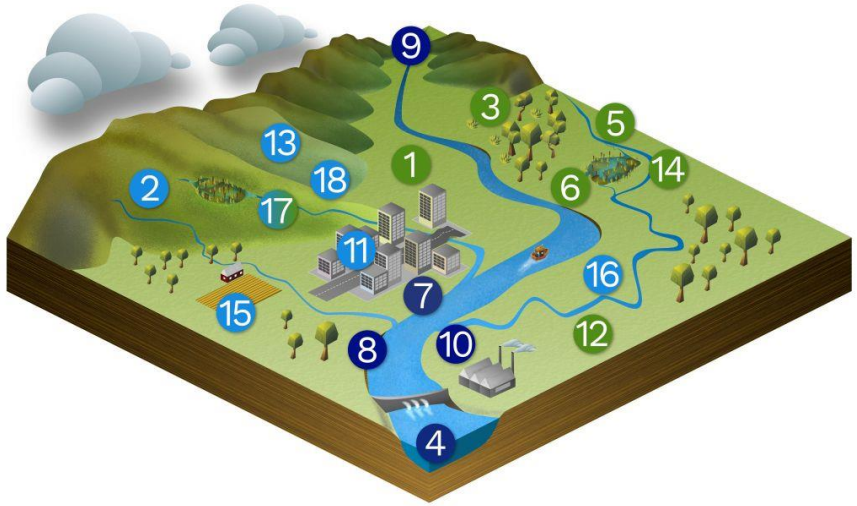
Supporting the European Green Deals ambitions

by scaling up

freshwater ecosystem restoration



Nasjonalt seminar om restaurering av vassdrag og våtmarker, 23 October 2024

Tom Buijse, Maria Ojanen & Ellis Penning

Nasjonalt seminar om restaurering av vassdrag og våtmarker, 23 October 2024

The invisibility of (the status of our) inland waters

#14 Life below water: only marine ecosystems

#6.6 'protect and restore water-related ecosystems'

#15.1 'conserve, restore and sustainable use of inland freshwater ecosystems and its services'

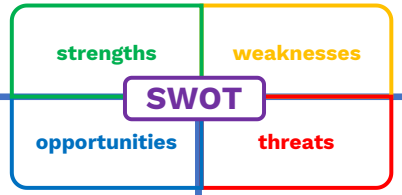
Too low profile of inland water ecosystems in SDGs

Funge-Smith, S., & Bennett, A. (2019). Fish and Fisheries, 20: 1176-1195.

MERLIN's roadmap for upscaling freshwater ecosystem restoration

IUCN Self-Assessment for NbS
= Implementation process

EU Green Deal goals
= Implementation impact



D2.1 Optimisation strategy
Now -> Future

- Prepared by case study implementation & scientific partners
- Synthesis by task leads

D2.2 Interim Regional scalability plan

- Internal review MERLIN steering group
- External stakeholder interaction
- RSP revision by Implementation & Scientific case study partners
- Synthesis by task leads

D2.4 Final Regional scalability plan
= mid- to long-term

IUCN self-assessment for nature-based solutions

"Nature-based solutions (NbS) are actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously benefiting people and nature"

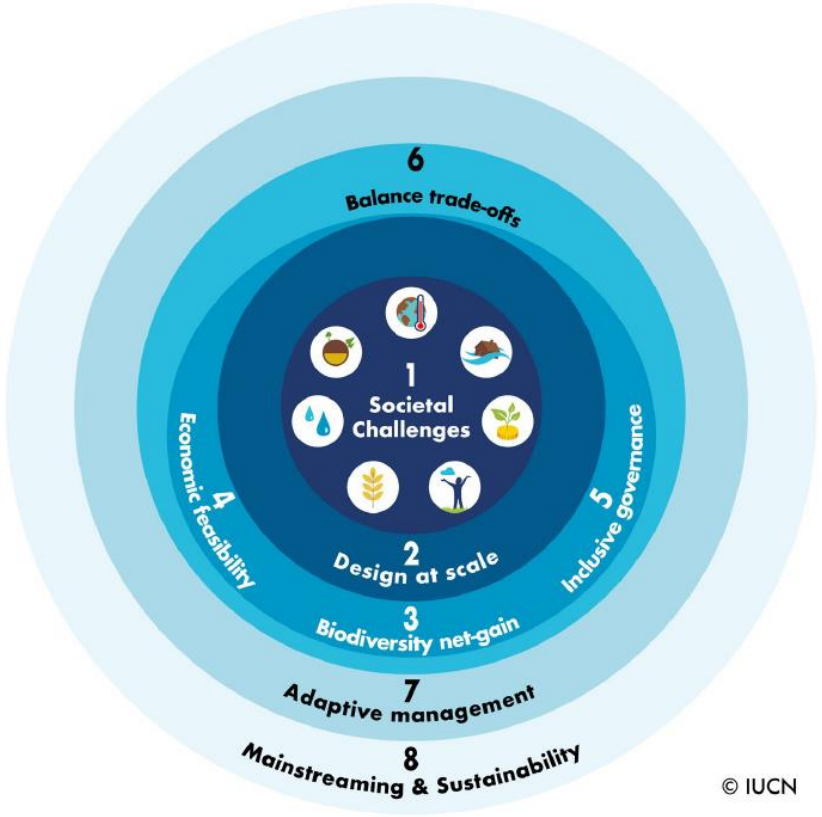
IUCN Global Standard for Nature-based Solutions

A user-friendly framework for the verification, design and scaling up of NbS

First edition

Source: IUCN (2020). Global Standard for Nature-based Solutions. A user-friendly framework for the verification, design and scaling up of NbS. First edition. Gland, Switzerland: IUCN.

IUCN self-assessment for nature-based solutions



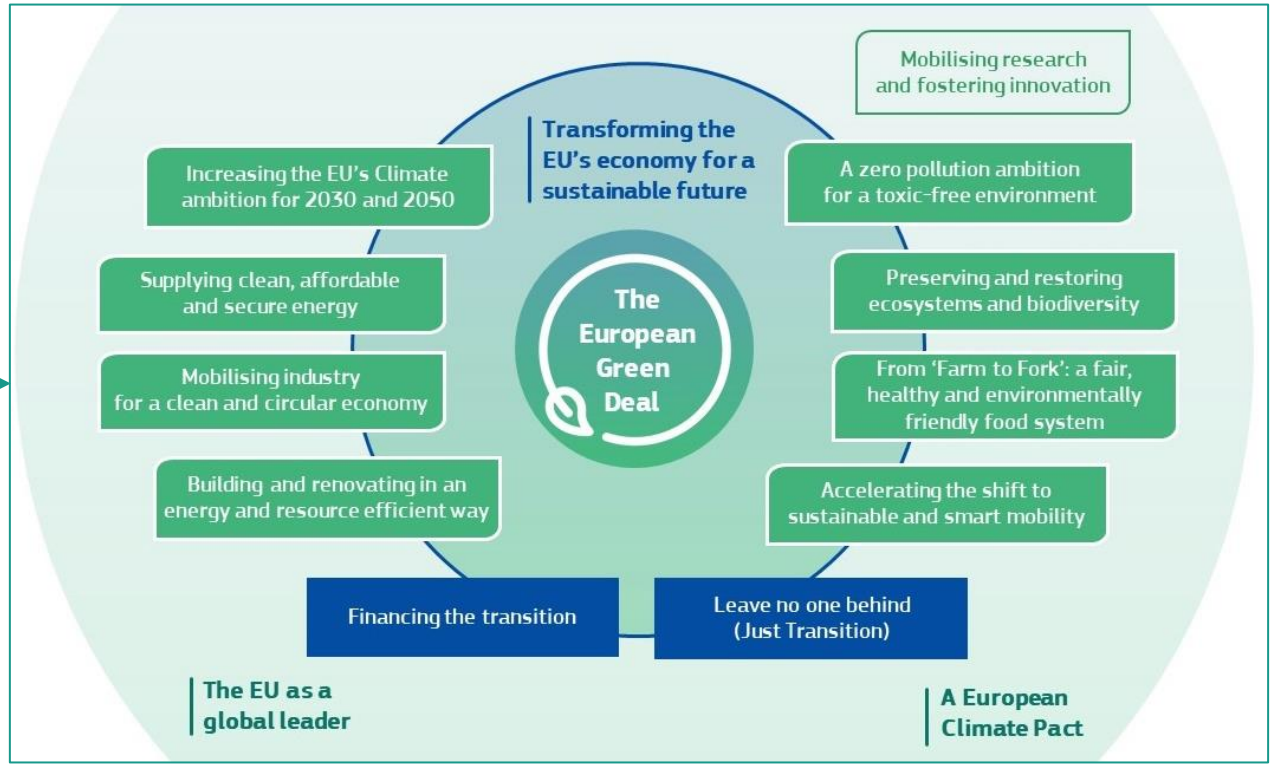
The eight Criteria that make up the IUCN Global Standard for NbS are all interconnected (© IUCN)

SAT Criteria	Average
1. Societal Challenges	0.6
2. Design at scale	0.7
3. Biodiversity net-gain	0.8
4. Economic Feasibility	0.4
5. Inclusive governance	0.7
6. Balance Trade-offs	0.6
7. Adaptive management	0.6
8. Mainstreaming and sustainability	0.7
Average	0.6

Detailed questions of the IUCN self-assessment for NbS

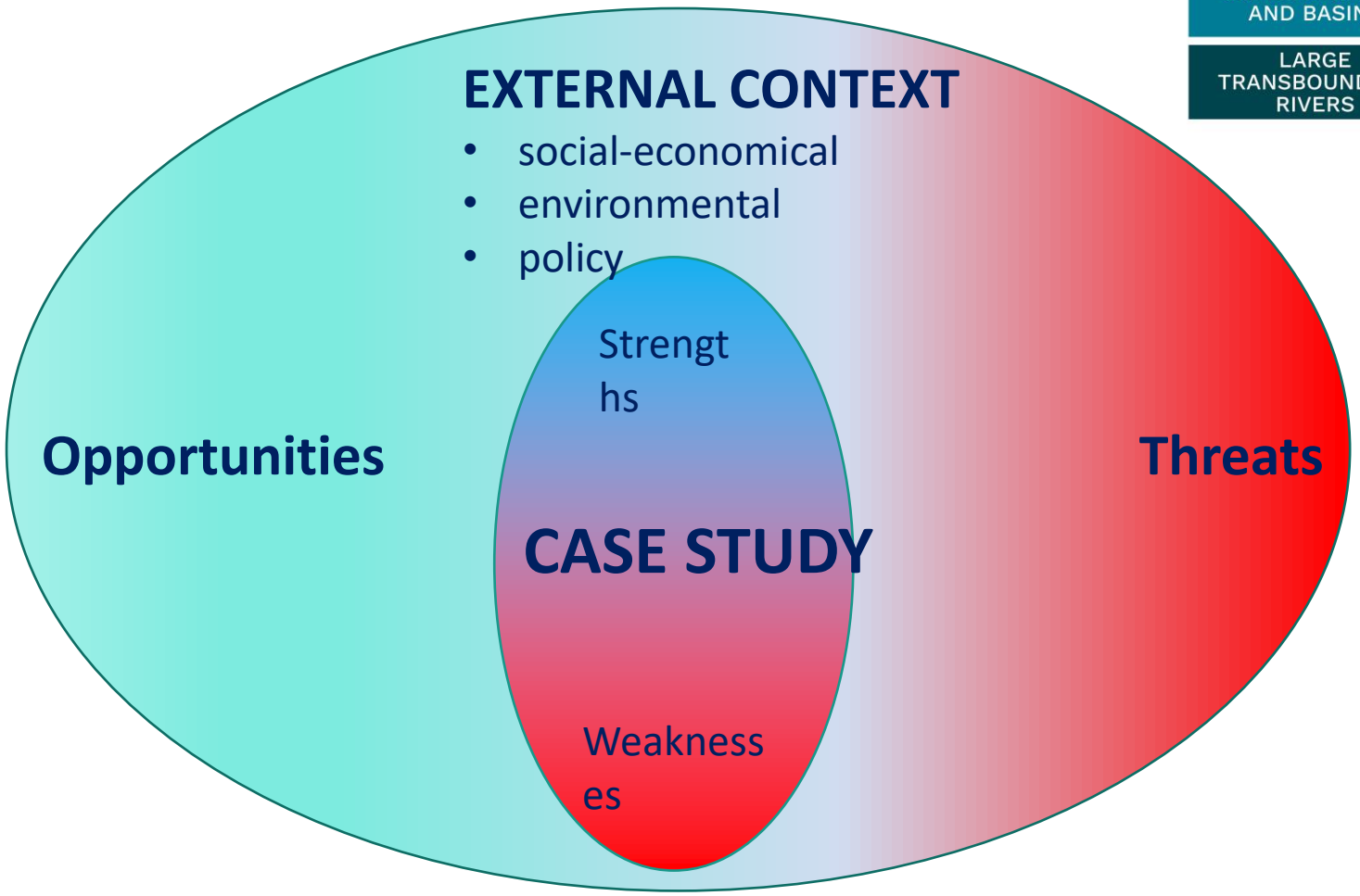
I. IUCN self-assessment	Original SAT score
1. Societal challenges	0,9
1.1 Pressing challenges prioritised	Strong
1.2 Challenges understood and documented	
1.3 Human wellbeing identified, benchmarked and periodically assessed	Adequate
2. Restoration design at scale	0,8
2.1 Recognises interactions economy, society and ecosystems	
2.2 Integrated with other complementary interventions and seeks synergies across sectors	Partial
2.3 Includes risk assessment and management beyond site scale	
3. Biodiversity net-gain	0,4
3.1 NbS respond to evidence-based assessment of the current state of the ecosystem and prevailing drivers of degradation	
3.2 Clear and measurable biodiversity conservation outcomes are identified and periodically assessed	
3.3 Monitoring includes periodic assessments for unintended adverse consequences on nature arising from the NbS	
3.4 Opportunities to enhance ecosystem integrity and connectivity identified and incorporated in the NbS strategy	
4. Economic feasibility	0,5
4.1 (in-)direct costs and benefits are identified and documented	
4.2 Cost-effectiveness study provides support to choice of NbS including impact of regulations and subsidies	
4.3 Effectiveness of NbS is justified against available alternatives, accounting for associated externalities	
4.4 NbS design considers a portfolio of resourcing options	
5. Inclusive governance	0,9
5.1 A feedback and grievance resolution mechanism is available to all stakeholders before an NbS is initiated	
5.2 Participation is based on mutual respect and equality of stakeholders	
5.3 Stakeholders who are (in-)directly affected by the NbS have been identified and involved in all processes	
5.4 Decision-making processes document and respond to rights and interests of all participating and affected stakeholders	
5.5 Where the scale of the nbs extends beyond jurisdictional boundaries these are overcome to enable joint decision-making	
6. Balance trade-offs	0,8
6.1 Cost-benefits of associated trade offs of NbS intervention are acknowledged and inform safeguards and corrective actions	
6.2 The rights, usage and access to land and resources, and responsibilities of stakeholders are acknowledged and respected	
6.3 Established safeguards are periodically reviewed to ensure trade off limits are respected	
7. Adaptive management	0,4
7.1 NbS strategy used for monitoring and evaluation	
7.2 Monitoring and evaluation plan for entire intervention life cycle	
7.3 Adaptive management is applied throughout the intervention life cycle	
8. Sustainability and mainstreaming	0,7
8.1 NbS design, implementation and lessons learnt are shared for triggering transformative change	
8.2 NbS inform and enhance policy and regulation frameworks	
8.3 Nbs contribute to national and global targets for human wellbeing, climate change and human rights	

European Green Deal – climate neutral economy in 2050



MERLIN's focus on restoring the biodiversity and services of freshwater-related ecosystems

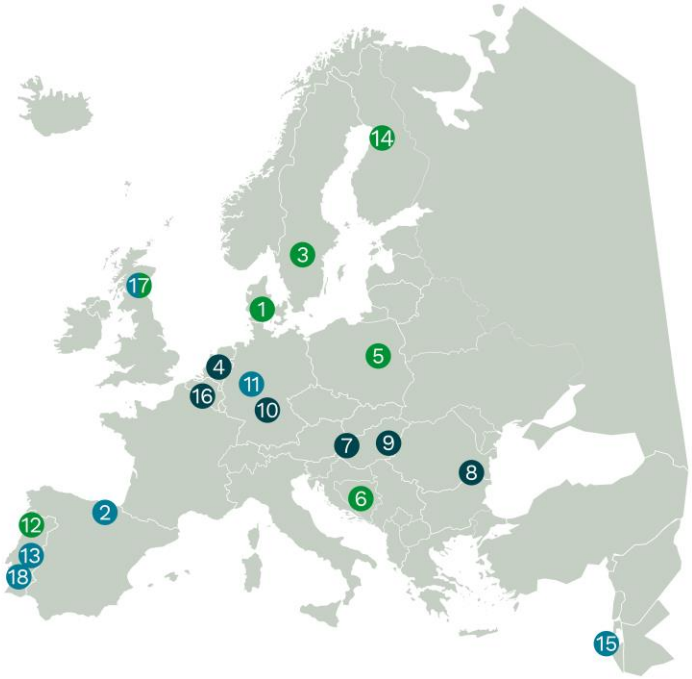
Performing the SWOT- analysis



PEATLANDS AND WETLANDS

SMALL STREAMS AND BASINS

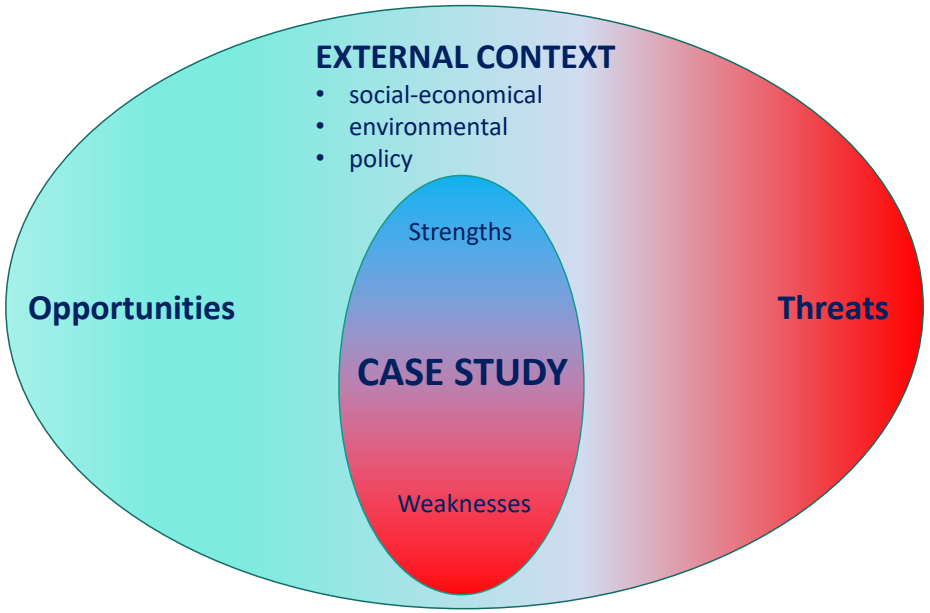
LARGE TRANSBOUNDARY RIVERS



SWOT analysis of IUCN self-assessment and EU Green Deal

I. IUCN self-assessment	Original SAT score
1. Societal challenges	0,9
2. Restoration design at scale	0,8
3. Biodiversity net-gain	0,4
4. Economic feasibility	0,5
5. Inclusive governance	0,9
6. Balance trade-offs	0,8
7. Adaptive management	0,4
8. Sustainability and mainstreaming	0,7

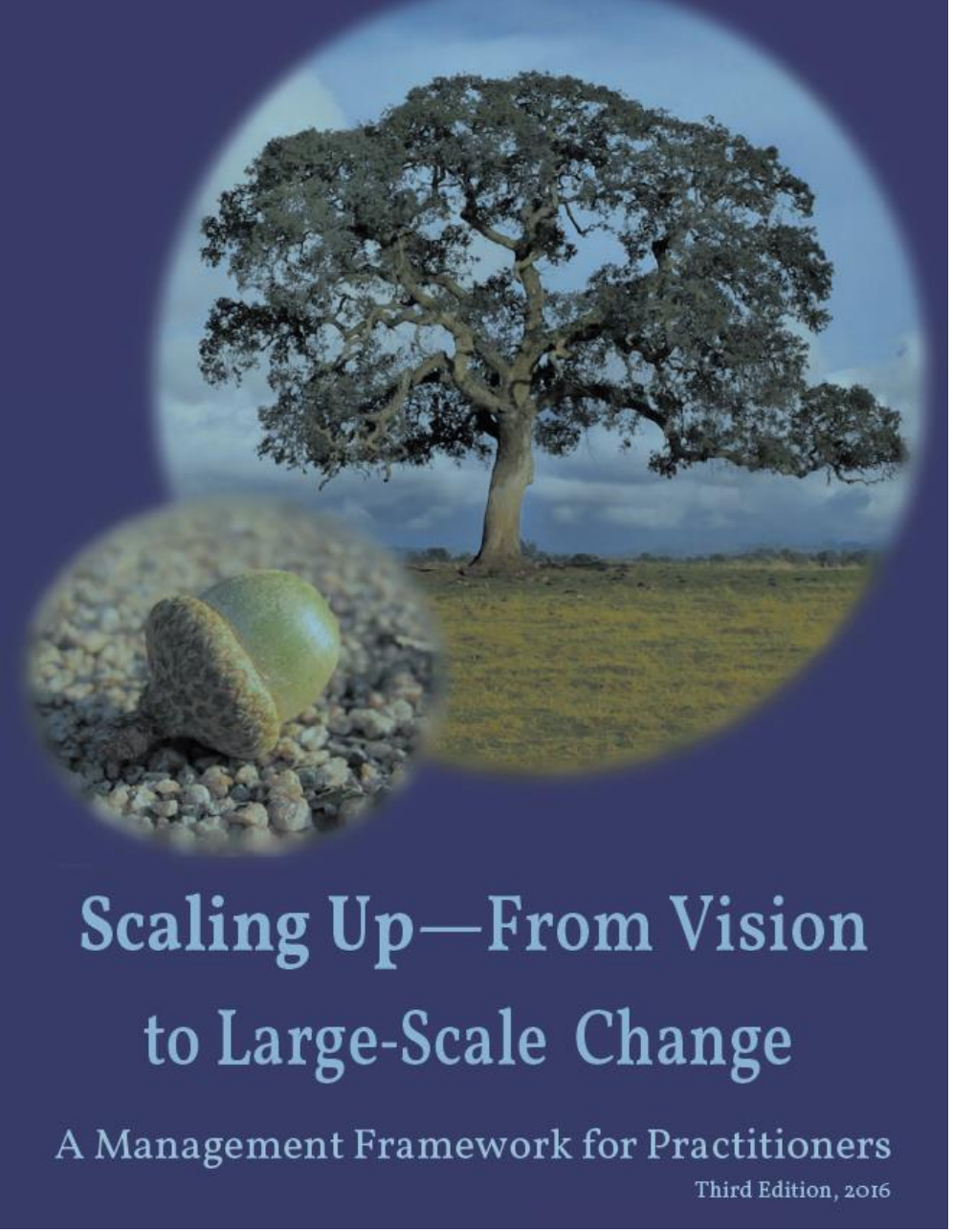
II. Green Deal indicators
Biodiversity net gain
Climate regulation
Flood resilience
Drought resilience
Health & well-being
Zero pollution goals
Sustainable food systems (F2F)
Sustainable energy
Sustainable transport
Inclusivity
Circular economy
Financing the transition
Green growth



MERLIN case study optimisation strategies

- SWOT has been very insightful
- Has given a deeper understanding on:
  - multiple goal achievement,
  - multi-stakeholder process,
  - technical knowledge gaps,
  - economical opportunities
  - policy/regulatory opportunities and limitations.

- Broadens perspective of the core group involved in the restoration activities
- Gives reasons to broaden the team and narratives of the cases
- Guides partners to broaden their knowledge and view on their case studies



STEP 1:

Develop a Scaling Up Plan

STEP 2:

Establish the Pre-Conditions for Scaling Up

STEP 3:

Implement the Scaling Up Process

"Scaling up is the process of expanding, adapting and sustaining successful policies, programs or projects in geographic space and over time to reach a greater number of people"

Source: Management systems International (2016)
https://www.msiworldwide.com/sites/default/files/additional-resources/2018-11/ScalingUp_3rdEdition.pdf

How did MERLIN address upscaling?

SWOT and optimisation strategies as input for regional scalability plans

- **Whom** to target?
- **Why** to scale up?
- **Where** to scale up?
- **What** is being scaled up?
- **How** to scale up?
- **Who** scales up?

- The 17 MERLIN Regional Scalability Plans (RSP's) offer visions for upscaling restoration at wider landscape levels with a time horizon up to 2050 created through collaborative efforts to upscale freshwater restoration initiatives.
- The RSP's mainstream Nature-based Solutions (NbS) thinking and interaction with stakeholders towards common goals.

MERLIN restoration case studies

MERLIN learns from 17 best-practice case-study demonstrators in terms of innovative restoration measures, types of governance and financing frameworks. With investing more than 10 million € in further hands-on upscaling measures, MERLIN makes these 17 projects beacons of innovation for transformative and systemic change.

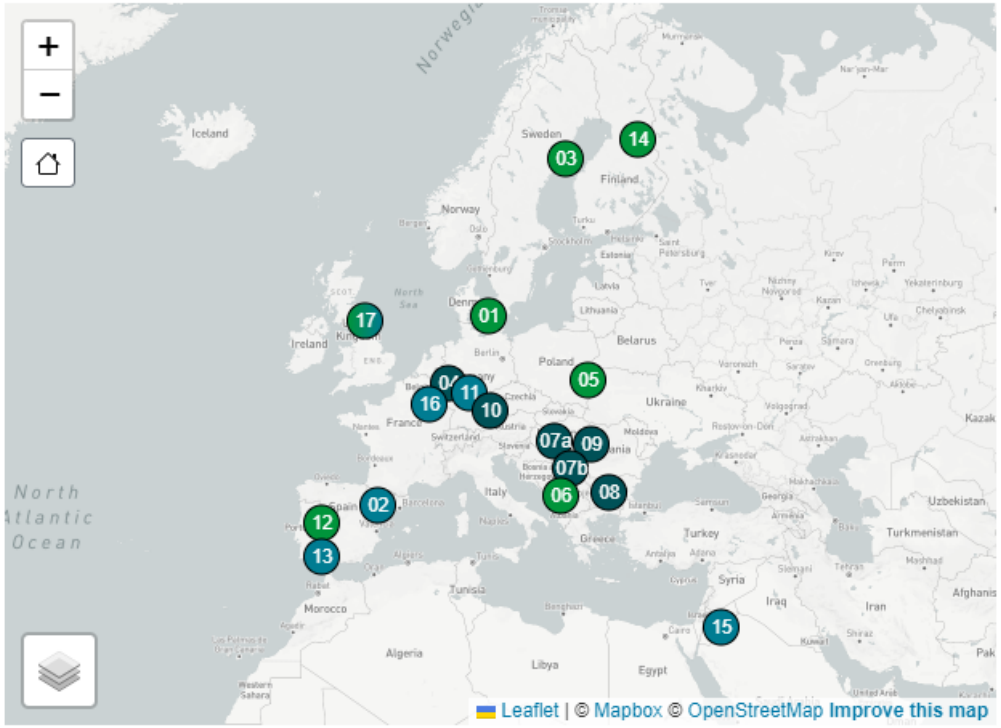
Locations of the case studies and ecosystem types

Click on the buttons to deactivate/activate a specific case study cluster.

Peatlands and wetlands

Small streams and basins

Large transboundary rivers



https://project-merlin.eu/cs-portal.html

Self-assessment of the status of upscaling of the MERLIN case studies (Jan 2024)

Legend	
RE	This is ready
AI	Advanced and concrete ideas
VT	First vague / generic thoughts
NI	No idea yet
NR	Not relevant for our CS
NK	Don't know how to do this

The starting point for developing an ambitious and feasible regional scale-up plan requires insight into current approaches to restoring freshwater ecosystems.

Cluster	Peatlands & wetlands							Small stream and basins							Large rivers					
Case study number	1	3	5	6	12	14		2	11	13	15	16	17		4	7a	7b	8	9	10
Case study name	Kvorning	Beaver introduction	Kampinos	Hutovo Blato	Lima	Komppasuo		Deba	Emscher	Sorraia	Tzipori	Upper Scheldt	Forth		Rhine NL	Danube AT	Danube HU	Danube RO	Tisza	Blue Belt D
STEP 1: Reviewing existing plans																				
Task 1:Checking the what, why, how and where	RE	AI	AI	VT	VT	RE		RE	AI	AI	AI	AI	AI		AI	AI	AI	AI	AI	RE
Task 2:Evaluate and increase the ambition of the plan	RE	AI	VT	VT	VT	AI		RE	AI	VT	AI	AI	AI		AI	AI	AI	VT	AI	AI
Task 3:Provide more details and specifity to the plan: actions and ownership and funding	RE	VT	AI	NI	NI	VT		RE	AI	VT	AI	VT	AI		VT	AI	VT	VT	VT	AI
STEP 2: Strengthen the preconditions for scaling-up											-									
Task 4: Understanding stakeholder needs	RE	RE	AI	AI	NI	RE		AI	VT	AI	RE	VT	AI		AI	AI	VT	VT	VT	VT
Task 5: Legitimizing change	RE	AI	VT	AI	VT	AI		AI	NI	AI	AI	AI	VT		AI	AI	VT	VT	VT	AI
Task 6: Building constituency	RE	AI	VT	AI	VT	AI		AI	AI	NI	VT	VT	AI		VT	AI	VT	VT	VT	RE
Task 7: Identifying information gaps	RE	AI	AI	AI	VT	VT		VT	AI	VT	VT	VT	VT		VT	AI	VT	VT	VT	VT
STEP 3: Implementing the scaling up: managing the change and adapting as necessary.											-									
Task 8: Mobilize resources: identifying human and financial resources necessary to support the scaling up process	RE	AI	AI	VT	NI	VT		AI	NI	NI	VT	VT	AI		VT	AI	VT	VT	VT	VT
Task 9: Modify and strengthen organizations: developing and executing institutional capacity-building and organizational development plans for major participants	RE	AI	AI	VT	NI	VT		VT	AI	NI	VT	NR	AI		VT	RE	NK	NR	VT	RE
Task 10: Coordinate action	RE	AI	NI	VT	NI	VT		VT	NI	NI	VT	VT	AI		VT	RE	VT	VT	VT	NI
Task 11:Adapt Strategy and maintain momentum	RE	VT	NI	NI	NI	VT		NI	NI	NI	VT	VT	VT		AI	RE	NI	NI	VT	AI

Nasjonalt seminar om restaurering av vassdrag og våtmarker, 23 October 2024

Overview of primary and secondary Green Deal goals per case study

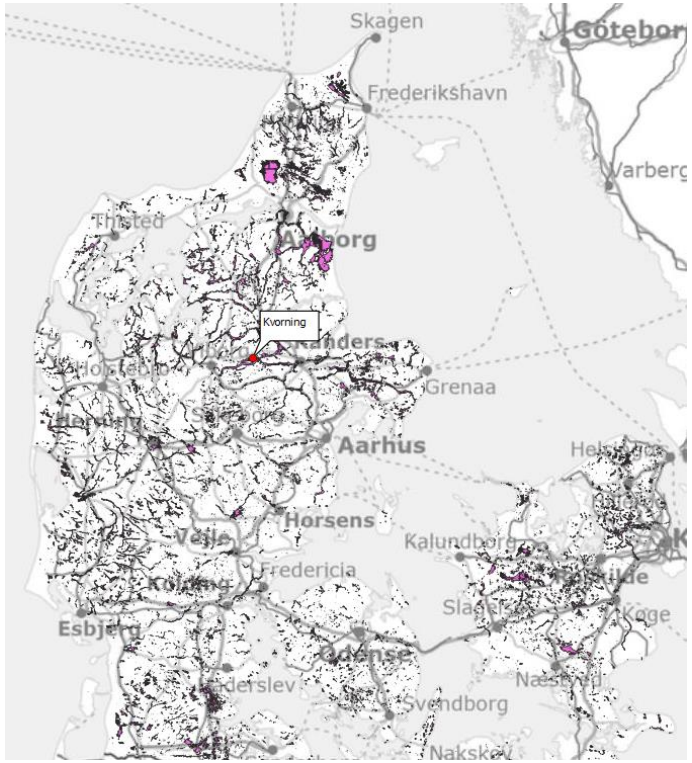
- All CS have multiple goals
- Biodiversity net gain, climate change mitigation and inclusivity are the main EU Green Deal goals of the RSP's.

#	Name	Biodiversity Net gain	Climate regulation	Inclusivity	Drought resilience	Flood resilience	Health& Wellbeing	Zero-pollution	Farm to Fork	Circular economy	Greengrowth	Financing the transition	Sustainable Energy	Sustainable transport	Primary	Secondary
	Peatlands & wetlands															
1	Kvorning wetland rewetting DK	1	1	1	0	2	2	1	0	0	0	0	0	0	4	2
3	Beaver river engineering SE	1	2	2	2	2	0	2	2	0	0	0	2	0	1	7
5	Kampinos wetland rewetting PL	1	1	1	1	1	1	1	2	0	2	2	0	0	7	3
12	Lima floodplain forest restoration PT	1	2	1	1	1	1	2	2	0	2	0	0	0	5	4
14	Komppasuo peatland rewetting FI	1	1	1	0	0	0	0	0	0	0	0	2	0	3	1
17	Forth basin restoration UK	1	1	0	1	1	2	1	2	1	1	0	0	2	7	3
	Small stream & basins															
2	Deba barrier removal ES	1	1	1	0	1	2	2	0	0	2	0	0	0	4	3
11	Emscher basin restoration DE	1	1	1	1	0	2	0	2	2	2	2	2	0	4	6
13	Sorraia river restoration PT	1	1	1	2	2	1	1	1	0	2	0	2	2	6	5
15	Tzipori basin restoration IL	1	1	1	2	2	2	2	2	0	2	0	0	0	3	6
16	Upper Scheldt restoration BE	1	1	1	2	2	2	1	0	2	0	0	2	0	4	5
	Large transboundary rivers															
4	Room for the Rhine NL	1	1	1	2	2	1	2	2	0	0	2	0	2	4	6
7a	Danube floodplain restoration AT	1	2	2	2	2	0	0	0	0	0	0	0	0	1	4
7b	Danube sidearm reconnect HU	1	1	1	2	2	2	0	2	0	0	0	0	2	3	5
8	Danube floodplain reconnect RO	1	1	1	1	1	2	0	2	2	2	2	0	0	5	5
9	Tisza floodplain rewetting HU	1	1	1	1	2	2	0	1	2	2	2	0	0	5	5
10	Blue Belt	1	1	2	1	1	1	2	0	0	2	2	0	2	5	5
	Primary	17	14	13	7	6	5	5	2	1	1	0	0	0		
	Secondary	0	3	3	7	9	9	6	9	4	9	6	5	5		

Kvorning wetland rewetting (DK): agreement on a Green Denmark.

- The government and the parties in the green tripartite - the Danish Agriculture & Food Council, Danish Society for Nature Conservation, NNF, Dansk Metal, Dansk Industri and KL - have agreed on the Agreement on a Green Denmark.
- The way to make Denmark a modern agricultural country and provides concrete answers to agriculture's climate and nature challenges.
- A historic reorganisation of the Danish land area that provides more space for nature and better conditions for biodiversity and drinking water protection.
- The parties agree to introduce a CO2 tax on emissions from livestock
- > DKK 30 billion will be set aside to set aside a total of approximately 140,000 hectares of carbon-rich lowland soils, including marginal areas, and to plant 250,000 hectares of forest.

Source: Government of Denmark, 24 June 2024

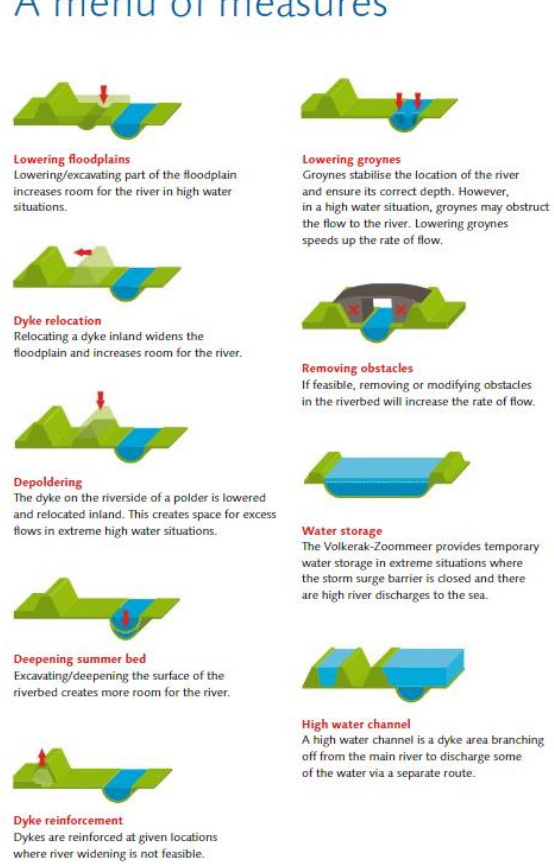


Pink and black show the occurrence of carbon rich soils/peat namely in the river valleys

Room for the Rhine (NL): Upscaling including NbS ‘avant la lettre’

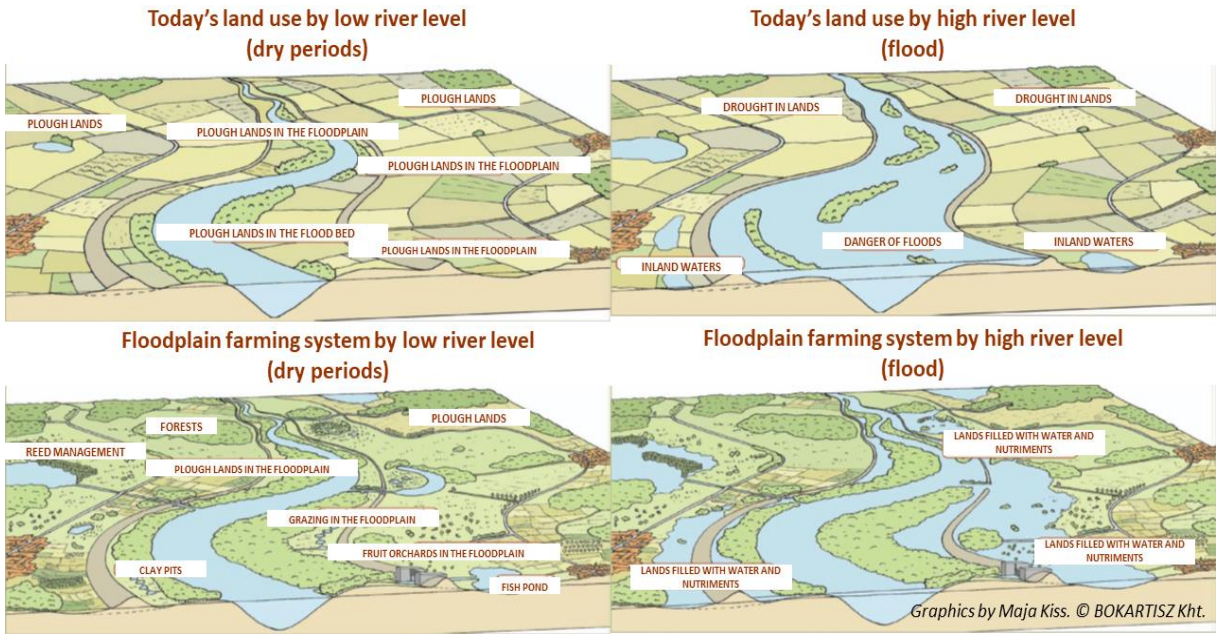
- Upscaling including NbS ‘avant la lettre’
- 1993, 1995 Floods.
  - → Rhine discharge 12,000 m3/s
  - → 250,000 people evacuated
- 1996 – 2005
  - → Planning & adaptation
  - → Who is affected and who benefits?
  - → Public & stakeholder consultation
- 2006 – 2018
  - → Realisation 34 projects
  - → 2,3 billion €
- Dual objectives
  - → Flood protection
  - → Spatial quality
    - Quality of life
    - Ecosystem quality (WFD, Natura 2000)

- Anno 2024 new challenges
  - → River bed incision
  - → Changing & more extreme discharges
  - → Droughts
  - → CO2 storage



Tisza floodplain rewetting (HU): Developing sustainable water management and landscapes in the Tisza Plain

- Initiative NGOs
- Local pilots for demonstration
- Floodplain rewetting
- Agriculture
  - Low vs high profit
- Recent dry years create awareness among stakeholders and opportunities
- For large-scale upscaling public bodies should become involved



Blue Belt Germany (DE): a New Perspective for Inland Waterways

- A model for Waterway Restoration and Sustainable Regional Development
- Advisory Board
  - Federal Ministry for Digital and Transport (BMDV), co-chair
  - Federal Ministry for the Environment, Nature Conservation, Nuclear Safety, and Consumer Protection (BMUV), co-chair.
  - Nature And Biodiversity Conservation Union (NABU)
  - German Tourism Association
  - ADAC - German Automobile Club
  - Stiftung Lebensraum Elbe
  - WWF Germany
  - Ministry for Economic Affairs, Labour, and Energy, Brandenburg
  - German Olympic Sports Confederation
  - German Rowing Association
  - Friends of the Earth, Germany
  - Senator for Climate Protection, Environment, Mobility, Urban Development, and Housing, Bremen

Take home messages to “really” upscale freshwater ecosystem restoration

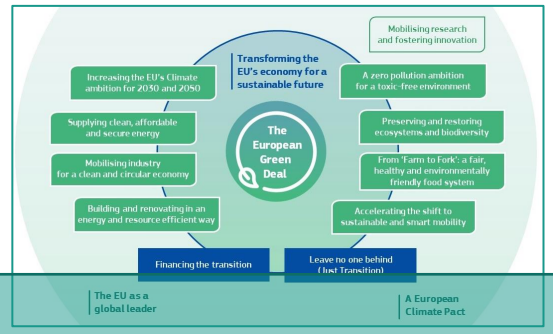
- Multiple goals: linkages with socio-economic drivers
  - Carbon sequestration, flood protection, navigation, agriculture
- Involvement of public bodies (government, administration)
  - NGO‘s can initiate pilots, but lack the capacity to upscale
- A much stronger stakeholder involvement
  - Public bodies can learn from NGO‘s
- Develop a long-term vision and stepwise implementation strategy
  - A time horizon of several decades
  - Consider e.g. the WFD which will be after three rounds of RBMPs (2009 – 2027) far from realised.
- A larger spatial scale: basin-wide perspective
  - Challenges are in the catchment not only in the water bodies
  - See e.g. the „Operational Restoration Unit“ (Friberg et al. 2017)

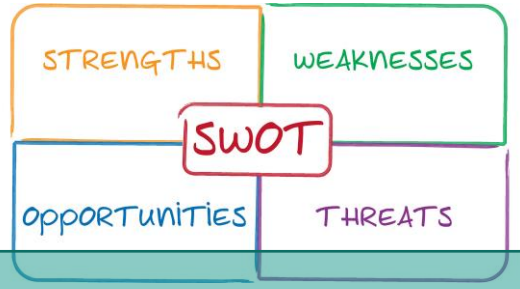
Friberg et al. (2017) Effective restoration of aquatic ecosystems: scaling the barriers. WIREs Water 4: e1190 http://dx.doi.org/10.1002/wat2.1190)

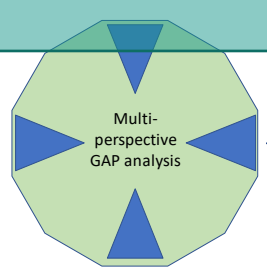
Take home messages to “really” upscale freshwater ecosystem restoration

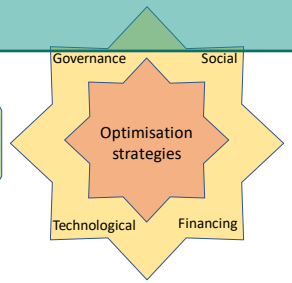
- Upscaling Freshwater Ecosystem Restoration entails mainstreaming NbS into policies and practices.
  - In MERLIN, this has been done through the EU Green Deal ambitions.
- The RSP’s highlight that transformative change requires actions in three areas: practical work in the field, changes in policies, and efforts to involve the public.
  - To successfully restore freshwater on a large scale, all these actions need to work together.
- Upscaling entails replication and expansion of current good practices as well as the development of inclusive multiple benefit projects for nature, climate and society.
- Mainstreaming restoration requires collaboration and collective action with diverse set of actors.
  - The MERLIN RSP’s highlight the need to build new coalitions and cross-sectoral collaboration as well as strengthen existing networks.

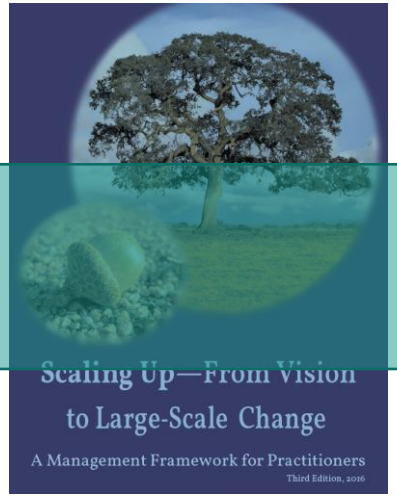
Thank you for your attention!

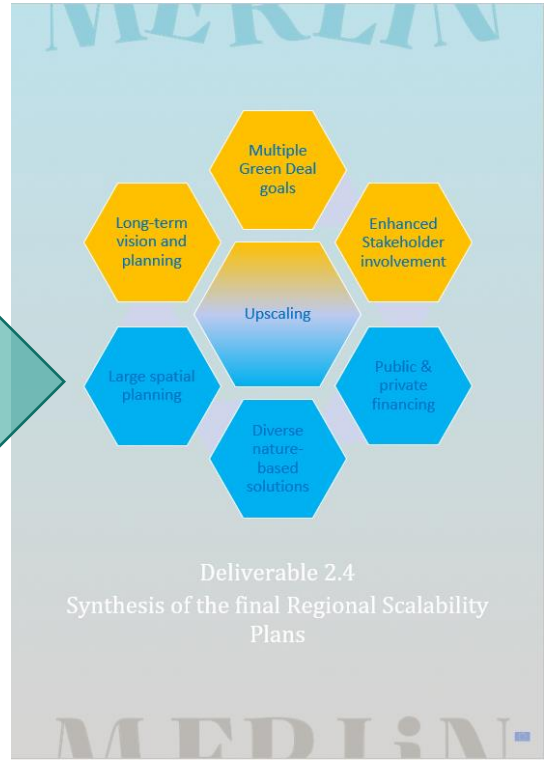












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MERLiN

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