Water for Productive and Multifunctional Landscapes:

Findings from the SWH/SIWI Cluster Group

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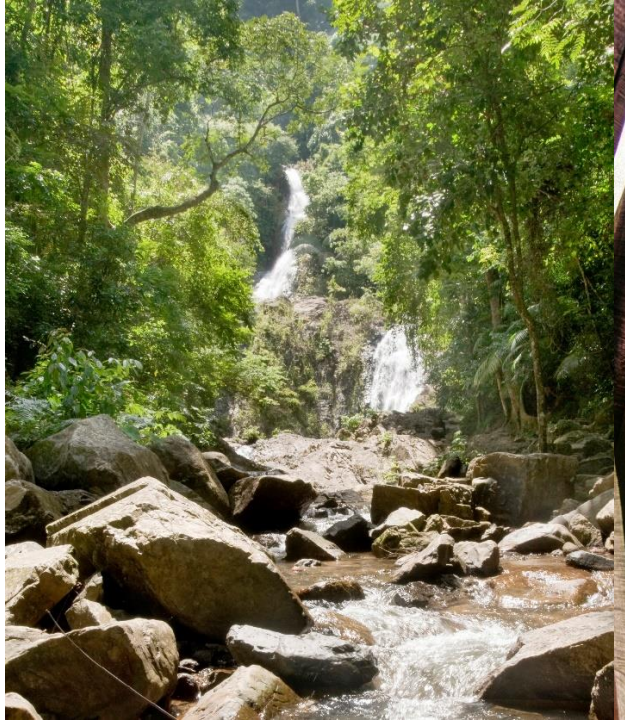
SIWI



Swedish Water House

Connects Swedish water stakeholders from different sectors with each other and with international processes and discussions. It provides meeting places for innovative thinking on emerging issues, concerning the global water situation.

From Water and Forest to Water and Landscapes

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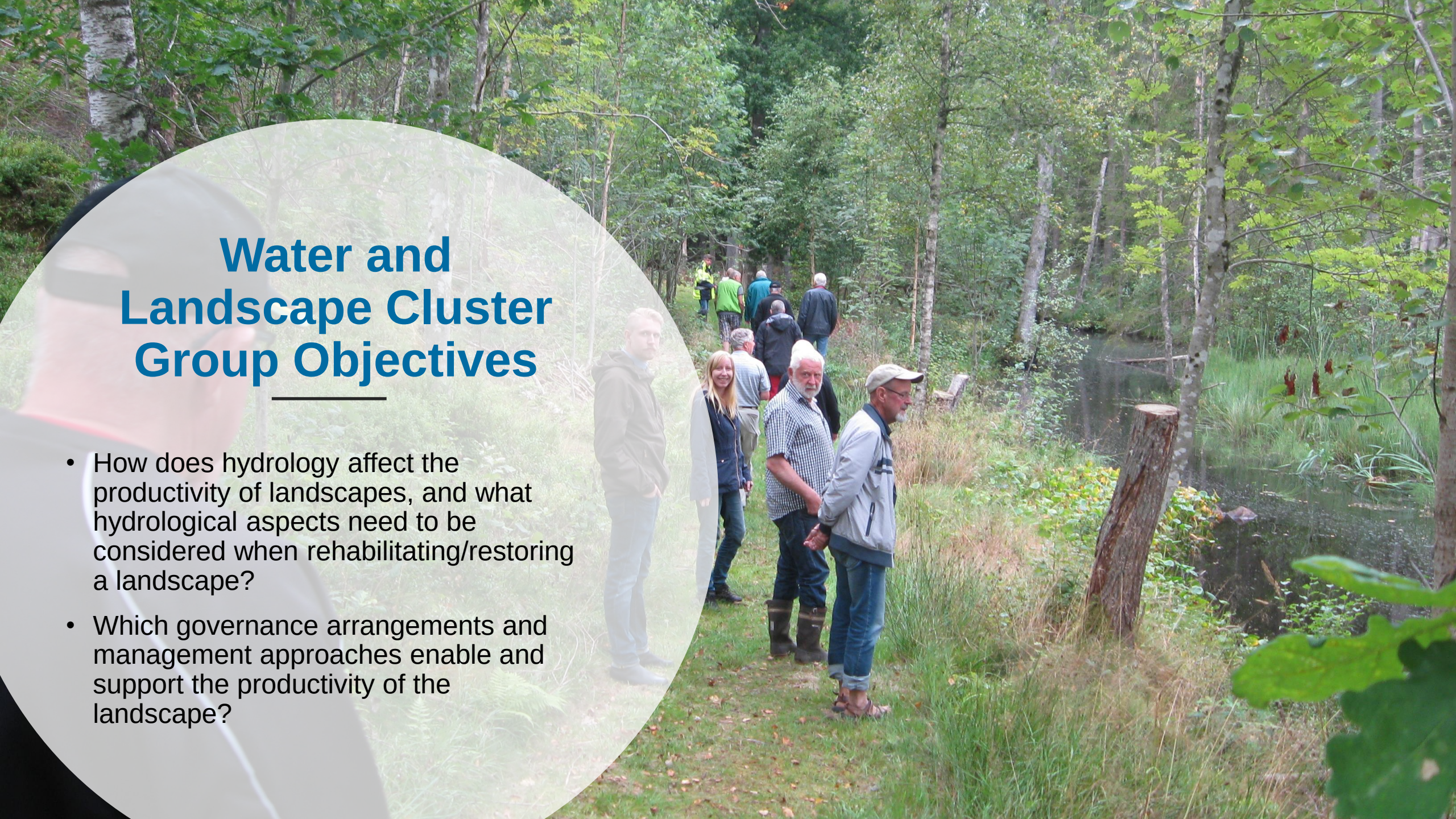
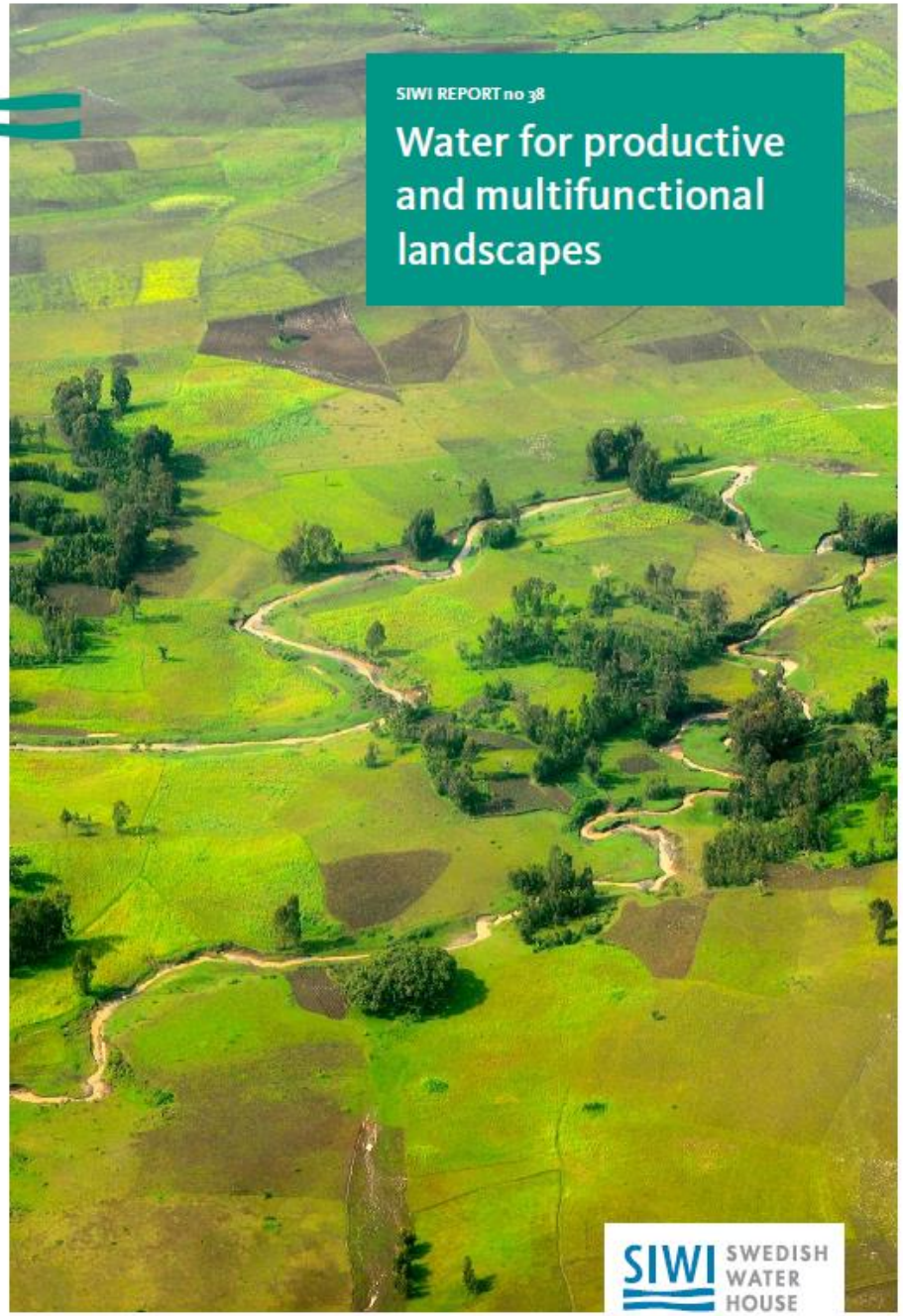


Water and Landscape Cluster Group Objectives

- How does hydrology affect the productivity of landscapes, and what hydrological aspects need to be considered when rehabilitating/restoring a landscape?
- Which governance arrangements and management approaches enable and support the productivity of the landscape?



Tengberg, A., Bargues-Tobella, A., Barron, J., Ilstedt, U., Jaramillo, F., Johansson, K., Lannér, J., Petzén, M., Robinson,
T., Samuelson, L., Östberg, K. 2018.

SKOGSSTYRELSEN
SWEDISH FOREST AGENCY

SLU Swedish University of Agricultural Sciences

DHI

SIANI
Swedish International Agricultural Network Initiative

focali

ecoloop

Stockholm Resilience Centre
Stockholm University

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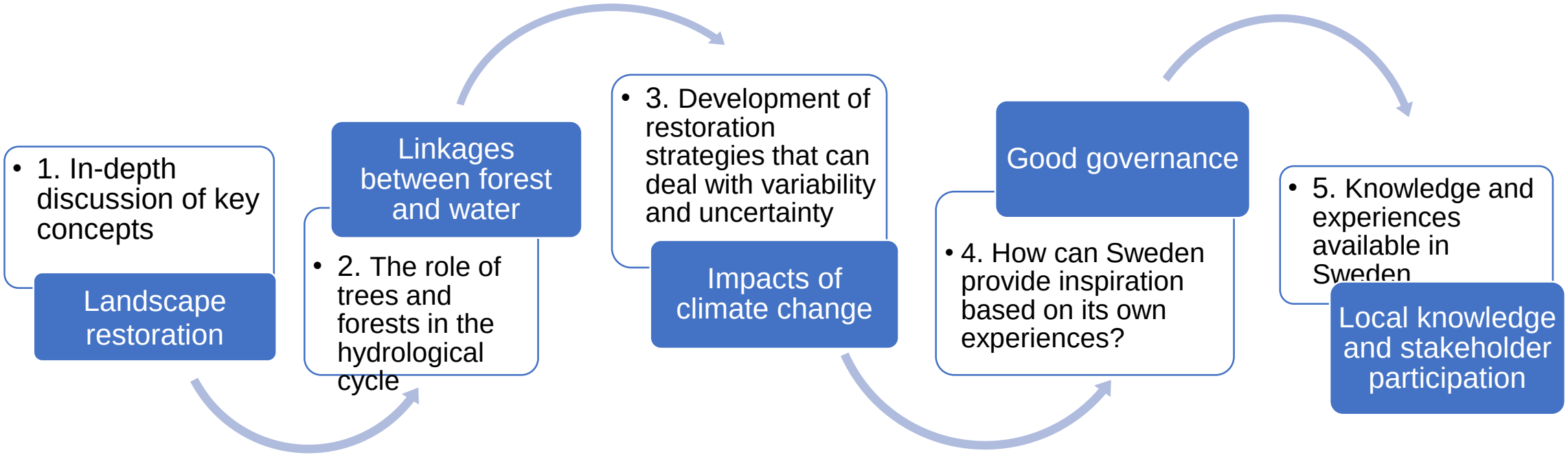
Participating institutions in seminars and workshops organised by the Cluster Group

- Alliance for Global Water Adaptation (AGWA)
- County Board of Västra Götaland
- DHI Group
- Ecoloop
- Federation of Swedish Farmers (LRF)
- Food and Agricultural Organization of the United Nations (FAO)
- Forest, climate and livelihood research network (Focali)
- Hermanssons & Co
- ICA
- ICRAF – World Agroforestry Centre
- Swedish Environmental Research Institute (IVL)
- Lund University Centre for Sustainability Studies (LUCSUS)
- NIRAS
- SSC Forestry
- Stockholm Resilience Centre (SRC)
- Stockholm International Water Institute (SIWI)
- Sveaskog AB
- Swedish Environment Protection Agency (SEPA)
- Swedish Forestry Agency (SFA)
- Swedish International Agricultural Network Initiative (SIANI)
- Swedish International Development Agency (Sida)
- Swedish Meteorological and Hydrological Institute (SMHI)
- Swedish University of Agricultural Sciences (SLU)
- World Wide Fund for Nature (WWF)

Thematic workplan for the cluster group 2017/2018



Oct-17 | Nov-17 | Feb-18 | Mar-18 | Apr-18

1. The Landscape Approach

There are many different definitions of the landscape approach. We use the 10 principles for a landscape approach adopted by the Convention on Biological Diversity (CBD) to reconciling agriculture, conservation, and other competing land uses:

1. Continual learning and adaptive management
2. Common concern entry point
3. Multiple scales
4. Multifunctionality
5. Multiple stakeholders
6. Negotiated and transparent change logic
7. Clarification of rights and responsibilities
8. Participatory and user-friendly monitoring
9. Resilience
10. Strengthened stakeholder capacity

2. Landscape restoration and water flows

- **Specific landscapes are at risk** for becoming more degraded, or remain in degrade states, unless proactive management is done.
- There is a **need to regulate and manage our use of water much more** than we are doing today, especially when it comes to degraded landscape.
- **Management strategies are knowledge and capacity intensive**, and context specific, but good experiences from Sweden and elsewhere exist and can be shared.
- There are **many opportunities for forest landscape restoration** linked to international commitments. A successful restoration process generally includes a clear motivation, a conducive enabling environment, and capacity and resources for sustained implementation.

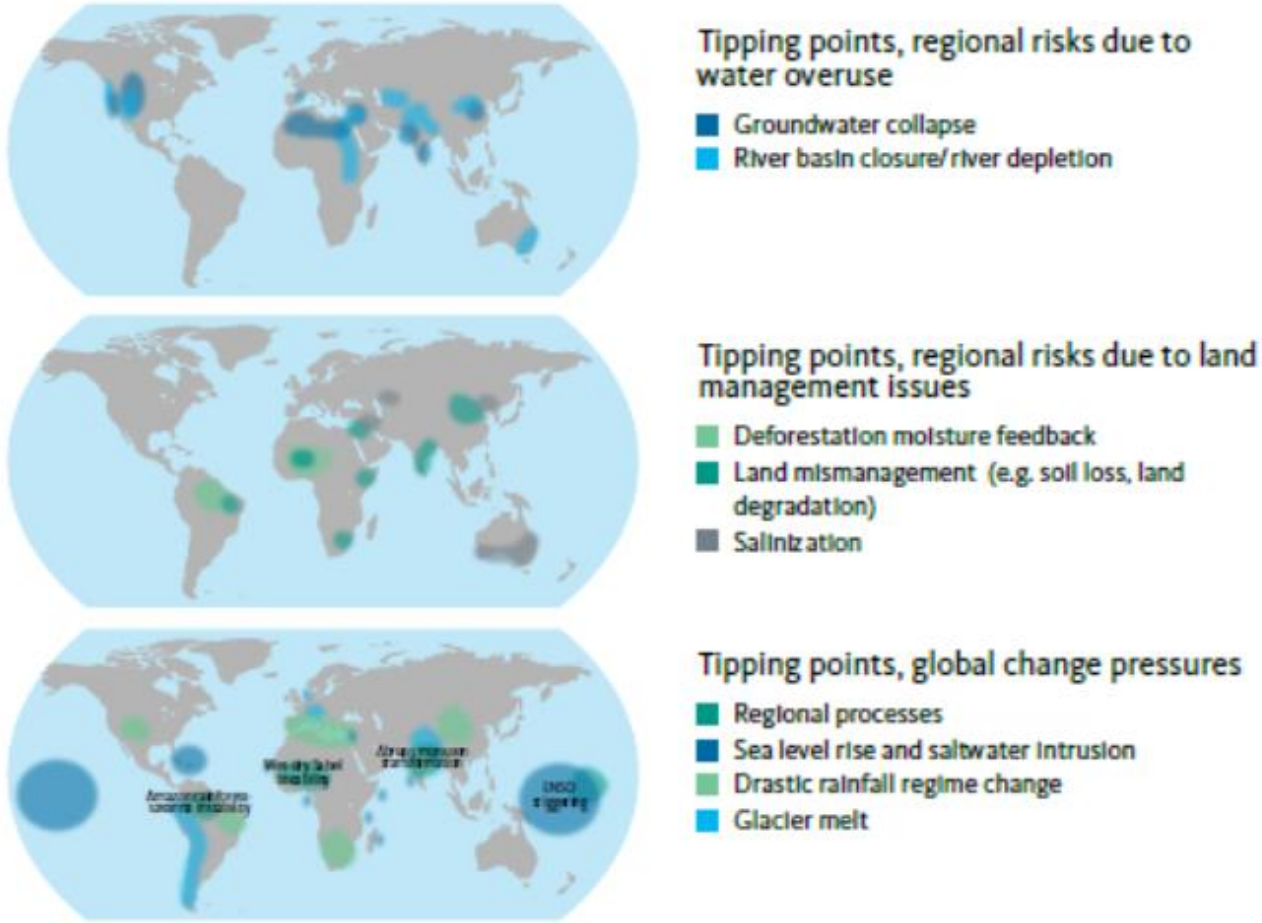


Figure 2. Water, land and climate change creates critical pressures on important production systems (Rockström et al., 2014).

3. Forest, agriculture and water

- There is a need to **widen the geographical perspective** from watersheds to whole continents and cross-regional perspectives **to understand where precipitation originates** from to better integrate forest-driven water and energy cycles into regional, national, continental and global decision-making.
- For water flows, it is **sometimes better to focus on density and types of trees than forests** as such, taking into consideration different species, age of trees, spacing/density, etc.
- **Local-level forest management initiatives** often face a mix of issues ranging from governance challenges at national level to technical issues and problems at local level. A key- **success factor is to work with participatory processes and partnerships.**

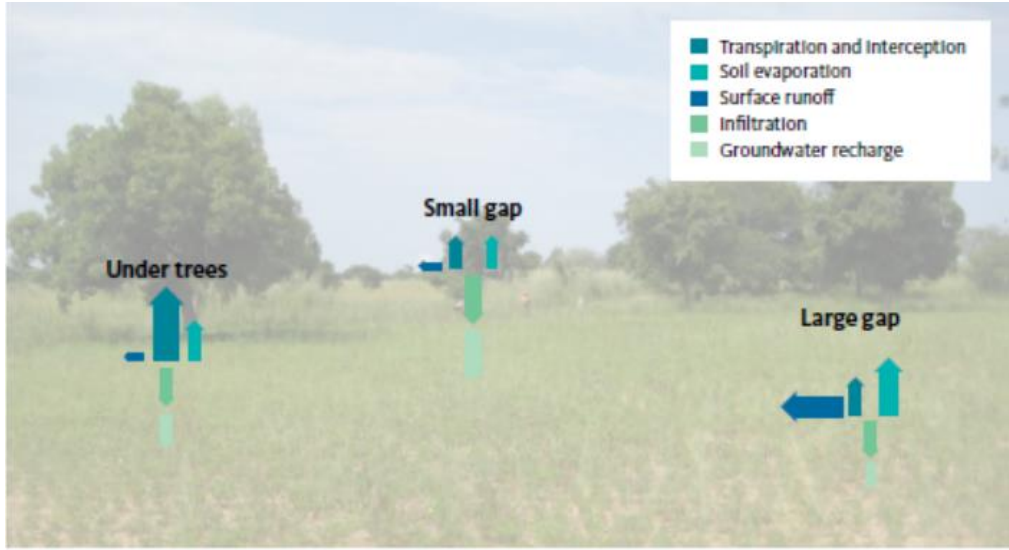


Figure 7. Groundwater recharge was maximized in small gaps among trees in an agroforestry parkland in Burkina Faso. Under trees and in large gaps, groundwater recharge was lower due to high transpiration and interception losses from trees, and low capacity for soil infiltration in large gaps between trees. Figure courtesy: Aida Bargues-Tobella and Ulrik Ilstedt.

4. Management of impacts of climate change on landscapes

- **Nature-Based Solutions (NBS)** for managing climate risks are promising and cost effective, but there is also a need to consider potential conflicts of interests.
- **Rainfall monitoring can be improved using microwaves from telephone masts** and can help inform management of landscapes in a changing climate.
- **Geographical water balance models** can be used to assist in the planning of water adaptation measures.
- Bottom-up and participatory approaches to monitoring and modelling, such as **Citizen Science** (CS) lead to inclusion of more perspectives and scenarios and more informed and comprehensive solutions.

NBS Category
Soil management
River bank buffer strips
Trees for infiltration and slowing of water flows
Measures in ditches
Dams
Controlled flooding (e.g. directing high

Figure 10. Traditional pastures in Kyrgyzstan where climate change has impacted water flows and communities need to adapt. Photo: Anna Tengberg.

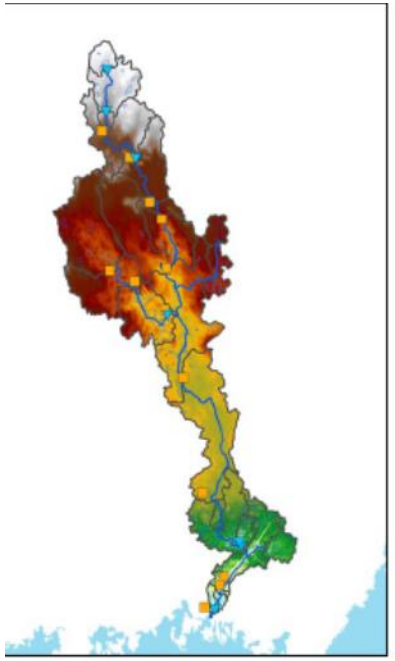


Figure 11. MIKE HYDRO Basin model for Lyckebyån river in Blekinge County, Southeast Sweden. Regulated lakes and dams are illustrated with blue triangles, demands such as water supply and irrigation are illustrated with orange squares, the sub-catchments as grey polygons, and the river as a thick blue line.

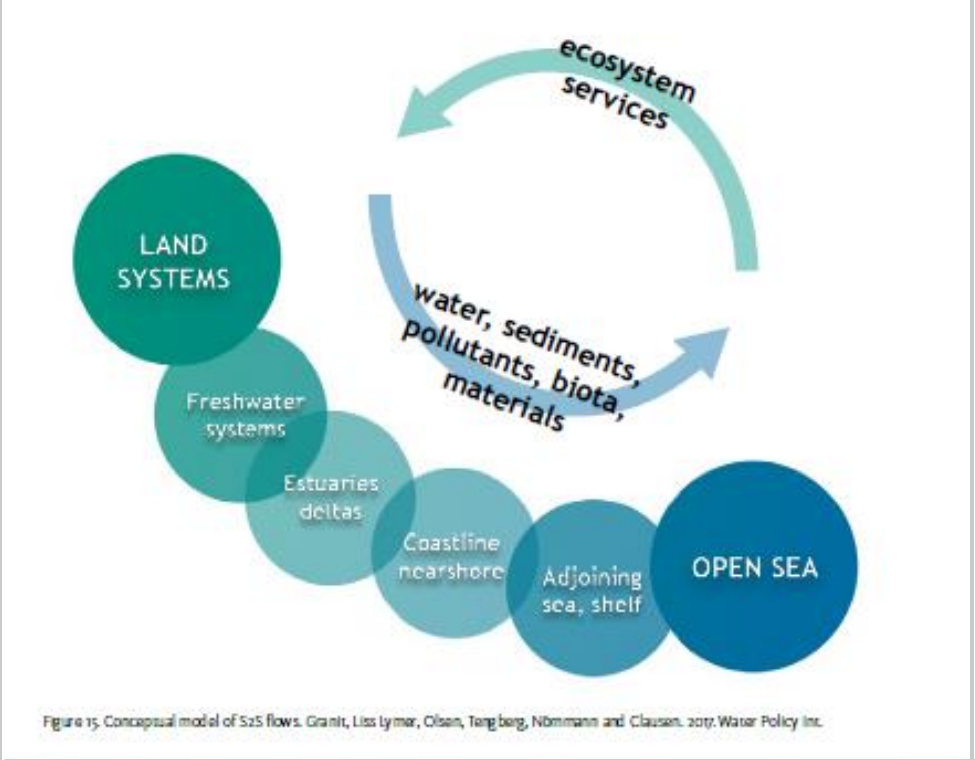


Figure 15. Conceptual model of S2S flows. Granit, Liss Lymer, Olsen, Tengberg, Nõmmann and Clausen. 2017. Water Policy Inc.

5. Good water governance in landscapes

- Need to work with **nested governance arrangements**, from multilateral environmental agreements to local level customary or statutory law and take gender and power relations into consideration.
- **Public participation in landscape governance has evolved over time and become more inclusive and participative** in e.g. Swedish institutions and in the EU Water Framework Directive, as well as in many developing countries.
- **Wetlands are threatened in many parts of the world where the ultimate drivers are linked to poor governance.** The Ramsar Convention is important for the governance of wetlands, but its implementation needs to be strengthened through, for example, linking it to emission reductions under the UNFCCC as well as S2S management governance frameworks.
- **Private sector companies are important actors in landscape approaches** and can play a positive role through different tools and instruments, including water stewardship to reduce water-related impacts of internal operations and value chains.

How to manage water for productive and multifunctional landscapes?

Next steps

- Inspire Swedish stakeholders to engage increasingly in international water and landscape dialogues and processes
- Initiate bilateral and multilateral activities to build resilient landscapes, with resulting benefits for water resources and productive landscapes
- World Water Week event to develop policy recommendations together with stakeholders

SIWI's Sida-financed project around Lake Awassa in Ethiopia will strengthen water and landscape governance through capacity building and training of stakeholders from the local to national level.

Water in the Landscape

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Thank you

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