggest pathways for improving water resource management based on the comprehensive assessment. This Tool introduces the S2S management, its various practical applications, and the steps to implement a S2S approach for assessment and intervention.

Source-to-Sea Concept

The Source-to-Sea (S2S) concept looks at water resources management as a comprehensive network linking land, water, delta, estuary, coast, nearshore and ocean ecosystem holistically (Figure 1). It combines economic development and efficient water resource management by addressing the gaps in the current system. Understand impacts in the long and short term along the system as a whole and not separating the different sectors and services by thinking of water as a continuum, it is easier to create a practical and efficient governance from causes to effects in the source to sea system.



Figure 1. Segments of S2S System. Source: [SIWI \(2022\)](#)

S2S concept defines ‘key flows’ that connects the S2S system from land to the sea. Key flows include: water, biota, sediment, pollutants, and elements that consists ecosystem services. Key flows are altered often as a result of human development activities on land and along water bodies such as industry, energy production, and agriculture create pressures on ecosystems and have effects on downstream key flows as a continuum.

Application

The S2S concept has been used to characterise challenges and identify pathways in relation to variety of water resource management issues. It has been commonly used in the context of understanding how to reduce and prevent marine litter, raise transparency and cross-sectoral coordination ([Tool B1.05](#)) and address climate change ([SIWI, 2019](#)). S2S integrative and participatory approaches can and should be applied on local, national, regional and global levels through partnerships, transboundary cooperation and transparency from stakeholders and actors in the water and management sector ([SIWI, 2018](#)). S2S management particularly links to SDG 6: “Ensure availability and sustainable management of water and sanitation for all” and “SDG 14: Conserve and sustainably use the oceans, seas and marine resources and SDG 15: Life on Land”. The S2S continuum also opens new partnerships for a range of stakeholders to collaborate on socio, economic and environmental issues and, thus constitute an important entry point for strengthening efforts towards SDG 17 “Strengthen the means of implementation and revitalize the global partnership for sustainable development”.

Steps to Implementing the S2S Approach

The Stockholm International Water Institute (SIWI) launched “Implementing the source-to-sea approach: a guide for practitioners” ([SIWI, 2019](#)) report built on the conceptual framework first developed by the Action Platform for Source-to-Sea Management and the Scientific and Technical Advisory Panel (STAP) of the Global Environment Facility (GEF) ([Granit et al., 2017](#)). The guide outlines the importance of a more comprehensive water

management, highlights the benefits of the more integrative and innovative S2S approach and links those to the enhancement of the achievement of the SDGs and Agenda 2030 Goals. The framework presents a step-wise guideline that can be adapted and customised for all levels and contexts.

Six steps are identified in the Report to guide stakeholders and practitioners:

- **Characterise:** Select priority flows and determine the system boundaries
- **Engage:** Map primary, targeted, enabling, supporting and external stakeholders and prepare an engagement plan
- **Diagnose:** Analyse the governance system and practices related to the priority flow
- **Design:** Developing a theory of change and identify intervention strategies
- **Act:** Fund and implement source-to-sea actions
- **Adapt:** Monitor outcomes, capture and disseminate learning and adaptively manage for continued success.

SIWI hosts the Action Platform for Source-to-Sea Management initiative to help decision-makers, stakeholders, freshwaters, coastal, and marine experts to connect and engage together in cooperative projects, promote better practices, enhance international cooperation, and facilitate contacts between parties.

Thematic Tagging

Ecosystems/Nature-based solutions , Transboundary

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