Systems thinking and theory of change – an approach to solving complex problems and identifying social transformation strategies and instruments to advance the biodiversity agenda

Discussion note
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The world of academia and sustainable development are shifting perspectives from seeing biodiversity as an object of conservation to understanding biodiversity as the fundamental ingredient of sustainability.

To fully achieve this new vision of biodiversity, we need to understand societies and their environments as complex, interdependent adaptive systems.

Resilience thinking is a toolbox for understanding complex social-ecological systems, aiming to measure the resilience of such systems, i.e. their ability to absorb and adapt to both gradual changes and shocks while continuing to evolve and maintain similar structure and function. (Bio-) diversity is fundamental to resilience, as it provides systems with a variety of responses and sensitivities to changes and shocks. Through a resilience-thinking lens, we can look beyond trends and events to unpack systemic patterns, dynamics and root causes.

Humanity is currently working against sustainable social-ecological system's dynamics: we have not achieved humanity's basic needs for food, water, equality, etc. and our environmental dependence and impact lie beyond the Earth's capacity to provide and absorb these resources sustainably.

Paradoxically perhaps, to achieve sustainability, we will need to break the resilience of today's unsustainable systems: we need to radically transform the connections between societies and their environment. We need new complex system configurations, which allow for sustainable dynamics, and whose resilience can be fostered.

Transformations reflect the ability of people in complex social-ecological systems to create a new system, when the conditions (social, economic, political or environmental) make the system untenable. Transformations require agency, goals to transform towards and leverage points.

Agency assumes that transformations occur at local scales first. Indeed, though our visions of sustainability are global, achieving sustainability must be done sub-globally, and this is also the scale at which goals must be designed: there is no single sustainable system, rather a network of connected and dependent sustainable systems.

Societies need to draw what their sustainable futures look like: create goals, envision systems, re-think interactions between people and their environment. It is in these visions that we can attribute biodiversity its fundamental place, where it underlies the services that societies depend on, where it is fully embedded in the economics of consumption and trade.

It is often argued that the most powerful leverage points are seminal – i.e. they relate to changing mental models and paradigms, creating mind-shifts. Designing sustainable futures plant the seeds for those mind-shifts that will fuel innovation and lay out the pathways to sustainability.