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# Theories of Change for Complex Sustainability Transformations: Mobilizing the Potential of Redefining the Relationship Between Humans and Nature

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**Background:** Central to transformations towards sustainability is the call to redefine the relationship between humans and nature. This redefinition represents a paradigm shift, with many asserting that it holds the greatest potential for transformation. However, the practical implementation of this call often remains abstract for those responsible for interventions in sustainability, such as projects and programs.

**Purpose:** This paper aims to initiate the translation of this call into actionable steps for the design of Theories of Change. It will achieve this by bringing two approaches into dialogue: Principles-focused and Decolonization approaches.

**Setting:** Not applicable.

**Intervention:** Not applicable.

**Research Design:** Not applicable.

**Data Collection and Analysis:** Not applicable.

**Findings:** Not applicable.

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## Setting the Scene

Radical transformations of our current systems are essential if we are to embark on sustainable pathways. While such transformations take manifold forms (Linnér & Wibeck, 2020), some deliberate and others not (Iwaniec et al., 2019), in this short piece we take a distinctively normative stance and enquire how to deliberately foster such transformations in view of realizing desired goals.<sup>1</sup> The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) defines transformations as “fundamental, system-wide reorganization[s] across technological, economic and social factors, including paradigms, goals and values” (IPBES, 2019, p. 889). Such fundamental, system-wide reorganizations require accounting for extraordinarily complex dynamics that our current approaches geared at transformation systems grapple with (Hertz, 2022).

We argue that one of the reasons for failing to successfully engage with and fostering transformations towards sustainability is that our current approaches do not sufficiently take account of a problematic relationship between humans and nature. Philosophers have attributed the root cause of this problematic relationship to “modern” ways of being that create a separation between humans and nature (Latour 1994) which can be seen as the product of the success of scientific realism of earlier centuries (Whitehead 1925). However, many have pointed out that alternatives exist, as demonstrated by Indigenous ways of being for millennia (Gould et al., 2023). This paper joins the efforts of others (Bennett and Reyers, 2024) and explores how to mobilize the potential for redefining the relationship between humans and nature in worldwide efforts to transform current systems and the unsustainable practices they give rise to.

## The Three Spheres of Transformation

To better understand the scope of the challenge, we engage with the three spheres of transformation introduced by O’Brien and Sygna (2013). The spheres are a heuristic tool that captures “both the breadth and the depth of the changes needed to realize a particular goal” (O’Brien, 2018, p. 155). Those spheres are practical, political, and personal. The practical sphere is the sphere of behavioral and technical practices. The political sphere is about structures that define the rules of the game

according to which behavioral and technical practices unfold; that is, “the norms, rules, regulations, institutions, regimes and incentives that influence how systems are designed, organized and governed” (O’Brien, 2018, p. 156). Finally, the personal sphere “represents both individual and shared understandings and assumptions about the world, which influence perceptions, interpretations and constructions of reality” (O’Brien, 2018, p. 156). The personal sphere includes beliefs, values, and worldviews that in turn condition the structures of the political sphere, as it defines what is “individually and collectively imaginable, desirable, viable and achievable” (O’Brien, 2018, p. 156).

The three spheres are thus connected, and a successful transformation toward sustainability ideally requires aligning, or syncing, action across all spheres. This is because the different spheres condition each other: The practical is conditioned by the political, and the political is conditioned by the personal (O’Brien & Sygna, 2013). Focusing solely on one sphere, such as the practical sphere, may alleviate the pressure of certain issues, but it is unlikely to result in transformation unless the underlying drivers rooted in the political and personal spheres are also addressed. However, as apparent in Meadows (1999), efforts geared toward sustainability by and large focus *only* on what would we would situate in the practical and/or political spheres. Such efforts amount to what Morrison et al. (2022) call palliative, or hopeful, interventions, which do not fundamentally transform a system but rather maintain and prolong the status quo (Hertz, 2022). Proper transformative change would require to also focus on the personal sphere (O’Brien & Sygna, 2013; Meadows, 1999).

For the field of sustainability, the desire to transform the personal sphere manifests in a growing call for redefining the relationship between “humans” and “nature” (IPBES, 2019). Indeed, many scholars argue that fundamental distinctions such as “humans” and “nature,” inherited from modernity (Latour, 1994) underlie and facilitate many of the extractive and destructive patterns we witness today (Böhme et al., 2022; Hertz & Mancilla Garcia, 2021). This is because they promote an understanding of the world where humans are seen as separate from nature (Hertz et al., 2020; Mancilla Garcia, 2020; West et al., 2020). Such distinctions and the practices that enact them (which are material as well as discursive) are

<sup>1</sup>A goal need not necessarily be an endpoint but can be understood as an unfolding trajectory. See Hertz et al. (2021).

performative (Barad, 2007). Put differently, they provide the conditions for experiencing the world. In this meaning-giving function those distinctions have an ontological dimension; that is, they constitute reality and, in that function, “influence and inform whether, where and how boundaries are drawn between ‘us’ and ‘other,’ who or what is included or excluded (or allowed or prohibited)” (O’Brien, 2018, p. 156). This means that these distinctions condition the norms, rules, institutions, etc. of the political sphere as well as the corresponding behaviors and practices of the practical sphere.

However, (sustainable) alternatives to such distinctions exist (West et al., 2024; Garcia-Arias et al., 2024; Gould et al., 2023) and the question this short piece wants to explore is *how* to make the call for redefining the relationship between humans and nature actionable for those who strive to make change, and that across all three spheres of human dwelling?

## Elements of Theories of Change (ToCs) for Complex Sustainability Transformations

To approach this question it’s necessary to have a better understanding of the approaches or tools that are actually mobilized whenever planning interventions aimed at changing and transforming systems. Core to such enterprises are theories of change (ToCs). ToCs can be defined as “the mental representations and theoretical assumptions that explain how and why activities of an initiative (e.g., projects, programs, organizations) generate particular changes” (Oberlack et al., 2019, p. 106, drawing on Mason & Barnes, 2007). Typically, they are expressed via results-based management frameworks that organize activities, outputs, outcomes, and impacts into a coherent narrative of how such change is to be achieved. ToCs are used in two ways: “ex ante, as an approach to strategy development and planning, and ex post, as a monitoring and evaluation approach” (Arensman et al., 2017, p. 222). Specifically in that first use, they seem particularly apt for engaging with normative sustainability goals and are said to have the potential to support the transformative ambition of the field (Oberlack et al., 2019).

We mentioned above that most of the efforts geared toward sustainability go into the practical and political spheres. The question then becomes: How to design ToCs that operate across all three spheres—that is, also on the personal sphere instead of only on the practical or political sphere?

In particular, how to redefine the categories and distinctions that condition the political and practical spheres? How to mobilize the potential that comes with redefining the relationship between humans and nature? To get the contours of an answer this short piece proposes to put two fields into dialogue: principles-focused approaches and decolonization approaches.

## Principles-Focused Approaches

Principles-focused approaches (i.e., principles-focused evaluation) are put forward by Michael Quinn Patton. The core idea is to not think about a project/program in terms of results-based management frameworks that sketch out activities, outputs, outcomes, and impacts ex-ante project/program implementation. Instead, principles—actionable principles—are developed that should guide the implementation of a project/program. In the words of Patton, principles “provide guidance about how to think or behave toward some desired result” (Patton 2023, p. x). Key to note is that such principles are general enough to serve as guidance *across* all three spheres mentioned above. Put differently, a principles-focused approach might support a much needed whole-of-society approach that key stakeholders in academia and policy call for (United Nations, 2023). Such principles/patterns will (need to) vary significantly, as the contexts within which sustainability issues emerge are diverse. To deal with this diversity, Patton’s GUIDE framework (Patton, 2018) can help ensure that such patterns (or principles) provide meaningful guidance (G) and are useful (U), inspiring (I), developmentally adaptable (D), and evaluable (E).

Principles-focused approaches are specifically apt for intervening in complex adaptive systems, and thus they provide a basis for those that aim to formulate complexity-aware ToCs (e.g., Hertz et al., 2021). Designing complexity-aware ToCs often involves carrying out specific processes, such as fostering broad participatory involvement, collaborating over the problem definition, co-productive experimentation toward solutions, and building agency for change. Such ToCs are thus designed/formulated *within* the boundaries set by actionable principles. Principles-focused approaches prove crucial for a world of unfolding complexity, ensuring a (difficult to attain) balance between, on the one hand, the great need for a whole-of-society approach and, on the other hand, the need to allow for context-specific projects/programs.

## Decolonization Approaches

However, the principles-focused approach to ToC formulation tends to operate *within* established distinctions, such as “humans” and “nature.” Such distinctions are inherited from modernity (Latour, 1994) and lead to a “problematic modernist political imaginary that limits how researchers can envision what politics is” limiting politics to what happens in accordance to such distinctions (Grove & Pugh, 2018, p. 111). The idea is to disclose and question the “diagrams of power”; that is, the contraction of power relations (Panayotov, 2016) enacting such distinctions as they provide the conditions for experiencing the world. Put differently, if the aim is to redefine the relationship between humans and nature, one possibility would be to revisit these distinctions. As these distinctions have their roots in modern science—more specifically, in what Whitehead (1919) calls the “bifurcation of nature”—there is a need for a decolonial gesture; that is, a gesture that decolonializes the way by which our understanding of the world is conditioned by such distinctions—which in turn conditions the way in which we engage with the world.

Here we find inspiration in process-relational perspectives from sustainability science. Key to process-relational perspectives is a “going beyond” the ontological distinctions inherited by modernity that condition much of Western science and thinking. As Sonetti-González et al. (2023) note, decolonial and process-relational thinking are closely linked. Therefore, process-relational approaches seem particularly apt to decolonialize the way how those involved in change-making processes think and generate knowledge in view of fostering experiences beyond distinctions inherited from modernity. Process-relational perspectives can thus complement existing work in the field of evaluation (see the 2023 special issue of *JMDE*, “Decolonizing Evaluation: Towards a Fifth Paradigm”). To achieve this, different process-relational scholars (e.g., Böhme et al., 2022; Preiser et al., 2021; Hertz et al., 2020) identify different strategies. For instance, Böhme et al. (2022) identify “patterns” for overcoming barriers for enacting more relational experiences, of which some examples are “from separation to interconnection”; “from human agency to intra-action with the more-than-human”; “from individuals to dividuals,” “from mind-body dualism to embodiment”; “from individual well-being to relational well-being”; “from meaninglessness to meaningfulness” (p. 2067). Others (Preiser et al., 2021) talk about “relational heuristic responses,”

which involve following heuristics that realize relational experiences: “re-patterning our theories of change-making”; “cultivating a shared future consciousness”; “creating transformative spaces”; “engaging in processes of co-exploration” (pp. 626-631).

Others again (Hertz et al., 2020; Mancilla Garcia et al., 2020) emphasize the potential of process-relational approaches and a corresponding epistemological stance that we can describe with William James as “radical empiricism” (James, 1976) which is seen as particularly useful for developing novel abstractions aimed at engaging with sustainability problems.

The final step consists in making these strategies actionable in the sense of the principles-based approach outlined above. For example, when Böhme et al. (2022) introduce the pattern “from separation to interconnection,” they note:

[N]ature and culture, or social and ecological, are not two separate interacting systems, but rather one autopoietic (self-maintaining and reproducing) system, in which humans are one participant among many others. Feeling and understanding the connection to the more-than-human world might lead to caring more for the general well being of the whole system. (p. 2067)

It is this accounting for the social and the ecological as an autopoietic system, once actualized as actionable principle within which interventions unfold across the three spheres, that guarantees that a redefinition of the relationship between humans and nature is taken account of when addressing sustainability issues.

## How to Put These Elements into Practice

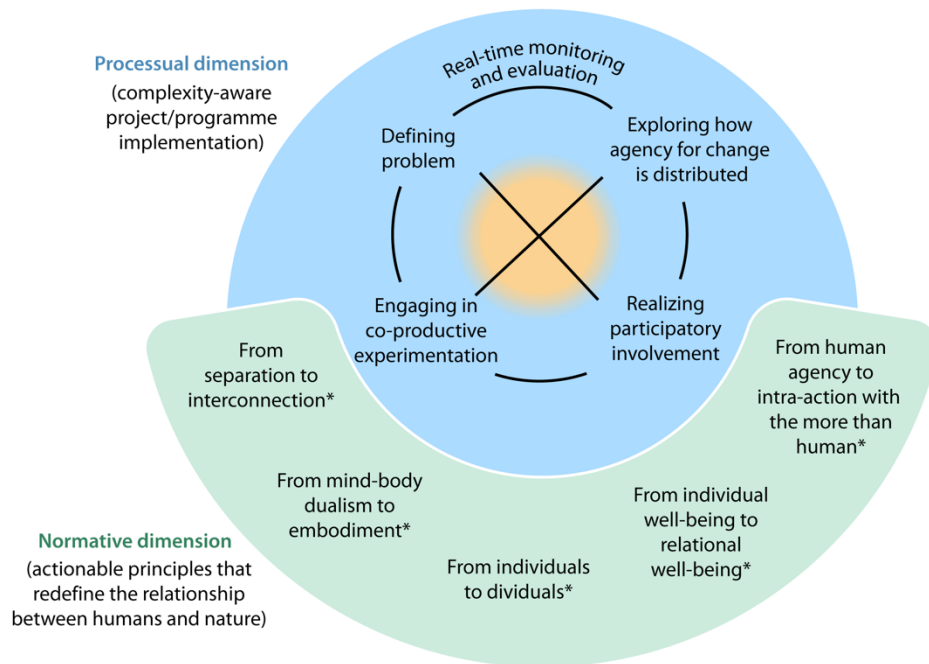
While each approach (principle-based and decolonization) taken on its own is not new, the *combination* of these approaches could have the potential to design ToCs for radical sustainability interventions. The radicality would come precisely via the redefinition of the relationship between humans and nature when designing interventions. However, to be clear: This is not the orthodox ToC where activities, outputs, and outcomes are defined ex-ante implementation and where implementation then simply follows suit. While the orthodox version represents one way of theorizing and bringing about change and is appropriate for many situations, e.g., when intervening in simple or

complicated systems (see the Cynefin framework; Kurtz & Snowden, 2003), the complexity of the systems related to sustainability demands a more adaptive, if not real-time, approach within the boundaries set by actionable principles.

We thus conceive of the process of ToC formulation as having two dimensions. One dimension is normative and consists of principles that redefine the relationship between humans and

nature. The other dimension is processual and consists of principles that ensure that ToC formulation is complexity-aware. The idea is for the normative principles to condition the processual ones (even though the distinction between the normative and processual principles is not always sharp). See Figure 1.

Figure 1. Mobilizing the potential of redefining the relationship between humans and nature for “Theories of Change”



*Note.* The orange circle represents a concrete sustainability problem that is to be addressed by an intervention such as a project/program guided by normative (green) and processual (blue) principles. The normative principles condition the implementation of the procedural principles, which should be applied not sequentially but rather iteratively, with each procedural principle informing the others.

\* From Böhme et al., 2022.

We end this short piece by hinting at how normative principles aimed at redefining the relationship between humans and nature condition processual ones when addressing sustainability problems. For instance, *participatory involvement* guided by the principle “from individuals to dividuals” (Böhme et al., 2022, p. 2068) would require ensuring that such involvement be about giving voices to a manifold of agencies, be they human or non-human. Or else, the process of collaboratively articulating *problems* would involve being more attentive to the manifold

interconnections between humans and nature across spheres, guided by the principle “from separation to interconnection” (Böhme et al., 2022 p. 2067). This might lead to different, perhaps novel problem formulations, especially when enlarging participation and giving voice to the non-human. Also, there is a need for *continuous and iterative experimentation*, pointing perhaps to more collaborative and sustainable solutions, in turn guided e.g. by the principle “from individual well-being to relational well-being” (Böhme et al., 2022 p. 2070). This also means that *agency for*

*change is distributed* and needs to align with what is generated as part of the other processes shown in the blue circle. This involves building coalitions across intra-active entanglements to (1) address power dynamics that keep unsustainable practices in place and (2) identify and enlist actors needed to change them. Coalitions would then most likely need to span across different spheres while at the same time being sensitive to how the more-than-human is disclosed in its constitutive (or intra-active; see Barad, 2007) dimension. From what has been said, it follows that for such a ToC, activities, outputs, and even outcomes and impacts are not fully articulable ex-ante but are emergent to the process. *Real-time monitoring, evaluation, and learning* (see Hertz et al., 2021) is thus a key factor to drive such a ToC practice.

## Conclusion

In reality, processes of ToC formulation and implementation are very messy and are unlikely to occur according to the process sketched out above. The ideal of participatory involvement, for instance, is often easily co-opted by powerful groups or individuals resisting change or having an interest in maintaining the status quo. Therefore, the normative and processual principles presented as part of this short piece always need to be complemented by other principles and approaches that consider rights (e.g., to participation; see Hertz et al., 2023). Even then, safeguarding against such co-option is extremely difficult. But if the above process makes hitherto hidden relations visible and if this act of disclosure makes it just a bit more difficult for powerful actors to argue for maintaining the status quo, then a lot is gained.

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