

Transformative Adaptation through Nature-Based Solutions



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Nature-Based solutions (NBS) are “solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. [They] must therefore benefit biodiversity and support the delivery of a range of ecosystem services.” (EC, 2020).

Background & rationale

Transformative adaptation is motivated not only by the impacts of climate change, but also by biodiversity loss, soil and water pollution, and other planetary risks, reinforced by accelerating socioeconomic inequalities. NBS can help address the multiple crises humanity is facing. Yet, to scale up NBS, we need transformative adaptation. This poses the question:

→ What governance gaps need to be filled to achieve transformative adaptation through NBS?

Methods

To address this question, we build on a framework describing transformative adaptation manifested across four core elements of the public-sector adaptation lifecycle: vision, planning, institutions, and interventions (Fig. 1). For each element, we identify characteristics that can help define adaptation as transformative (Tab.1). We demonstrate and test the usefulness of the framework with reference to three NBS case studies: landslide risk reduction (Italy), forest conservation (China), and river restoration (Germany). The analysis is based on a desktop study and 46 semi-structured interviews.

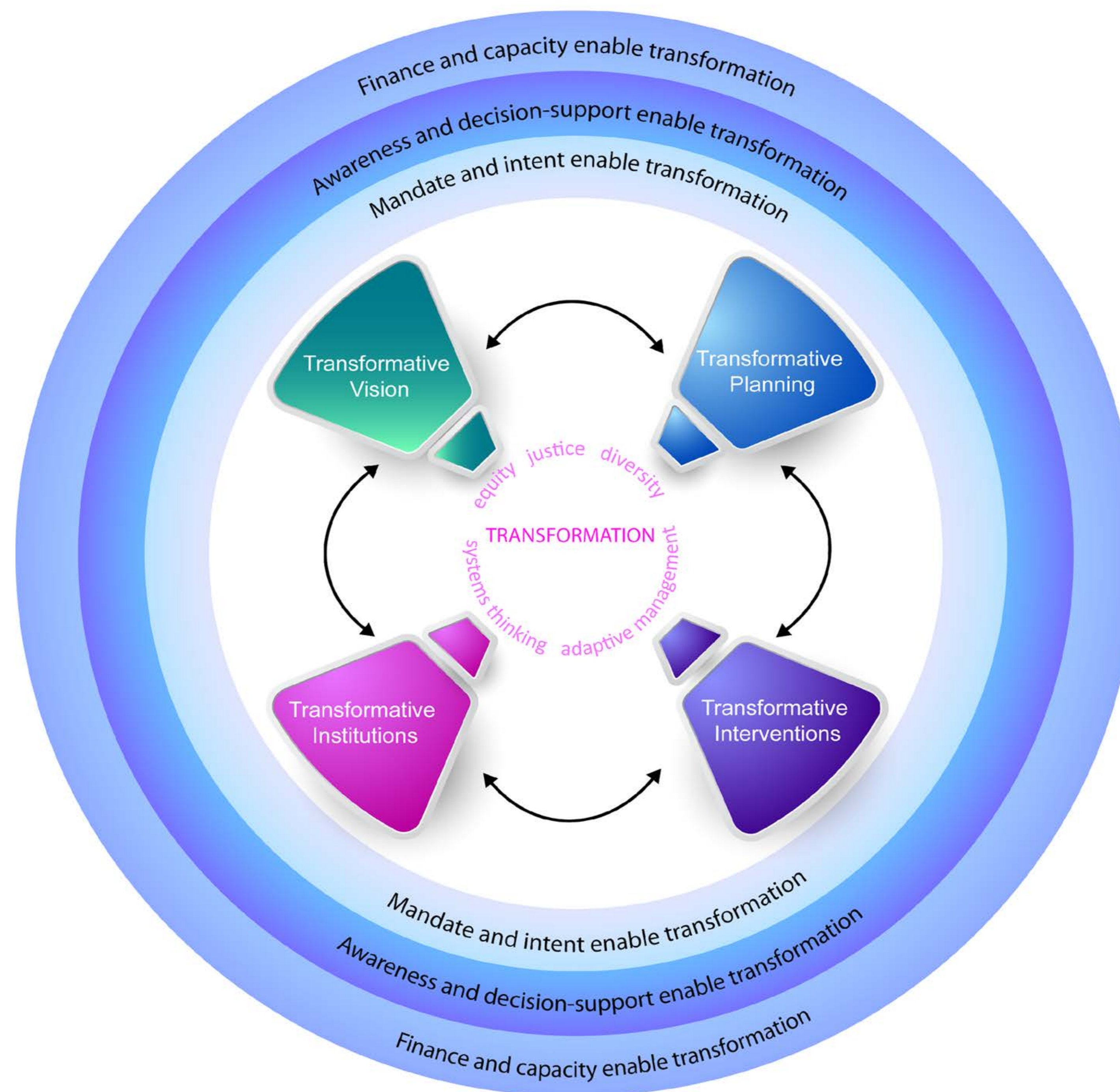


Fig. 1 – A framework for transformative adaptation

Tab. 1 - Transformative adaptation elements and characteristics

Vision	1. Systemic
	2. Path-shifting & restructuring
	3. Risk root causes-oriented
	4. Mobilize
Planning	1. Inclusive
	2. Equitable
	3. Co-production
	4. Open data system
Interventions	1. Scaling
	2. Sustainable
	3. Future-oriented
Institutions	1. Catalyze
	2. Social justice promotion
	3. Polycentric governance



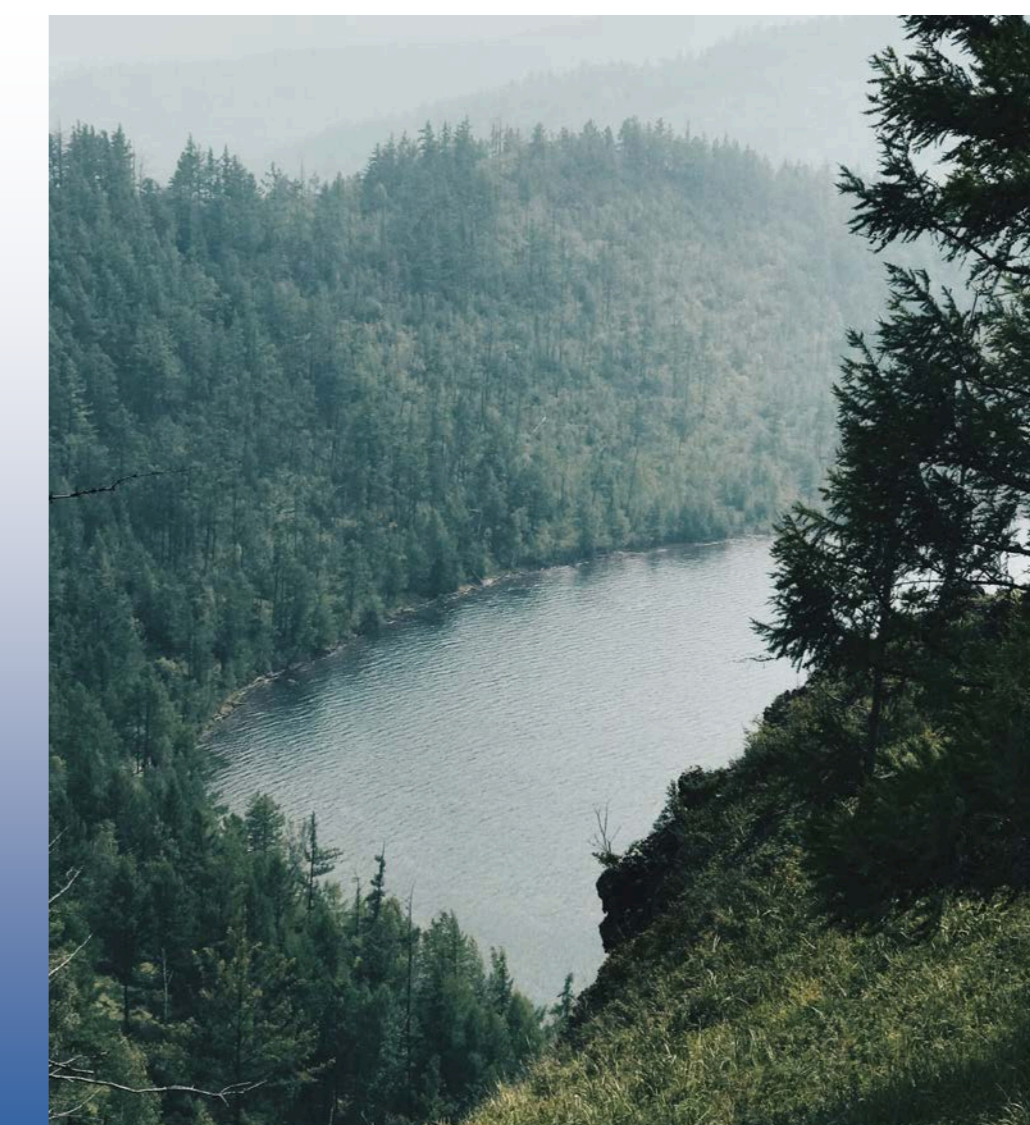
Co-designed NBS for landslide risk mitigation in Nocera Inferiore (Italy): The grey versus green battlefield

1	2	4
1	3	
2	3	
3		



Green is the new grey on Munich's Isar River (Germany): Innovative NBS boost ambitious flood protection scheme

1	2	4
1	2	3
2	3	
1	3	



Carrots and sticks for conserving the forest: A NBS for Wolong Nature Reserve (China)

1	2	4
1	2	3
1	2	3
3		

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Key results

In all cases, stakeholders reported on:

- Systemic and path-shifting **visions**, often supported by strong advocacy groups;
- Inclusivity and co-production/co-design as important part of NBS **planning**;
- Sustainable and future oriented **interventions**, but limited upscaling capacity; and
- **Institutional** commonalities in polycentric collaboration, i.e. novel arrangements across sectors and scales.

Ways forward

- Our results reveal that the largest gap is the transformation of institutions. Successful institutional arrangements (e.g., multi-scale and cross-sectoral collaboration) were short-term and dependent on the motivation of local champions and coalition groups.
- For the public sector, the results also highlight the potential for establishing cross-competing priorities among agencies, cross-sectoral formal mechanisms, new dedicated institutions, as well as programmatic and regulatory mainstreaming.
- More research is needed on how we can deliver transformation on a permanent basis and what governance mechanisms and models can help achieve this.