Transformative Changes for Sustainability

A Report For The Scottish Government

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Scottish Government
Riaghaltas na h-Alba

Acronyms

EU	European Union
FAO	Food and Agriculture Organisation
GSDR	Global Sustainable Development Report
HLPE	High Level Panel of Experts for Food Security and Nutrition
IPBES	Inter-governmental Science-Policy Platform on Biodiversity and Equity
LP	Leverage Points
MLP	Multi-level perspective
RoN	Rights of Nature
SES	Socio-ecological systems
STS	Socio-technical transitions
TC	Transformative Change
WBCSD	World Business Council on Sustainable Development.

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Disclaimers

The content of this report does not reflect the official opinion of the Scottish Government. Responsibility for the information and views expressed therein lies entirely with the author(s). The information in this report was up to date as of 10 February 2025, except where indicated in the text.

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[1] Applying the Unlocking a Better Future framework for a just transition in Scotland | SEI

Foreword

Reflection on a Stakeholder Workshop

Extensive discussions in a Scottish Government stakeholder workshop (September 2024) broadly welcomed the recommendations presented by the Stockholm Environment Institute from their own study, and some derived from related commissioned studies by the New Economics Foundation, Global Footprint Network and James Hutton Institute. The significant risks for the Environment Strategy were discussed in terms of existing social inequalities and the risks of new inequalities being created by sustainability challenges and sustainability transition actions. Additional comments highlighted the importance of building public engagement and acceptance of proposed actions in Scotland, especially amongst marginalized groups and the need to support their participation in environmental transitions in ways that also tackle social inequalities. Strong partnership working was essential, as demonstrated by the Climate Action Towns Project. Public procurement was seen as an important lever for helping organisations and people to prioritize more sustainable options. Revamped sustainability education was also noted as key to achieving change; importantly this should not be seen solely as an issue for children and young people, but for all ages and including decision-makers. All actions need to be adequately backed by resources and skills training.

However, bigger picture issues were also raised, such as the need for stronger representation in democratic processes and the importance of strengthening local democracy to tackle biodiversity losses.

The importance of achieving deeper, transformative change was highlighted, as well as recognition of the complexities and limited levers of the Scottish Government given the wider systemic power relations inevitably involved. Although it may not be possible to implement all proposed changes, it is possible to lay the foundations for transformative change by creating the right conditions for it.

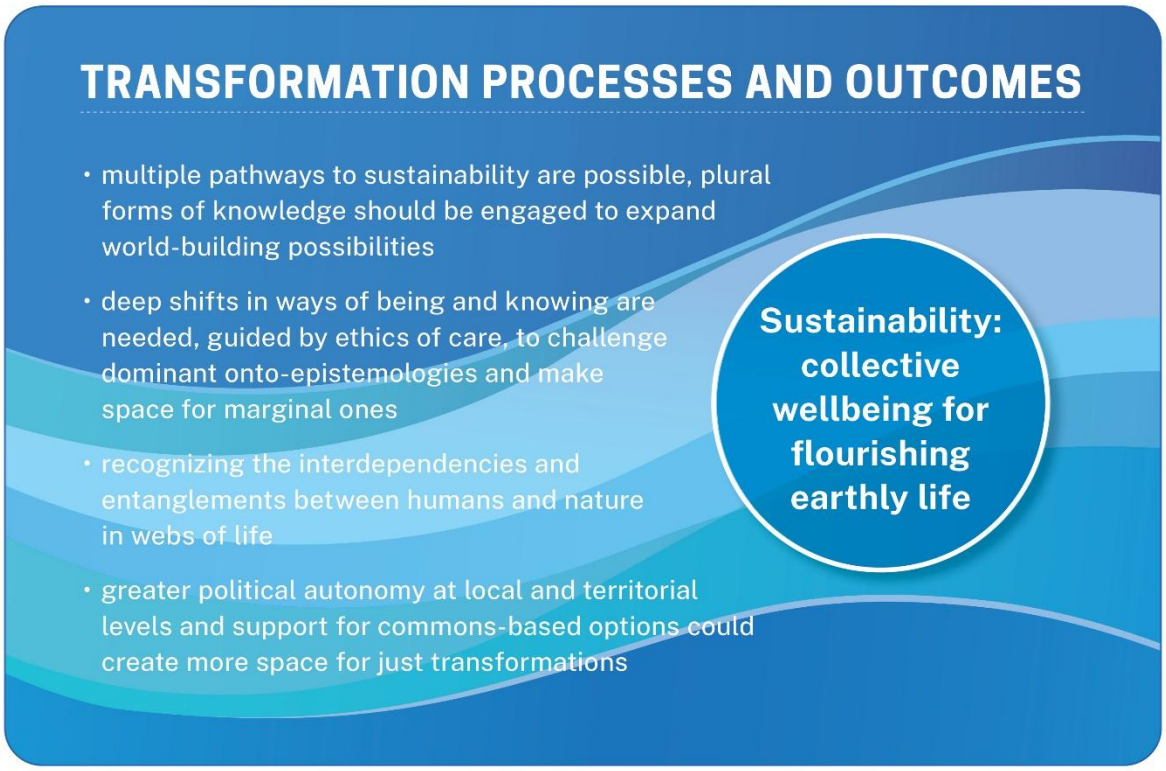
The Wellbeing Economy Alliance was seen in the workshop as an important existing movement within Scotland, attempting to address sustainable economies.

In particular, participants discussed the need for a compelling vision of a new sustainable future needs to be made to attract people and build support. This should acknowledge the grief and fear experienced currently, and resistance to change, but set out a new exciting future to work towards. This new framing should not be as uniform or bland as before, but they should show how society could be organized differently. Illustrative examples could help to articulate such a vision.

Several participants asked if the proposed recommendations were sufficient, given that the technical solutions to many environmental challenges are well known. Why has more progress not been made on sustainability challenges? Questions were raised about how to achieve transformative change, given that this involves fundamental changes to growth-based economies, and a need to address planetary wellbeing agendas.

The Transformative Change Report was not discussed in the workshop, but it was noted that this, and the upcoming IPBES assessment on Transformative Change, have potential content that could help guide the Scottish Government in exploring a new, compelling framing that can stimulate buy-in and action. This includes foregrounding the way in which humans and nature are entangled and interdependent; all play a role in creating life, and recognizing these interdependencies can create values of care, reciprocity and solidarity. This involves moving away from an understanding of 'nature' as external to humans, a way of thinking that justifies its use as a resource for human benefit, and sidelines other ways of living with and as nature. The framing should address how power inequalities foreground certain sustainability futures, and obscure others. In fact, academic literature is pointing to the fact that there are multiple ways in which sustainability futures can be defined, and this will always (need to) be contested. Some futures are possible that look quite different from the present and may offer escape routes from current lock-ins and path dependencies. More effort is needed to explore and speculate upon a broader range of collective (human-nature) wellbeing alternative futures than at present, beyond technical scenario development. Giving space to plural forms of knowledge – including positivist environmental sciences, but also embracing the arts, critical social sciences and humanities and community perspectives is key. Giving voice to human communities is important, but we note that thinking can extend to recognize the agency, sentience, labours and value of plants, animals and other phenomena, such as rivers, all of which work to create life. By speculating and perhaps prefiguring such futures in practice, this can inform broader governmental and other actors' strategies and actions for flourishing earthly life. Practical actions can be generated or reviewed in more participatory, democratic processes, guided by this understanding of the underlying need to shift values towards ethics of care.

Figure 1: Plural sustainability futures are possible based on ethics of care to support flourishing earthly life



Source: Drawing Upon, Nelson, V et al (2024)[2].

[2] World-building refers to exploring and creating new futures that are pluriversal in nature (i.e. recognize that there are 'many worlds in this world', beyond dominant ones). Onto-epistemologies refer to 'ontologies', which refers to the 'nature of being' and 'epistemologies' which refer to theories of knowledge and how we come to know the world. Ontologies and epistemologies are interlinked.

Executive Summary

Demands are rising in academic and policy circles for sustainability transformations. This is due to several factors such as i) perceived failures of sustainability interventions to date, ii) the alarm bells ringing on interconnected environmental and social crises and iii) recognition that incremental approaches will not suffice and indeed prevent the kinds of change needed given the nature of cascading tipping points in socio-ecological systems. This report summarises recent developments in transformative change academic and policy discourses to identify insights for the Scottish Government's Environment Strategy.

Definitions of transformative change vary, ranging from those that envision changes in a socio-ecological system state, for example, to those that envision deep changes across goals, values and paradigms towards sustainability. Different strands of dynamic systems thinking have dominated transformative change academic discourse and significantly influence policy debates. They emphasise the emergent nature of socio-ecological change and inherent uncertainties in change processes. Change can result from the development of niche innovations at landscape level which reshape wider regimes. Leverage points are a key concept in this field, foregrounding interventions seeking to catalyse change across an entire system via deeper leverage approaches, such as mobilizing values shifts, rather than solely targeting policies or resources – the latter being shallower leverage points. Deep leverage points are harder to achieve in practice. Empowerment approaches to transformative change highlight the fact that transformation definitions and processes will inevitably involve contestation, because there are diverse values and plural worldviews. Emancipatory processes are needed which can allow this contestation and support action, promoted by progressive social movements, such as environmental and decoloniality movements engaged in political mobilisation and cultural change.

A more recent academic field of enquiry is now well established in the social sciences, environmental humanities and arts, namely relationality. This is more than a theory, it is a major turn in philosophy, social sciences, humanities and arts, in which the nature of reality is conceptualised as perpetual flux, and in which human-nature relations are deeply entangled and interdependent. While sometimes challenging to understand – partly because it challenges dominant perspectives and ways of being – such philosophies, arguably offer hope for revitalising sustainability efforts. There are plural relational philosophies drawing upon many Indigenous ways of living and being, as well as some Eastern religions, but they are also found in academia, with some similarities to quantum physics. Applying the insights is not straightforward, but it offers potential. Key aspects include recognizing the emotional and spiritual dimensions of human-nature relations, not just the economic and cognitive. Decentring human priorities is key, and involves recognition and embracing of the agency, subjectivities, experiences, senses, social structures, forms of communication and labour of complex assemblages of non-humans and vibrant objects (plants, animals, infrastructures, technologies, natural and geological forces etc). Non-humans and inhumans play a role in creating unfolding processes of life, albeit with differing levels of sentience and accountability. Recognizing these dynamic relations can give us more reasons to care – i.e. if human-nature relations are already entangled and inter-dependent, then they need to be reciprocal and care-full, to support collective wellbeing, generating empathy and awe of the relations themselves, rather than regarded as solely specific entities or species in

nature and giving attentiveness to the everyday not just the spectacular. In these philosophies then, values, goals, and paradigm shifts are needed for transformative change, but also deep change in dominant ways of being, understandings of reality and ethics.

Achieving transformative change is challenging, not least for democratic states, due to the legitimacy requirements on governments to deliver increasing material wellbeing through consumerism, which traps them in webs of capitalism and prevents deeper approaches to post-growth and wellbeing economies. More critical reflection is needed on the capitalist web that traps nations in growth paradigms, and on the idea that the corporate private sector is needed at any negotiating table on sustainability to achieve transformations. The latter under-estimates the intensifying power and wealth of multi-national corporations and elite individuals, including their growing influence on national level decision-making, and their causal role in creating socio-ecological impacts. Many colonial nations have international historical impacts, and contemporary high-income countries and elite social groups outsource their socio-environmental impacts to poorer countries and regions, which often have the fewest resources to adapt and will be disproportionately impacted by climate change. There are thus important questions of justice to consider.

Transformative change in relationality is associated with ethical shifts – towards ethics of care across all relations, relations which can regenerate autonomously, contributing to collective wellbeing in an ever-changing, dynamic world. Thus, relational philosophies can themselves be considered a deep leverage point – one that is more specifically defined than many contemporary definitions of transformative change, many of which assume scientific and technical solutions, market-based options and narrow economic levers are the way forward. Amplifying relational thinking involves creating new speculative imaginaries (shared identities and relations with others and nature) for the future and defending and amplifying existing imaginaries that are already deeply sustainable, i.e. those based upon ethics of care for multiple species such as socio-cultures and practices in ecovillages, commons-based initiatives such as cooperatives and some Indigenous and local communities.

The inherent inadequacies of reform-oriented approaches are detailed. These have been common for several decades, linked to growing awareness of sustainability challenges, but narrowly focused on technical and market-based measures to solve what are in essence much deeper challenges. Examples include voluntary corporate codes and sustainability standards for products in agro-food systems. While these may have positive impacts on certain criteria and at a local level, the impact evidence is mixed, and they potentially obscure the wider types of changes required, such as constraints on consumption. Harder approaches, such as deforestation due diligence, may have greater success in certain places, but also face similar competitive pressures of the global economy and its accumulation imperatives. Questions are already being raised as to their likely effectiveness and possible spillover and leakage effects given that they are not being implemented on a global scale, but only by certain trading blocs or countries.

Commodity sector and landscape-based approaches are widely lauded and may have successes on some indicators in some places, responding to the complex realities on the ground in production localities. However, these again fail to address and often obscure the underlying imperatives and structures of the global economy,

advancing corporate influence and contributing to the commodification of nature, at the expense of Indigenous and local peoples. Evidence on green growth suggests that this is not happening on the scale, magnitude and duration required to mitigate Greenhouse Gas Emissions in line with international agreements. Environmental damage is already undermining economic growth around the world and is likely to significantly affect global incomes, disproportionately affecting the most vulnerable nations and peoples, despite their significantly lesser contribution to generating emissions, biodiversity losses and land degradation. Thus, there is a clear need to change how we organise economies, including underlying principles, values and structures.

Deep leverage points for transformation also require more than national government policy levers, but progressive action by social movements more broadly, although democratic governments can sustain and expand civic space for such movements. Further, it will require changes in the nature of the state and the nature and organisation of its politics and economies, rather than specific policy levers or technical solutions alone. As this report is commissioned by and designed to inform the Scottish Government in addressing transformative change for sustainability, it explores what is the scope for governments to act to shape their policy decisions differently. The transformative potential of certain policy levers in four areas – originally identified and assessed by the 2022 Inter-Governmental Panel on Biodiversity and Ecosystem Services (IPBES) Values Assessment, based on available evidence - are explored in greater depth and with added critical analysis, and with additional areas such as political levers included. The analysis draws upon more recent research evidence and insights from relationality and More-Than-Human philosophies, dynamic systems thinking and empowerment theories. Some of the IPBES-identified 'more transformative potential' approaches are critically examined and with changes suggested and new ones added. This allows the setting out of broad recommendations for governmental actions which could contribute to transformations, in Scotland and beyond. These include process-oriented proposals, which can support contestation of sustainability futures for radical change of the kind now needed, given inadequate action to date by all governments, especially of high-income economies with historical legacies and rising climate and ecological damage.

Table 1: Summary of Deep Leverage Points for More Transformative Change

Leverage Points: Broad and Recommendations
<u>Economic and Fiscal Policy Levers</u>
Reimagine economies toward post-growth & conviviality (new visions and ways of life practices) through arts, community engagement, micro-deliberative democracies, and safe spaces for civil society to contest and enact transformations.
Expanding participation in economic decision-making (exploring 'living well together' through abundant sufficiency concepts in social learning and deliberative democracy).
Addressing growth dependency via demand side and supply side measures to redesign economies and break national glass ceilings, building international support for redesigning financial architectures, curbing high consumer impacts, limit long

distance trade in unnecessary products, via reductions, substitutions and demand shifts to reduce land use change pressures and dispossessions, support equitable development of less affluent nations while tackling consumerism throughout.

Prefigure & expand alternative economies in practice (abundant sufficiency, ethics of care in human and non-human relations, support for commoning, land redistribution and commons-based public spaces, change ways of assessing national wellbeing, place-based autonomous regeneration).

Change economics and its influence in decision-making (enhance public support for post-growth economic redesign through education (schools, universities).

Legal and Regulatory Policy Instruments

Rights of Nature (support global movements on this, explore options for nationally supporting measures on rights of nature – for example, including naturehood to persons, ecocide, plus restorative justice and environmental courts; support community and civic capacity to hold government to account on environmental harms and ensure transparency and accountability mechanisms; observe international legal commitments and treaties on the environment).

Legal support for community land ownership & access (support local communities to gain greater access to and ownership of land for sustainable management, especially support for Indigenous community customary governance, expand legal support to protect environmental and human rights defenders).

Other indirect legal measures (Legal measures to tackle large corporate concentration such as anti-monopoly regulation.)

Social and Cultural Policy Instruments

Revitalising Indigenous cultures and learning from Indigenous Peoples and relational philosophies (supporting indigenous revitalisation and rights, learning from Indigenous cosmologies and other relational philosophies).

Embed environment across education and mobilise relationality and more-than-human insights (including in environmental education, experiential/sensory/spiritual dimensions of human-nature relations, promote celebration and awe of relations involving humans and non-human and linkages to ethics of care.

Engaging communities, building awareness of relationality and ethics of care (arts for engaging communities emotionally, spiritually, bodily, as well as cognitively, community arts, artist speculation on futures).

Place-based approaches for autonomous regeneration (tailored approaches, mobilizing relational insights and commoning, autonomous economies, building skills and capacities for place-based work and celebration of human-nature engagement).

Radical and speculative future-making (speculative future making by artists, participatory researchers and public, mobilise relational insights, such as giving active voice to nature in decision-making and exploring futures, create political positions that promote sustainable futures for humans and non-humans, and engage with inter-governmental future-making).

Mobilise relationality insights in research and action research (transdisciplinary processes, with more space for marginal critical social sciences, environmental humanities and arts in tackling sustainability, citizen sciences/arts/journalism etc, decolonising research and promoting Indigenous research methods).

Rights-based and Customary Instruments

Invest in and expand Indigenous and local peoples' customary land rights and land governance (support UNDRIP, increase relational philosophies of human-nature relations, support convivial conservation and post-development approaches, efforts to decolonise and including environmental funding to address reparations and focus on conviviality.)

Political Instruments

Micro-deliberative democracy (expand issues tackled including broad notions of future and wellbeing, not only more focused topics, represent non-human interests in decision-making, link to creative arts for nature having the active voice).

Changing the nature of democratic states & inter-governmental cooperation (build public support for changes in nature of democratic state e.g. taking ownership of highly damaging industries, building abundant sufficiency philosophies and practices, seek to revitalise inter-governmental cooperation on futures, protect / expand safe space for environmental social movements and human rights/environmental defenders).

In conclusion, exploring and acting to achieve transformative change has never been more necessary given the inter-connected nature of social and ecological challenges facing humanity, and the intensifying damage to ecologies and peoples. Transformative change has different interpretations, but deeper shifts are needed in goals, values and paradigms than previously envisioned in many sustainability efforts. This is where hope can be found for more effective future action. Drawing upon existing evidence and new research and ideas, it is possible to think of deep leverage points as those that reimagine goals, values and paradigms, predicated on ethics of care. While change is needed in the nature of democratic states and social movements are fundamental to change, specific policy levers which can contribute to these broader transformative shifts include economic and financial measures (reimagine and redesign economies towards post-growth approaches, including higher scale global and national measures and more autonomous regeneration in places), legal pathways, socio-cultural approaches, rights-based and customary approaches and political dimensions to achieve deep change towards care-oriented outcomes. Relationality thinking offers huge potential for revitalizing sustainability efforts, by challenging anthropocentric perspectives, expanding attention to multi-species living well together.

Contents

1. Introduction

Transformative change academic and policy discourse has grown in response to the perceived failures of previous sustainability interventions. There are numerous calls to action and policy propositions, in response to worsening and interconnected socio-ecological crises. However, definitions and understanding of how to achieve transformative change in practice remains contested.

In this report, we explore emerging theory and provide broad outlines of possible sustainability leverage points, drawing upon recent theory and practice. Evolving definitions are explained, drawing from inter-governmental assessments, bodies of social science and sustainability science literatures and several strands of Transformative Change theory. More recent, emerging perspectives which are less well recognised with respect to transformative change, but are highly influential in critical social sciences, humanities and arts are explored. The report concludes with some broad contours of transformative change leverage points in the context of worsening socio-ecological damages.

2. Global policy and science-policy discourse

Alarm bells are ringing. Scientific assessments and current impacts are heightening calls for Transformative Change, rather than incremental shifts in academic and policy circles. The implications for life on Earth and multi-species justice are serious:

- the 'severity of the triple planetary crisis of climate change, biodiversity loss and ecosystem degradation, and escalating pollution is increasingly registering beyond UN circles (UNDP, 2024, p31). New multilateral agreements present new commitments, such as the Kunming-Montreal Global Biodiversity Framework's commitments on removing $500 billion of environmental unfriendly subsidies, and private commitments and investments are increasing, but there is still accelerating biodiversity loss, ecosystem degradation and overshooting of tipping points and persistent new records for annual high temperatures (UNDP, 2024).
- The 'Great Acceleration' involves an unprecedented pace and impact of human-induced changes, which according to scientists such as Steffen et al, (2007) began in the second half of the 20th century.
- Critical Earth system processes are being disrupted by unsustainable resource extraction and consumption of dominant socio-economic systems, beyond key thresholds which could lead to abrupt and irreversible environmental changes, negatively impacting the stability of the planet and its ability to support human civilisations (Rockström et al, 2009; Rockström et al 2023).
- Nine planetary boundaries define a safe operating space for humanity (Steffen et al, 2015) with climate change and biosphere integrity having particular importance; if crossed these can tip Earth systems into a new state.
- Earth system justice means living in a just manner within boundaries. Planetary biophysical boundaries are not inherently just and should be adjusted to reduce harm and increase access, challenging inequality for safe and just futures for people, other species and the planet (Gupta et al, 2023).

- Six of the nine planetary boundaries have been crossed (Richardson et al, 2023). Wealth – material or otherwise (spiritual, cultural, health-related) – is dependent on all life flourishing on planet earth. Damage to life and rising inequalities are the result of accumulation driven by dominant notions of progress and historical and continuing patterns of extraction and over-consumption (Moore, 2015; Jackson, 2009; Raworth, 2017).
- The Global Tipping Points report (2023), a recent international assessment, identifies 26 tipping points, such as melting ice sheets and mass die-offs of tropical coral reefs, that are being driven by human activity. Five of these are already at risk of being crossed and exceeding one can trigger others in a cascading effect via globalised socio-economic systems. The domino effect is anticipated to be one of accelerating and unmanageable change in planetary life-support systems.
- At higher levels, there are also observations of growing societal disturbances. The Human Development Report (2021-22) finds three strands (volatile, interacting) of an 'uncertainty complex' never seen before in human history, including destabilizing planetary pressures and inequalities of the Anthro-pocene, the pursuit of sweeping societal transformations to ease those pressures, the widespread and intensifying polarization (e.g. democratic backsliding, alienation from political systems).
- Public concern is growing in the UK: 'In October 2021, just ahead of the COP26 UN Climate conference in Glasgow, three-quarters (75%) of adults in Great Britain said they were worried about the impact of climate change' and 'Just over two-fifths (43%) reported feeling anxious about the future of the environment more widely'[3], according to the Office for National Statistics' (ONS) Opinions and Lifestyle Survey (OPN). In Scotland, the public ranked climate change as the third most important issue after the economy and health and social care in 2022. [4]

There is limited consensus on definitions or agreement on how to achieve transformative change in practice. Intensifying power inequalities mean that achieving change is challenging. Even the notion that transformative change can be intentionally managed is sometimes questioned, given the complex, emergent nature of adaptive systems. Definitions of transformative change are evolving (Abson et al, 2017), with increasing attention to the concept in global policy reports of international agencies and inter-governmental science-policy assessments. While societal transformations are continually ongoing, planned efforts described in such policy and inter-governmental assessments point to transformative change going beyond incremental interventions. They commonly seek to set out transformation pathways, e.g. in systems defined as energy, food, land, climate change, and conservation.

Many definitions of transformative change encompass some normative sustainability values and goals. For example, GEO-6 refers to transformations for the achievement of 'positive development results.' Similarly, the Global Sustainable Development Report or GSDR (2023) refers to resilience, security and well-being in

[3] Three-quarters of adults in Great Britain worry about climate change - Office for National Statistics (ons.gov.uk)
[4] 2. Understanding - Climate change - public engagement: survey results 2022 - gov.scot (www.gov.scot)

relation to transformative change. IPBES definitions focus on biodiversity conservation and nature's contribution to people. However, the Climate Investment Fund (CIF), (2021) defines transformative change as a deep change in a system, without normative commitments or judgements, drawing on dynamic systems theory. GSDR focuses on systems such as food and energy.

Definitions among high level panels and inter-governmental science-policy platforms vary. They range from those more oriented to scientific-technical and market visions (e.g. High Level Panel of Experts for Food Security and Nutrition), to those set out by the IPCC and IPBES. Some intergovernmental science-policy assessments envision much deeper shifts in values and worldviews.

- For example, the High Level Panel of Experts for Food Security and Nutrition (HLPE 2019) provides a more conventional vision based upon scientific-technical solutions and market values and imperatives. It draws attention to transition pathways that combine technical interventions, investments, enabling policies and instruments – involving a variety of actors at different scales, recognising human rights as the basis for ensuring sustainable food systems and transdisciplinary science, and acknowledges diverging perspectives on how to achieve food system transformations, whilst recognising inclusive roles for civil society and the private sector.
- In contrast, the IPBES Values Assessment (IPBES, 2022), focusing upon biodiversity, emphasises values, goal and paradigm shifts as being fundamental to sustainability transformation.[5] IPCC (2022a) recognised the need for deep change across systems and beyond technological change, foregrounding social and economic factors as well to achieve rapid change at scale.
- Political entities such as the European Commission and the UN Agency on Food and Agriculture (FAO) promote transformative change actions on climate, biodiversity and equity, also recognising these drivers and emphasising the pathways of strategic dialogue, research and policy as instruments of change, alongside changes in extraction, production, consumption, trade and behaviour patterns[6].

A global private sector body, the World Business Council on Sustainable Development (WBCSD), in its Vision 2050: Time to Transform also proffers notions of transformation. WBCSD uses systems thinking, noting nine transformation pathways or 'actionable routes for companies to take' covering energy, transportation and mobility, living spaces, products and materials, financial products and services, connectivity, health and wellbeing, water and sanitation and food. Aligned with the SDGs and Paris Agreement targets, it includes ten action areas for the next decade.[7] WBCSD argue that this provides a clear vision and roadmap and represents a means to reinvent capitalism. From a critical social science perspective, this is an example of techno-science perspective which does not address the underlying causes of over-consumption and the need for a more rigorous consumption governance regime which reduces the volume of materials

[5] Refers to both direct and indirect drivers and notes the breadth of change required across multiple spheres, and importantly, involving values and paradigm shifts, as well as a systems science perspective.
[6] E.g. Biodiversity strategy for 2030 - European Commission (europa.eu)
[7] Vision 2050 - Time to Transform - WBCSD

and energy resources consumed and at the same time sustains human well-being (Lorek and Fuchs, 2013; Fuchs and Lorek, 2005).

There is an ongoing IPBES assessment focuses specifically on Transformative Change. This is due to be published at the end of 2024. In relation to biodiversity, this thematic assessment has the potential to advance thinking and international engagement on transformative change.

3. Key bodies of literature informing contemporary academic debates

There are several established bodies of literature which have relevance for or specifically focus upon transformative change. We discuss these below, before exploring more recently emerging theory and practice. Firstly, we note that theorists in the social and political sciences have long proposed different conceptualisations of societal change. The latter are relevant to any questions on how societies and environments change, whether transformative, incremental or reformist etc. Such theorists have considered the nature of social orders and human-nature relations. These include structural approaches (e.g. Marx, Lenin, Gramsci, Polanyi, Fraser), theories of structuration (Giddens), social action (Weber), habitus (Bourdieu) and governmentality (Foucault). There is not space to explain all these theories, but we note their marginalisation in transformative change debates to date and in inter-governmental processes.

3.1 Sustainability sciences

Dynamics systems thinking has come to dominate environmental debates in recent years. Two major strands can be distinguished, namely, Socio-Technical Transitions (STS) theory and Socio-Ecological, Complex Adaptive Systems (SES) theory.

- STS work analyses technology, innovation and transition management. Frank Geels' Multi-Level Perspective (MLP) Framework addresses transitions at multiple levels, including niche innovations, socio-technical regimes and landscape factors (Geels and Schot, (2007), later developed by diverse authors (Lachman, 2013, Rotmans and Loorbach, 2007 and Geels 2002, Avelino and Wittmayer, 2016, Keemp and Rotmans, 2005). Change occurs when landscape change pressures combined with niche innovations supported by networks of actors, allow for new configurations to break through changing regimes.
- Secondly, SES foregrounds emergent and non-linear dimensions of complex, adaptive systems change, emphasising the importance of adaptability and resilience in the face of environmental change, especially shocks and stresses, such as climate change, land degradation and natural hazards.
- These bodies of work have significantly advanced understanding of the interconnections between social and ecological systems (Folke 2006, West et al, 2020), plus the interplay between society and technologies (Fisher et al, 2022). They have influenced significant areas of environmental sciences research and interventions, for example in circular economy initiatives, renewable energy transitions policies, and urban transitions planning.

Critiques of dynamic systems thinking focus upon the centrality of and reliance upon technical and managerialist approaches. Technical and

managerialist approaches predominate in the literature and land use policies and practices (Pelenc et. al 2019, Kenis and Lievens 2014, cited by Fisher et al, 2022[8]). Geels and Schot (2007) responded to various such criticisms about the lack of agency and narrow assumptions about rational decision-making and sought to amend their theory. However, despite evolutions in the approach, including greater attention to issues of power and plurality (Fisher et al, 2022), systems-based approaches risk oversimplifying and depoliticizing the complex relations between, nature, society and economic systems. Moreover, researchers often overestimate the existence of consensual public policy set-ups and democratic deliberative multi-actor coordination in proposing niche innovations to shift regimes, for example. Even where these exist, it is not clear how far they can direct '(radically) transformative and inclusive public policies through deliberate conscious planning and institutional crafting by 'capable' and 'socially inclusive' states (Bastiaensen et al, 2021, p44).

Key to complex, adaptive systems is the emergent nature of and uncertainties in socio-ecological change processes, and the role of tipping points.[9] Building on work on planetary boundaries and safe operating spaces for humanity (Rockstrom 2009), the recent Global Tipping Points report (2023) argues that effective global governance to tackle tipping points in equitable ways is lacking, but positive tipping points can be exploited, involving coordinated strategic interventions for disproportionately large and rapid benefits accelerating transitions. The report focuses on human sectors – energy, transport, food and land use – and highlights a range of positive tipping points,[10] and number of strategies (*avoid*, *shift*, and *improve*) to achieve sectoral transformations (University of Exeter, 2023). The authors argue that sufficiency strategies can support avoid activities and these have the greatest transformative potential. The report then assumes that the global political economy cannot be changed and suggests that improving and shifting actions in relation to consumption-based economic growth will continue to gain most government and business support. This perspective is pragmatic, but it risks potentially a) dampening social mobilisations that could change the global political economy, b) ignores the ongoing effects of environmental damage on economic growth and rising economic and social costs of inaction, and c) neglects the moral questions of inter-generational justice and imperatives to tackle underlying causes. 'Winning slowly is the same as losing' (B. McKibben[11]), because of biophysical tipping points, which means that is becomes exponentially harder to tackle climate change as tipping points are exceeded and as some tipping points cascade, this can trigger changes which breach other tipping points. Hence there are justice-related

[8] Fisher et al (2022) also find some more nuanced understandings of human behaviour have been incorporated in recent efforts (e.g. Lamine 2015, Wiskerke and Van der Ploeg 2013, Shove et al. 2012).

[9] While the concept of tipping points has now long been discussed in resilience of complex adaptive socio-ecological systems (e.g. Holling and Meffe, 1996; add), the notion of intentionally intervening in systems to create feedback loops for positive systemic change has more widely been called 'leverage points,' coined by Donella Meadows work in the 1970s, including policy changes, technological innovations, changes in social norms or changes in feedback loops to catalyse positive systemic changes. The recent Global Tipping Points assessment uses the concept of tipping points for both tipping points in complex adaptive systems and systemic interventions.

[10] Note that this report essentially uses the term 'positive tipping points', but most social science research has focused on meadow's leverage points as the terminology for responding to tipping points challenges.

[11] Bill McKibben: Winning Slowly Is the Same as Losing (rollingstone.com)

questions pertaining to any approach that does not address these tipping points and plans accordingly.

Leverage points (LPs) are a prominent concept in TC work, viewed as possible entry points to changing complex systems. Deeper leverage points, which are the hardest to enact (Abson et al, 2017; Riechers et al, 2021; Fischer et al, 2019) involve shifts in values and paradigms with the capacity to change an entire system. Shallower interventions focus on highly tangible leverage points that are easier to implement, but deliver only incremental change (Meadows et al, 1999). Increasingly popular in transformative change discourse, and valuable in pushing attention to more fundamental underlying causes and solutions, the notion of leverage points can also be questioned.

Leverage points identified in the literature are often very broad in nature, and not necessarily very new in content either, but may still have use in informing decision-makers. Important examples: a) reconnecting people to nature, b) restructuring institutions, and c) rethinking how knowledge is created and used in pursuit of sustainability (Abson et al, 2017). Place-based governance interventions informed by values-oriented leverage points have also been put forward (Horcea-Milcu, 2022). Place-based governance interventions are extremely valuable, but are not able to adequately challenge structures at the global scale and unaccountable corporate and high net worth individual impacts. The newer emphasis seeks to avoid a reliance upon or bias toward certain kinds of system interventions and technological approaches that are more common in scientific approaches (Dorninger, et al, 2020). Chan et al (2019)[12] diagnose values as an indirect driver of biodiversity change and a key leverage point. However, the list they provide of leverage points and levers include a list of non-comparable elements. Included are promotion of plural concepts of prosperity on the one hand, and, on the other, the concept of responsible technology, innovation and investment.[13] The latter is an economic and techno-scientific framing.

There are risks and limits to Leverage Points discourse, such as being mechanistic or reductionist, but help foreground the need for values and goals shifts. By assuming the capacity to exert control over supposedly mechanistic systems, this concept risks oversimplifying complexities and uncertainties. Isolating leverage points is potentially inherently inappropriate (Dorninger et al, 2020). Additionally, because deep leverage points are so difficult to achieve, it is not easy to provide evidence on how to achieve them and under what conditions. Much of the value of leverage points discourse lies in simply re-emphasizing the need for deeper values and knowledge changes and to encourage creativity and investment in processes and interventions that do not imply reinforce dominant values of unsustainability (Zuzana et al, 2023). Instead, recognizing that many changes will need to be co-developed in situated, place-based approaches, as well as a need for

[12] Using an iterative expert deliberation process methodology, they asked about the most important dimensions of sustainability pathways as part of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment.

[13] The LPs are (1) Visions of a good life, (2) Total consumption and waste, (3) Latent values of responsibility, (4) Inequalities, (5) Justice and inclusion in conservation, (6) Externalities from trade and other telecouplings, (7) Responsible technology, innovation and investment, (8) Education and knowledge generation and sharing. The levers are incentives and capacity building, coordination across sectors and jurisdictions, pre-emptive action, adaptive decision-making and environmental law and implementation.

higher scale changes in governance. There is also a risk of slippage from deep leverage points to a narrower focus on levers, i.e. presentation of singular solutions for complex systems, instead of the more challenging, multi-faceted work of creating conditions for values, worldview and knowledge system shifts. Policy levers can reinforce technocratic approaches that place professionals as the experts (Illich, 1973), assuming they have the sole capacity to identify solutions, disempowering ordinary citizens, and approaches where (specific disciplines and types of) science and scientists dominate (Lahsen & Turnhout 2021) at the expense of other societal groups. Essentially, LP discourse seeks a move beyond reform-oriented tweaks to government policies, to consideration of wider societal change processes, involving multiple actors and deeper underlying causes of social and environmental challenges. It is important to note that TC is a relatively new field, and there is not yet consensus on what constitutes TC LPs, or even if this is a valuable way to think about TC.

3.2 Empowerment approaches

A third strand of academic transformative change theory, influenced by development studies, is the empowerment approach. This emphasises the multiplicity of pathways to sustainability transformations (Fisher et al, 2022; Scoones et al, 2020). Creating the social attributes or capacities that empower individuals and communities to act on their own behalf, and to exert agency – the deliberate exercise of individual or collective will are pre-requisites for transformative change, especially amplification of excluded interests.

Plurality is key to sustainability transformations processes. The multiplicity of future pathways towards sustainability transformation is emphasised by the empowerment approach and is a key point. There is not just one future sustainability transition and transformation, this will always be shaped by different values and forms of knowledge. Enhancing deliberative democracy is needed (Fisher et al, 2022) to tackle dominant pathways framed and supported by the powerful, and to amplify alternatives (Leach et al, 2010).

Creating scope for political mobilisation and cultural change involving a hopeful, caring, emancipatory stance is required by empowerment approaches to transformation. Such approaches de-emphasise controlling, violent or fearful futures (Scoones et al, 2020). Social movements are key to sustainability transformations and transformative capacity strengthening can mobilise individual or collective action (Scoones al, 2020).

Support is needed for progressive social movements with respect to society and environment to counter growing forces that work against sustainability, broadly defined. Effective social movements expand political opportunity, create mobilizing structures, and use cognitive and affective mobilisation through framing processes (Adams, 2017). Unfortunately, the reality is that reactionary movements are often more effective on all these fronts on the global scale than progressive movements, with more localised exceptions. For Ojeda et al (2022, p) convergence in justice-oriented political coalitions and alliances for justice are necessary to achieve change that is life-affirming. Such movements share a critique neo-liberal framings that are embedded in most nation state thinking and policies, hence the role of nation states *per se* with respect to transformative change is questioned. However, democratic nation states can open policy spaces to public engagement

and create conditions for democratic struggle, free from persecution, at home and through international development aid, for example. This can also amplify understandings of human-nature relations that do not solely view nature as an economic resource, by foregrounding the multi-dimensional values of 'nature', embracing care ethics and promoting and expanding post-growth economy possibilities. Empowerment approaches are insufficient on their own and will need to be combined with structural and systems approaches (Scoones, 2020).

Deliberative democracy, political mobilisation and cultural changes are key to the empowerment approach. Moving away from control-oriented, singularised solutions, legitimated through disciplining narratives of scarcity, policymakers should instead promote adaptive, decentralised responses (Leach et al, 2010). Solutions are the result of political choices, so there is a need for scrutiny of the power relations which determine how priorities and actions are framed and by whom (Scoones et al, 2020). Inequalities can be reproduced in such processes, so it is important to invest in facilitating engagement by diverse actors in strengthening their agency for individual and collective action and supporting engagement from marginal social groups across values and ways of being. The need to build transformative capacity, including or especially among marginalised groups, with efforts to uncover *plural* pathways, i.e. pathways framed from the perspective of plural forms of knowledge and ways of being (Scoones et al, 2020). T-Labs have been used in intentional processes to uncover plural transformation pathways in specific geographies[14] and there is also a growing field of speculative future-making, which complements and challenges conventional modelling and scenario construction.

3.3 Emerging approaches to Transformative Change in academia

Relationality has the potential to significantly contribute to the revitalization of sustainability efforts, but it is only just starting to be considered in practical applications. More than an individual theory, relationality is a pathbreaking turn now well-established in the environmental humanities, social sciences and arts, which it is argued can complement or challenge existing approaches to sustainability (West et al, 2019; Walsh, Böhme, J. & Wamsler, 2021). Relationality proposes a new understanding of the nature of reality, recognizing the perpetual flux of the world – i.e. that reality involves continually unfolding relations and embodied experience (i.e. giving attention to emotions and affects, not only cognitive processes) (West et al, 2019), challenging many aspects of modern thinking and growing disengagement and inaction. Thus, a **key leverage point would be advancing relational thinking.**

- A key aspect is the challenge to **rigid dichotomies** which are seen as common sense in Western scientific thinking since the Enlightenment, (Plumwood, 2002) such as a proposed separation between humans and nature (with humans having mastery of the latter, with such mastery also being connected to patriarchal and racial stratifications (Plumwood, 1993). Dynamic systems thinking, such as STS and SES, have coupled social and ecological systems change, but relationality goes a step further, suggesting that reality involves unfolding relations of interdependencies and interconnectedness, relations that are always in a process of becoming (West et al, 2019). Humans are not just part of nature, but **human-nature relations**

[14] https://steps-centre.org/publication/t-labs-practical-guide/

are entangled. Spaces/place co-emerge or continuously unfold (Country et al, 2016).

- In relational philosophies, such as in many Indigenous philosophies, **nature has spiritual and cultural import**: e.g. it is seen as kin (Bird, 2022), i.e. the mountain can be kin (Foggins et al, 2021).
- **Embodiment and materiality shape relations**, i.e. physical bodies, material environments and non-human entities (e.g. plants, animals, microorganisms) all contribute to relational dynamics through their own labour and agency, contributing to relational dynamics and lived experiences. Humans and other living beings are fundamentally embodied, i.e. our experiences, perceptions and interactions are deeply shaped by our physical bodies and their engagement with the world around us and our bodies are situated in specific cultural, social, historical and environmental contexts, which, as our bodies sense the world, shape our identities, perceptions and interactions with the world. Our bodies enable us to move and act in the world, interacting with environments, communicating with others.
- **Affects and emotions are as important as cognitive aspects of change**. Individuals, communities and other entities have capacity to respond to and to co-create their relational contexts (a popular definition of this is the 'capacity to affect and be affected' (Deleuze and Gattari, 1988). Affect emerges not only internally or externally, but through ongoing interactions between individuals and their environments. This challenges traditional ideas of visceral reactions and emotions as solely individual or subjective phenomena, but they are situated and generated in broader socio-cultural, political and environmental contexts.
- **Non-humans also have sensory worlds and agency** (Latour, 2005). It is not only humans that have agency and the capacity to affect or be affected. Humans and plants, animals, and micro-organisms (Latour, 2005) as well as inanimate objects (Bennett, 2010) and phenomena such as wind or river flows, infrastructure, technologies, co-create life in assemblages (Latour, 2005) and have interdependencies. Non-humans have differing senses of the world. They have agency in it, but with differing levels of sentience (although research is rapidly evolving on this) and accountabilities. Moving beyond an anthropocentric way of thinking, means trying to think more like 'non-humans' to better understand the world in a more equitable manner, raising the potential for more democratic politics of multi-species justice and being cognizant of non-human agency, labour, sensory worlds and agency.
- These interdependencies encourage a focus on mutualism and reciprocity, i.e. **ethics of care**. where entanglements and interdependencies, and the agency, value and labour of non-humans. **Values shifts** may occur that move from ethics of control and exploitation to ethics of care, once the complex entanglements and interdependencies in any relational assemblage are made visible and given attention. Puig de la Bellacasa (2017, p1) explains how rather than thinking about how humans are connected to and can get involved in nature, to recognise that we are already always involved in some way or another, alongside 'objects, other animals, living beings, organisms, physical forces, spiritual entities.' Humans are not the only living forms to undertake care work, which circulates in the natural world – in living webs of care (Puig

de la Bellacasa, 2017). Feminist scholars initially shone the light on the significance of caring relationships, empathy, and responsiveness to others' needs to guide decision-making and social justice (Tronto, 1993). This has been followed by work to show the ecological dimensions of circulating care relations. When these entanglements are recognised, there is more reason to care (Puig de la Bellacasa, 2017). Ethics of care can thus be seen as key to social justice, environmental sustainability and transformative change.

- Sustainability in relational philosophy becomes less about preserving the environment or maintaining resource stocks, i.e. 'nature' that is out there, separate from humans and requiring wise management – concepts which developed during the European colonial expansion (Adams and Mulligan, 2003), but instead would focus on fostering **regenerative relationships that contribute to collective wellbeing in an ever-changing, dynamic world**. The implications of relationality are far-reaching in terms of how we organise society, economies and politics, guided by ethics of care, because other ethics and values (e.g. of individualism, consumerism etc) underpin unsustainable futures according to new research (Zuzana et al, 2023). The IPBES Values Assessment (2022) concluded, there is a need to moderate market values, and amplify alternatives based on solidarity and care.
- Amplifying relational thinking requires **new speculative imaginaries for the future and amplification of existing imaginaries that are deeply sustainable, i.e. underpinned by relational thinking and ethics of care**. Rather than just focusing upon scientific modelling and scenario building, based on quite restricted sets of (often implicit) assumptions, efforts are needed to support a wider range of potential futures, including those that challenge 'common sense' science-technology and market assumptions and mobilizing plural forms of knowledge and ways of being. Imaginaries (Castoriadis, 1987; Taylor, 2004) are individual and collective understandings of our place in the world, who we are aligned to, our values, underpinned by certain symbols, narratives and stories. New sustainability imaginaries are needed to respond to the dynamic change we are committed to already by ongoing climate change, biodiversity losses and pollution, as well as socio-technological innovations, which are based upon ethics of care, but which represent a multiplicity of potential futures to guide action, not only by policymakers, but also social movements and the public.
- **Relational inquiry thus has far-reaching implications for future action by policymakers and beyond.** These are explored in the next section, but here we note that critical social sciences, humanities and arts and communities are all engaged in speculative future-making for transformative change. While environment was previously understood as the sole purview of sustainability sciences, in fact, environment is now seen as part of everything – all policies dimensions are entangled with human-nature relations.

4. Challenges in Transformative Change Theory

There is not yet a consensus on what sustainability transformations constitute or entail. For some authors, definitions of sustainability will always change (Scoones et al, 2020) as societies change, i.e. sustainability is not something that can be measured as a static characteristic, but is continually re-defined by societies

depending upon their goals and ways of thinking (hence the democratic processes that enable plural forms of knowledge and voices to shape those definitions and how to achieve sustainability are what matters) (Scoones et al, 2020). This has implications for intentional transformative change design processes, actions and evaluation.

Evidence challenges and the nature of evidence. In a recent IPBES assessment (2022), specific challenges were identified in assessing whether a policy instrument is transformative or not. This is because there is not yet a consensus, as explained above, but also because there has been limited evidence-gathering to date and challenges of attribution.

Limits on nation state power to effect transformative change. Assumptions are common that change can be delivered by nation states and policymakers. However, some authors query whether state action is capable of effecting transformative change and suggest that grassroots action is essential (Smaessert and Feola 2023; Escobar, 1995), because nation states are embedded in webs of capitalist relations or colonial modernities, which lead them to focus more on techno-scientific and market-based solutions (Moore, 2015). The accumulation imperative of capitalism can be seen as a way of unlocking investment in sustainability transitions, but they are a key underlying cause of global unsustainable practices. While green growth is seen as a way around this inherent challenge, evidence is lacking that green growth is happening or likely to (Haberl et al, 2020; Parrique et al, 2019; Fitzpatrick et al, 2022, Hickel and Kallis (2020), without more fundamental changes (e.g. closure of highly damaging sectors through public control of such sectors).

Challenges in moving beyond constraining techno-scientific responses. Calls for 'evidence-based policymaking' abound, but even when discussing transformative change (i.e. values, goals and paradigm shifts), there is a strong tendency for conceptualisations in policy circles to foreground scientific and technical knowledge solutions, and market-based perspectives and responses, sidelining others (Darnhofer, 2021).

Intentional design processes and system complexity: Any organisation or state will find it hard to control change given the uncertainties inherent in emergent, on-linear change processes in complex, adaptive systems, hence more decentralised, adaptive responses are important (Leach et al, 2010).

The notion that the corporate private sector should be at the table lacks critical reflection from a transformative change perspective and ignores the intensifying power of large corporations over policy directions and decisions. Capitalist relations restrict the space for the creation of alternatives e.g. alternative ways of organising economies underpinned by different value sets, yet this is what is needed e.g. see IPBES Values Assessment (2022) which concludes that moderating market values is needed (IPBES, 2022) to conserve biodiversity, for example, with efforts to amplify ethics of care and solidarity. Yet, the main features of capitalism, are privatisation, consumerism, proprietary rights to land and resources etc, in driving environmental unsustainability. Oft repeated calls for the private sector to be at the table and to deliver on environmental sustainability goals, obscures the role of corporate power in preventing transformative change and the need for wider change in the very nature of democracies (Hausknost, 2019), as well as authoritarian states, to achieve transformative change. Increasing corporate power has meant an increase in political lobbying in many democracies, a lessening of grassroots

organizational power through trade unions, and business representatives even taking positions of power (Standing, 2011).

5. Systemic constraints of reform-oriented approaches in sustainability action

There is growing evidence on the limits of reform-oriented approaches for achieving sustainability goals. Reformist approaches, i.e. ones that seek to modify corporate behaviour, rather than ones that seek to reshape broader economic mechanisms, rules and political economies, for example, is growing. For example, Santika et al (2023) review the evidence on market-based mechanism effectiveness in tackling the deforestation impacts of global trade in tropical commodities. This demonstrated the limits of certification and environmental provisions in Free Trade Agreements. Similarly, Payments for Environmental Services (PES) schemes are promoted by many international organisations, but they are critiqued by many social scientists for commodifying and privatizing nature and dispossessing local communities and undermining local livelihoods (To, 2019; 2013; Van Hecken et al, 2021), especially Indigenous Peoples. IPBES (2022) recently assessed the transformative potential of PES and classed them as being more incremental, rather than PES. PES are an example of neo-liberal reform-oriented approaches (Büscher, 2012). Upcoming research also demonstrates inadequacy of environmental provisions in Free Trade Agreements (Santika et al, 2024). There are systemic constraints for responsible business initiatives, which seek to modify corporate behaviour, but are not able to achieve sustainability changes, because they do not address the underlying causes (Nelson and Flint, 2017). See Box 1.

Box 1: Food transformations toward sustainability are severely constrained by the industrialisation of and corporate power within the food system.

There is growing concentration of power and resources in food systems with just a very small number of companies controlling the food system, which has already been largely transformed into an industrial and commercial entity. The latter is not delivering food security to all, because of major food inaccessibility issues (e.g. food deserts in wealthy countries where consumers do not have access to affordable, nutritious food). Power relations, incentives and structures mean that corporate food regimes have quasi-absolute control of food governance with ongoing expansion of quantity-oriented, efficient food production at the expense of sustainability, especially in expanding low- and middle-income markets.

The increasing globalisation of value chains, also means that food in the UK is increasingly sourced from afar, outsourcing our environmental impacts (Santika et al, 2023). Tele-coupled agri-food systems have ‘sending’ and ‘receiving’ places and connecting flows, with commodity value chains increasingly shaping negative impacts on land use in sourcing localities and, through spillover and leakage effects, in other geographies (Liu et al., 2015). The distant linkages involved, create material, cognitive and emotional disconnections between producers and consumers (Beery et al., 2023) leads to a lack of care in relation to these invisible impacts, increasing consumerism, and enabling weak consumption governance and value-action gaps. Consumer confusion about provenance is increased by proliferations of product and corporate sustainability labels, brands and certifications, which themselves have limited impact (Santika et al, 2023). Media stories which can sometimes shine a

spotlight on negative impacts are limited by ‘othering’ processes, i.e. processes of distancing from other groups, associated with assumed superiorities.

By focusing on universal, technical measures of environmental impacts, insufficient attention is paid to the uneven nature of these impacts, and the uneven responsibilities for causing ecological damage. Climate, biodiversity and social equalities justice requires recognition of outsourced, distant impacts, such as those outlined in Box 1. Certain groups have more power and capacity to dominate others, enabling the reproduction and intensification of inequalities and the over-exploitation and degradation of nature – treated solely for its instrumental value as a resource for human benefit. Injustices are currently not well recognised, but these include the coloniality-related taking of wealth (Hickel et al, 2023) and inequities in the global trading system that reproduce inequalities (Dorninger et al, 2021). Despite increases in per capita incomes and associated consumption emissions over past decades, creating a global middle class and raising millions out of poverty in the global South, the world’s richest households in the global North continue to emit more (Dorninger et al, 2021). Global carbon inequality is striking (Chancel, 2022). Nearly half the growth observed has merely allowed the wealthy top 10% to increase their consumption and grow their carbon footprints, with all the associated ecological damage entailed. Santika et al (2023) recently assessed the commodity impacts of palm oil and cocoa and found that in palm oil, cocoa and coffee, using global data, high income countries have the highest per capita consumption and their consumption rates have dramatically increased in the last two decades, pointing to the major inadequacies of reformist approaches.

Sector-oriented and landscape-based approaches emerged in response to the limits of product sustainability standards in agri-food systems, but have yet to demonstrate robust evidence of impact, and, arguably, share the same limitations as the latter, in not addressing underlying causes. The notion of distinct sectors is embedded in certain ways of viewing the world and sector-transformation approaches tend to focus on technical tweaks to achieve market transformations, rather than to shift to a post-growth future. They thus largely constrain imaginations to the sector and its internal market and corporate behaviour reform, rather than addressing deeper, underlying causes of unsustainability in each sector (e.g. capitalist relations, anthropocentric perspectives etc). Despite decades of investment in West African cocoa sustainability initiatives, because these were focused upon cocoa productivity and voluntary supply chain initiatives, and only latterly on smallholder income diversification and living wages, and broader landscape polycentric governance (i.e. multi-scale institutions with decentralised layers of authority), for example they have been largely unsuccessful (Ingram et al., 2018; Nelson and Phillips, 2018; Kalischek et al., 2023). While there are now advances with mandatory due diligence on human rights and environment and supply chain deforestation, for example, in the EU, there are still many questions regarding the ability of these legal measures to effect change. Further, instead of focusing on rural transformations, and instead narrowly considering farmers as cocoa producers, for example, they have ignored other incentives (e.g. young people moving into gold mining) (Nelson and Phillips, 2014). Low cocoa prices to farmers have not been addressed by any of the reform-oriented responsible business and supply chain interventions. See box 2.

Box 2: Voluntary standards and due diligence: The example of deforestation

Despite the now decades-long development of voluntary codes for business and sustainability product and corporate standards and certification, as well as sector-wide initiatives and commitments, impact evaluation evidence is mixed on their effectiveness (Santika et al, 2023). Many supply chain sustainability commitments have been unfulfilled, such that agricultural commodity-driven deforestation persists. Companies are unlikely to achieve their voluntary zero-deforestation commitments (ZDCs) in the absence of improved implementation (Bager and Lambin, 2022).

In commodity-driven (palm oil, cocoa) deforestation, high-income countries have the highest per capita consumption and consumption rates have dramatically increased over the last two decades (Santika et al., 2023). Despite pockets of corporate action, larger amounts of capital continue to flow into business-as-usual commodity agriculture, because of a 'lack of market uptake, loopholes leading to partial implementation, low compliance, and limited scope' of commitments, with corporate commitments having a 'small impact' (Lambin and Furumo, 2023, p. 254). Some region- and commodity-specific ZDCs have led to small reductions in deforestation, but scaling requires a wider corporate supply base and market coverage (Lambin and Furumo, 2023).

New mandatory legal deforestation instruments are not yet proven. Despite a hardening of corporate accountability in global value chains within EU deforestation regulations, which will increase foreign corporate accountability for negative socio-environmental externalities, whether the approach is effective will depend upon the regulatory design, acceptance, compliance, implementation, enforcement improvements, and avoidance of leakage effects (Berning and Sotirov, 2023). It is not clear how such leakage effects can be tackled, without major expansion of sustainability efforts in other international markets, such as Asia (Berning and Sotirov, 2023) or without inter-governmental agreements or treaties. Inter-governmental entities have the potential to shape their own trading blocs, but they are embedded in global capitalist dynamics, with most of their subsidies promoting large-scale, industrial agriculture. The EU casts deforestation as a supply side issue of production and governance challenges in sourcing localities, however, this approach ignores the root cause – the EU's overconsumption of deforestation-related commodities and asymmetric market and trade power relations. Continued access to agro-commodities and biofuels for green transitions and sustainability reputation is enabled, but transformative approaches are blocked, with the EU avoiding firm targets and degrowth, or decoloniality informed policy measures to tackle over-consumption (Kumeh and Ramcilovic-Suominen, 2023).

Green growth arguments are challenging, because evidence suggests that decoupling is not happening on necessary scales and speed. Green growth currently dominates global environmental responses. Continuing with economic growth while staying within planetary boundaries means separating the former from environmental destruction, achieved via technological advancements or decoupling (Vadén et al., 2020). Countries have agreed to implement the Sustainable Development Goal (SDG) and decoupling is central to 8.4, but it is not currently being achieved on the required temporal and geographic scales needed, with limited

prospects of sufficient absolute or relative decoupling, in the absence of major action by high consumption countries and social groups (Hickel and Kallis, 2021; Ward et al, 2016; Vaden et al, 2020; Parrique et al, 2019). While many governments argue that investment in sustainable transitions and poverty reduction requires economic growth (GEO 6), the equitable degrowth movement (Hickel & Kallis, 2020) seeks constraints on consumption in high consumption nations to downscale the overall economy and reduce material throughput, while also recognizing that growth is needed in poorer nations. Without a rigorous consumption governance is needed instituted to reduce the volume of materials and energy resources consumed and still sustaining human wellbeing (Lorek and Fuchs, 2013; Jackson, 2009).

Environmental damage resulting from economic growth is already undermining economic growth and is projected to do so in increasing magnitudes with greater costs. The consequences of economic growth are increasing damage to environments, climate and peoples, for example heat stress undermines the productivity of workers, which creates the risk that the damage accelerates and the economic crash will be larger and more serious than previously anticipated. To respond to such challenges requires post-growth economic imaginaries and pathways, e.g. deeper conceptualisations of wellbeing economies. Kotz et al (2024) compare the damages to magnitude of mitigation costs and find that the 'economic damages resulting from climate change until 2049 are those to which the world economy is already committed and that these greatly outweigh the costs required to mitigate emissions in line with the 2°C target of the Paris Climate Agreement. They also project permanent average income losses of 19% worldwide by 2049, compared to a baseline without climate breakdown impacts with reductions in the US and Europe being approximately 11% whereas in Africa and south Asia it will be 22% demonstrating the challenge of climate injustice (Kotz et al, 2024).

Responsibilities for climate emissions and biodiversity impacts etc, are uneven, but responsibilities for action are often placed on those with the least adaptive capacity and most vulnerability. There is a concentration of wealth of high net worth individuals who have outsized environmental impacts (Oxfam International, 2023) and mechanisms to tackle their impacts are urgently required, not least as such groups have more resources to adapt their behaviour and mitigate their impacts. In contrast, the placing of responsibility on poor, vulnerable groups as those who should respond to sustainability challenges (Blythe et al, 2018, p1217) rather than to those who hold power and wealth (e.g. asset holders) (Buscher and Fletcher, 2020). Too often the focus has been on sourcing localities and communities in conservation or business responsibility projects, without addressing the rules and power relations that constrain their agency.

The evidence presented points to the need for changes in the way we organise economies and the underlying principles, values and structures. This means both new imaginaries of post-growth economies and their implementation plus support for actions that restrict damaging sectors.

6. Policy lever sustainability propositions

A range of policy levers can be assessed according to their transformative potential. National states have limited capacities to effect transformative change, because of their current ensnaring in global political economies, which limit independent policy directions, which we return to in the promising pathways for transformative change section. The IPBES Values Assessment (2022) is focused on biodiversity conservation, but many of its findings and specific policy lever assessments have much wider potential application.

Key findings from the assessment are:

- Economic and political decisions based on a narrow set of market values of nature underpin the global biodiversity crisis. Instrumental values of nature that are assessed or traded through markets, such as those associated with intensive food production, are prioritise, but do not adequately reflect how nature contributes to people's quality of life.

- Issues of environmental and social justice are neglected in environmental valuation. Most studies of 2010-2020 focus on improving the condition of nature (65%) and 31% on improving people's quality of life, with only 4% focusing on improving issues of social justice. Stakeholder engagement was found in only 2% of studies and only 1% engaging stakeholders systematically.

- IPBES Values Assessment utilised the life framework of values to show differences between anthropocentric, biocentric and pluricentric perspectives[15]. The latter – pluricentric perspectives - are not well known in the UK and there is scope to learn from these in the future to guide future thinking and action.

A key source of policy levers, assessed according to their transformative change potential, is that of the IPBES Values Assessment (2022). While focused on biodiversity conservation, many of the proposals have broader resonance. Policy levers can be identified across diverse spheres (economic, cultural, legal, social and cultural, rights based and customary etc) on an evaluative scale of transformative change potential, from maintaining the status quo, through (more) incremental, to (more) transformative.

Four types of policy levers for transformative governance were outlined by the IPBES Values Assessment, 2022, drawing on existing literature. These are:

- **Economic and financial policy levers:** These include status quo interventions such as REDD+. Consumption taxes, tradeable permits, biodiversity relevant taxes, charges and fees, biodiversity offsets and derivatives trading and commodity futures. More incremental approaches include PES, environmental subsidies and eliminating harmful subsidies, ecological fiscal transfers,

[15] Pluricentric means having multiple forms; in relation to human-nature relations, it means recognizing plural ways of knowing and being, for example.

ecosystem accounting, and biodiversity financing (including ODA). More transformative levers are alternative economic models and alternative measures of human well-being.

- **Legal and regulatory policy instruments:** Status quo interventions include EIAs, NBSAPs and other legislation, legislative control over pesticide use, commodity chain regulation, trade bans, legal restrictions on natural resources use. More incremental measures include legally protected areas, locally managed marine areas, marine protected areas and spatial planning, multi-lateral agreements, expanding food market transparency, environmental public interest litigation. More transformative approaches are rights of nature.
- **Social and cultural policy instruments:** Status quo interventions include corporate social responsibility. More incremental levers include environmental education, certification and labelling, public information instruments, behaviour nudges for reduced consumption, socially responsible investments. More transformative approaches are co-management.
- **Rights based and customary instruments:** No status quo interventions are noted. More incremental approaches include Other effective area-based mechanisms (OECMs), ILK revitalisation, IPLC-led codes of ethical conduct, and Free, Prior and Informed Consent. More transformative levers are not outlined.

These policy levers are summarised in table 1 below (IPBES 2022, chapter 6, p459).

Overall, status quo and incremental levers lack the capacity to shift economic paradigms and recognise other values of nature. Examples of status quo interventions include biodiversity offsets, commodity chain regulation and certification and labelling. More transformative approaches are suggested: More transformative economic and financial instruments include alternative economic models and alternative measures of well-being. More transformative legal and regulatory policy instruments are rights of nature. Social and cultural policy instruments are co-management. No rights-based and customary instruments are noted. See Tables 1 and 2.

Table 1: Summary of IPBES Values Assessment's assessment of policy levers and transformative change. Source: Text reproduced from IPBES Values Assessment, 2022.

Instruments	**Maintaining status quo**	**(more) incremental**	**(more) transformative**
Economic and financial policy instruments	REDD+ Taxes on consumption Tradeable permits Biodiversity relevant taxes, charges and fees Biodiversity offsets Derivatives trading and	PES Environmental subsidies (and eliminating harmful subsidies) Ecological fiscal transfers Ecosystem accounting Biodiversity financing (including ODA)	Alternative economic models (e.g. Buen Vivir in Bolivia and Ecuador, Ecological Civilization in China, degrowth models) valuing material, social, spiritual/mental well-being as

	commodity futures.		equally important. Alternative measures of human wellbeing
Legal and regulatory policy instruments	Environmental impact assessment NBSAPs and other legislation Legislative control over pesticide use Commodity chain regulation Trade bans Legal restrictions on natural resource use	Legally protected areas. Locally managed marine areas. Marine protected areas and spatial planning. Multilateral agreements Expanding food market transparency. Environmental public interest litigation	Rights of Nature
Social and cultural policy instruments	Corporate social responsibility	Environmental education Certification and labelling Public information instruments. Behaviour nudges for reduced consumption. Socially responsible investments	Co-management
Rights based and customary instruments	N/A	Other effective area-based mechanisms (OECMs). ILK revitalisation IPLC-led codes of ethical conduct. Free, prior and informed consent	N/A

Table 2: Intergovernmental Platform for Biodiversity and Ecosystem Services for Values Assessment Sectoral and Cross-Sectoral Interventions

Sectoral and Cross Sectoral Areas of Intervention	Examples of Options Available for Different Stakeholders (key is below)
Climate change adaptation and mitigation	• Nature-based solutions (NSG, P, NGO, CG) ▲ • Ecosystem-based approaches (NSG, P, NGO, CG) ▲ • REDD+ (IO, NSG, NGO) ● • Tradeable permits (NSG, IO) ●
Economy	• Alternative economic measures (IO, NSG) ▲ • Alternative economic models including degrowth and steady state economics (NSG) ▲ • Sustainable production and consumption (P, CG, NGO) ● • Circular economy (NSG, P, CG) ● • Ecological fiscal transfers (NSG) ● • Taxes on consumption (NSG) ● • Ecosystem accounting (NSG, P, IO) ● • Socially responsible investments (CG, P) ● • Biodiversity relevant taxes, charges, and fees (NSG) ● • Commodity chain regulation (NSG, P) ●
Education	• Social learning (IO, NSG, P, NGO, CG) ▲
Health	• Planetary health approaches (IO, NSG) ▲ • One health approaches (IO, NSG) ▲ • EcoHealth approaches (IO, NSG) ▲ • Community health approaches (IO, NSG) ▲ • Biophilic landscape planning (NSG) ▲ • Legislative control over pesticide use (NSG, IO) ●
Land use (Incl. agriculture and nature conservation)	• Swidden agriculture (CG, P) ▲ • Rights of nature (NSG, NGO) ▲ • Payments for ecosystem services (IO, NSG, NGO, P) ● • Biodiversity financing (IO, NSG, NGO) ● • Commodity chain regulation (NSG, P) ● • Trade bans (NSG, IO, P) ● • Legal restrictions on natural resource use (NSG) ●
Marine, coastal and fisheries management	• Rights of nature (NSG, NGO) ▲ • Marine spatial planning (IO, NSG) ● • Marine protected areas (IO, NSG) ● • Locally managed marine areas (NSG, NGO, CG) ●
Urbanisation and other large-scale infrastructure development	• Nature based solutions (NSG, P, NGO, RU) ▲ • Ecosystem-based approaches (NSG, P, NGO, CG) ▲ • Biophilic planning (NSG, CG) ▲ • Ecological fiscal transfers (NSG) ●

Key change agents highlighted with acronyms:

- IO = Intergovernmental organisations
- NSG = National and subnational governments
- NGO = Non-governmental organisations
- P = Private actors

Shapes refer to transformative (blue triangle) or incremental (orange circle) potential, while the circle options highlight those which rather maintain the status quo

Source: Text reproduced from Intergovernmental Platform for Biodiversity and Ecosystem Services, Values Assessment (2022)

This report employs the Values Assessment (2022) as a starting point for discussing potential transformative change leverage points, but also explores additional pathways emerging in the literature towards sustainability transformations.

7. Exploring approaches with more transformative potential

It is more appropriate to describe approaches that have transformative potential, due to evidence challenges. To some extent what is transformative or not is continually changing, not least in contexts are changing, but there are some key aspects of the underlying causes of contemporary challenges that require attention, which help to indicate whether an approach or policy lever has transformative potential. In other ways, there is a need for situated processes in which sustainability is debated and responses are co-designed. However, there are also broader structural challenges which may require higher scale actions, e.g. through inter-governmental agreements.

Explaining why something has transformative potential is important, however, because otherwise there is no clarity about how a change is being assessed, as well as by whom, and given the continuing support for market-based mechanisms. given that many earlier sustainability initiatives have not been successful, and to avoid status quo or reform-oriented approaches which may block deeper change.

What might be the criteria for assessing transformative sustainability potential? IPBES currently defines Transformative Change as involving goals, values and paradigm shifts across systems, and states that they should have the capacity to shift economic paradigms and recognise other values of nature, which involves moderating market values and amplifying ethics of care (IPBES, 2022). On this basis the criterion for a transformative intervention would be that it challenges the underlying causes of unsustainability, by focusing upon deep leverage points (e.g. shifts in goals, values and paradigms). In this report, we suggest that deep leverage point shifts involve even more than this, it also involves changes in the very nature of reality, such relational philosophies which challenge dominant understandings and life-worlds. An example shift in goal might be a shift from a growth to a post-growth economy or (even more deeply) from a controlling one world approach, to a ‘many worlds in this world’, towards multi-species ethics of care.

Table 3: Summary of Deep Leverage Points for More Transformative Change

LEVERAGE POINTS: Broad Recommendations
Economic and financial policy levers
Reimagine economics toward post-growth & conviviality • Expand visions of future diverse economies in which material, social and spiritual and mental wellbeing have equal importance and moving beyond the anthropocentric to embrace human and non-human needs and agency via community engagement, micro-deliberative democracies, arts. • Ensure a safe space for contestation and exploration of sustainability futures for civil society and the public (e.g. protecting right to protest, funding civil society organisations and movements to create alternatives and hold companies and governments to account, free press, supporting environmental and human rights defenders internationally). **Expanding participation in economic decision-making** • Expand economic participation, i.e. civil society participation in decision-making via micro-deliberative democratic approaches. **Addressing growth dependency** • Address growth dependency (demand side) to promote environmental sustainability (e.g. work-time reduction initiatives, job guarantees, universal basic services and variations on basic income, plus measures to raise revenue to fund these. • Redesign economies (supply side) via taxation, equitable ownership, action on rent-seeking in public service provision, preventative healthcare approaches, scaling back ecologically destructive industries and bringing under public control, cutting advertising, ending planned obsolescence, improved urban planning. • Explore options for redesigning financial architecture, build international support for measures that prevent banks and financial systems funding unsustainable production and consumption, anti-trust measures etc. • Curb high consumer impacts (e.g. private jets, luxury goods). • Limit long-distance trade to improve economic sovereignty, especially in agro-food systems. Promote substitutions and reductions in international trade especially of unnecessary products in the light of changing climate. • Support measures for countries in global South to develop sustainably, through measures such as debt reduction, but also addressing need for abundant sufficiency amongst elites and growing middle classes. **Prefigure & expand alternative economies in practice** • Amplify notions of abundant sufficiency and philosophies of a good life in harmony with nature and care labour of non-humans amongst citizens, to enable nation states to move beyond glass ceilings on post-growth shifts. • Identify and support the expansion of existing examples of diverse, post-growth economies through diverse measures (e.g. financing, public procurement). • Land redistribution to benefit local communities and non-humans and stemming privatization of public spaces. • Promote assessment of wellbeing (human, non-human) in national indicators, foregrounding indicators such as autonomy and solidarity, with economic wellbeing assessed through abundant sufficiency.

- Supporting territorial / biocultural region approaches that support autonomous regeneration, including access to and ownership of land, engaging local (human, non-human) communities in collective action, with expansion theories (not replication) and assessed qualitatively.
- Support 'commoning' policy levers to create an enabling environment for the expansion of cooperatives, social enterprises, public-cooperative models (e.g. public procurement, public-community partnerships, non-speculative community currency and credit approaches).

Changing economics

- Mobilise public support for and research on post-growth economic redesign via education initiatives in schools and universities and mobilizing civil society.

Legal and regulatory policy instruments

Rights of Nature

- Create changes in the justice system (e.g. support Rights of Nature through legislative means at national scale, combined with Ecocide, restorative justice and environmental courts. Explore granting naturehood to person).
- Support civil society to create public support for Rights of Nature combined with legislative reforms recognizing rights of citizens and civil society to bring environmental lawsuits, e.g. standing to sue for environmental harms, legal frameworks for environmental rights and strengthening access to justice in environmental matters, including capacity building and legal assistance.
- Ensure transparency and accountability mechanisms e.g. public hearings, environmental ombudspersons to enable public access to relevant information.
- Sign up to and observe international treaties on climate and environment, and support progress on Rights of Nature at global scale.

Legal support for community land ownership & access

- Support local communities to gain greater access to and ownership of land for sustainable management.
- Especially support for Indigenous community customary governance recognizing biodiversity and climate benefits of their stewardship.
- Expand legal support to protect environmental and human rights defenders around the world.

Other indirect legal measures

- Legal measures to tackle large corporate concentration such as anti-monopoly regulation.

Social and cultural policy instruments

Revitalising Indigenous cultures and learning from Indigenous Peoples and relational philosophies

- Supporting indigenous revitalisation and rights.
- Learning from Indigenous cosmologies and other relational philosophies.

Embed environment across education

- Embed considerations of the environment and non-human across different areas of education.

- Revitalise approaches to environmental education by drawing upon relationality philosophies and insights from more-than-human research such as interdependencies and entanglements of humans and nature, agency and labour of non-humans.
- Linked to the above, promote experiential approaches and embodiment to explore different senses, spirituality and emotional connections with nature.
- Promoting celebration, awe and spirituality with respect to nature to advance ethics of care.

Engaging communities, building awareness of relationality and ethics of care

- Mobilizing arts for engaging communities in deeper ways e.g. through emotional connection, engaging and exploring senses and affects.
- Employ relationality insights on human-nature relations in community arts for resilience and transformation.
- Support for creative and critical arts in exploring speculative sustainability futures.

Place-based approaches for autonomous regeneration

- Support place-based approaches that can support locally developed, tailored approaches to sustainability.
- Embed relational insights to place-based approaches that promote autonomous regeneration of all life.
- Consider and promote economic redesign proposals at sub-regional scale and in grassroots initiatives (see above).
- Expand access to nature for all communities, especially marginalised communities.
- Rethink conservation to tackle capitalist relations,
- Celebrate and promote joy, awe and empathy for everyday nature rather than the spectacular through extended visitation, arts-methods, experiential learning and volunteer.
- Building skills and capacities for place-based work.

Radical and speculative future-making

- Support speculative futures exploration by artists and environmental humanities.
- Explore plural and relational ways of thinking, being and knowing in exploring futures, e.g. Indigenous conceptions.
- Give active voice to ‘nature’ in decision-making processes through support for political representation of ‘nature’ actors.
- Support arts-based and participatory engagement of local communities in collective action.
- Create sustainable future political position(s) that represents future generations, including non-human nature and more than human worlds.
- Engage with future-making initiatives on sustainability e.g. UN Summit on the future to embed relationality and post-growth thinking and concerns.

Mobilizing relationality insights in research and action research

- More support for transdisciplinary research, especially involvement of more marginal disciplines e.g. critical social sciences, environmental humanities and arts in tackling environmental challenges and sustainability transformations.
- Mobilise public engagement through citizen arts, journalism as well as science, supported by action-researchers.

- Engage Indigenous scholars and community representatives, based on Free, Prior and Informed Consent, and Indigenous research methodologies (e.g. two-eyed seeing).

Rights-based and customary instruments

Invest in and expand Indigenous and local peoples' customary land rights and land governance

- Support UNDRIP
- Changing people's values and expectations of nature amplifying a relational understanding.
- Internationally, support convivial conservation and post-development approaches.
- Make efforts to decolonise international aid by redesigning fundamental aspects of 'cooperation' shifting to reparations, conviviality and inter-governmental cooperation.

Political instruments

Micro-deliberative democracy

- Support micro-democracy initiatives on a wider range of issues e.g. climate change, food sustainability, nature futures.
- Represent non-human interests in participatory decision-making processes.
- Link to creative arts (see above) to give nature the active voice.

Changing the nature of democratic states & inter-governmental cooperation

- Build public support for more far-reaching changes in democratic states e.g. taking ownership of highly damaging industries to mitigate impacts, shifting consumption philosophies to move from green state to post-growth states.
- Seek to revitalise inter-governmental cooperation for action on sustainability issues including more radical future-making processes and non-human representation.
- Protect and expand safe spaces for environmental social movements and human rights / environmental defenders nationally and beyond.

7.1 Economic and financial policy instruments

Support for alternative economic models and mechanisms is urgently required. Alternative economic models already exist (Gibson-Graham, 2006). Well known examples of different philosophies underpinning a good life are Buen Vivir (Bolivia, Ecuador), Ecological Civilization in China, degrowth models, Satoyama in Japan. These all value material, social, spiritual/mental well-being as equally important (IPBES Values Assessment, 2022; Mabele et al, 2022). Ubuntu, an African philosophy, emphasises interconnectedness of humanity and the importance of community and relationships, and hence could form an important option for future conservation activities (Mabele et al, 2022). Beyond solely economic framings premised upon accumulation (Harvey, 1992) diverse philosophies envision prosperity as much more than individual wealth, but also focus upon good living – more than in individual concern, but they achieve collective well-being. Many Indigenous philosophies respect all living beings, not only humans. The concept of 'living well together' is captured by the concept of conviviality, i.e. a vision of a society where individuals are free to live meaningful and fulfilling lives, supported by

tools, institutions and relations that foster autonomy, creativity and mutual respect (Illich, 1973).

How to achieve alternative ways of organizing our economy is not straightforward, given how most nation states are fully embedded in webs of capitalism. Democratic nations face a glass ceiling on reducing growth, because of imperatives to deliver increasing material wellbeing to citizens**.** The wellbeing economy approach is aligned with a sufficiency approach, finding growing support among Wellbeing Economy Governments or WEGo (New Zealand, Scotland and Iceland). Analysing these cases, Hayden and Dasilva (2022) find movement towards moderating economic growth and foregrounding wellbeing as the key societal goal, with new appropriate measures to inform policymaking, but that progress is hindered by requirements on economic growth to sustain goals required by electorates such as creating jobs and providing welfare state services, which are linked to wellbeing.

Stronger post-growth approaches simultaneously address growth dependency and expand sufficiency. Approaches implemented by the WEGos vary, but they have been termed 'weak' post-growth (Hayden and Dasilva, 2022). Tackling economic growth is intensely difficult; few nation states are adequately addressing this. In democratic states, invisible limits or a glass ceiling restrict action, i.e. the imperative to protect citizens from environmental harm and protect material states of living, leads to the outsourcing of impacts that have delayed effects. The impacts are 'dispersed in time and space and…negative effects are mediated through several ecosystemic feedback loops' such as Greenhouse Gas Emissions which do not harm people directly at source, but where the negative effects, via long delays, come back to impact all, via potentially catastrophic climate change (Raymond, 2004 cited by Hausknost, 2020, p2). Such impacts are not evenly experienced either, i.e. vulnerable groups are being most impacted by climate impacts, and have least resources to respond, despite least contribution to damage. These inequalities were, significantly generated, during colonial expansions and continue to inform notions of modernity (e.g. progress through growth) (Arora and Stirling, 2023). Thus, while the life-worlds of citizens and ecologies in higher income countries may be relatively protected or restored, this is based upon a fundamentally unsustainable reproductive system (Hausknost, 2020), which involves the distant exploitation of cheap nature and cheap labour (Moore, 2015) creating impacts elsewhere (Santika et al, 2023).

Key pathways to reducing growth dependency include reorienting welfare policies and economic systems. To reduce the demand side, not only the supply side of capitalism (the latter through more environmentally efficient ways of increasing output), means tackling entrenched habits of 'consumer sovereignty, choice, lifestyles and identities' (Barry and Eckersley, 2005, cited by Hausknost, 2020). Beyond work-time reduction initiatives, a stronger approach would link work-reduction to sacrifice of output, plus measures such as job guarantees, universal basic services or variations on a basic income, to reduce the growth dependency of the welfare state (Hayden and Dasilva, 2022). Büchs (2021, p327) suggests that 'Sustainable steady state economies that prioritise social and environmental goals could prevent rising demands for 'welfare' that are currently generated by growth-based capitalist economies through a more even distribution of work, resources and

opportunities; greater economic security; and improved community and family capacity for social support, care and social participation. Instead of aiming to promote growth, sustainable welfare policies would focus on guaranteeing needs satisfaction for everyone at minimal environmental impacts. The maximisation of work incentives would be replaced by a more even distribution of work and income; education could aim at facilitating critical participation in society (instead of maximising human capital and productivity); and health policy would seek to prevent rather than treat disease and to maximise the changes for everyone to lead a healthy and fulfilled life (instead of productivity and profits for healthcare industries).' These are far-reaching shifts, but necessary for transformative paths to sustainability.

On the supply side, there is a need to redesign economies through taxation, equitable ownership, action on rent-seeking in public service provision, preventative healthcare approaches, scaling back ecologically destructive industries, cutting advertising, ending planned obsolescence, improved urban planning. Some measures can help to constrain consumption: taxation measures, equitable ownership, and action to tackle rent-seeking in provision of public services that enhance wellbeing so that costs can be reduced and preventative healthcare approaches (Hayden and Dasilva, 2022). Spreading the ownership of wealth is necessary through measures for more equitable ownership in steady state economies include public ownership of enterprises at multiple scales (e.g. from municipal to national), sovereign wealth funds, labour or community-owned enterprises and cooperatives, plus more equitable distribution of the rewards (Gough, 2017). In food systems, redistribution of land is required towards communities (Béné, 2022). The Scottish Government's plan to expand social enterprises, employee-owned business and cooperatives' is an important 'step in the right direction' in this regard (Hayden and Dasilva, 2022, p14). Koch (2021) proposes generating revenue will be necessary to have more equitable distribution and curb high consumption among wealthy social groups, such as through increasing wealth, inheritance and property taxes, plus taxes on luxury consumption, high environmental impact consumption such as consumption of meat and air travel, tackling tax evasion (Hickel, 2020; Koch, 2021). Additional measures (which would carry costs) including scaling down ecologically destructive industries and ending planned obsolescence (Hickel, 2020) and improved urban planning (Hayden and Dasilva, 2022). See Box 4.

Box 4: Systematic review of degrowth propositions

A systematic review found 50 goals, 100 objectives and 340 instruments for degrowth (2022).

Most recommended objectives for degrowth, based on a systematic review of the evidence were as follows:

1. Reduce time in paid waged labour.
2. Redistribute income, wealth, labour, land, knowledge, care work, infrastructure, resources and time within and between countries.
3. Guarantee the de-commodified and universal provision of fundamental human needs.
4. Decentralising decision-making.

5. Promote shared housing.
6. Support nonspeculative exchange systems like local currencies and credit networks.
7. Prioritise small, highly self-sufficient communities.
8. Create a culture of sufficiency and self-limitation.
9. Re-localise activities.
10. Defend and reclaim the commons.

Source: Fitzpatrick et al, 2022.

Transforming food systems will require more than techno-scientific solutions aimed at increasing green efficiencies: Breaking up corporate monopolies is also necessary. Béné, (2022) argues that the sheer concentration of power in the food and agriculture industry globally blocks efforts to achieve sustainability. Monopoly power of the largest corporations in the world has increased in a significant way over recent decades, with rising revenue, market capitalisation and asset ownership. This has implications for labour rights, intra- and inter-nation inequality, and undermined democratic structures and institutions.

A great deal of attention is focused upon unlocking financial capital for investment in biodiversity, but these are criticised for commodifying nature, which itself has inherent challenges for sustainability. While widely lauded, the UK government's Dasgupta Review (2021) re-stated the argument that, essentially, it is necessary to value nature in economic terms to save it, 'creating an analogy between biodiversity protection and financial assessment management. Destruction of Nature is blamed on the misallocation of capital investment, with too much going to produced and human capital relative to natural capital' (Spash and Hache, 2021). However, this framing avoids questioning economic growth, ignoring the implications of limits to growth and planetary boundaries (Spash and Hache, 2021). Commodification of nature, through mechanisms such as PES and green bonds, such as the oversimplification of complex ecological processes, the undervaluing of nature's intrinsic worth, risks of greenwashing, encouragement of speculative investments, exacerbation of social inequalities and privatisation of natural resources, and inadequate governance and regulations to support such schemes. Equity issues arise, because local communities rarely benefit, not having access to necessary capital, knowledge, expertise, technology and sometimes labour (Corbera and Brown, 2010), plus such mechanisms that allow commodification abstract nature for its contexts and enables global elite claims to the largest share of the earth's biomass (McAfee 1999) allow for the appropriation of nature (Fairhead, Leach and Scoones, 2012).

Differing degrees of commodification can be distinguished in biodiversity policy instruments which could be used to shape policies, recognizing the socio-ecological concerns pertaining to commodification (Hahn et al, 2015). Hahn et al, (2015) assess such instruments with a scale ranging from 0 (low commodification) to 6 (high commodification), with the latter obviously being more problematic from equity and biodiversity perspectives. Such differences in levels of commodification may be helpful to bear in mind for policy-makers (Hahn et al, 2015):

- Moral arguments and regulations based on intrinsic value are associated with zero commodification (e.g. endangered species acts and nature reserves) (score of 0).
- Non-monetary regulations based on instrumental arguments such as nature reserves and other land use plans that focus on natures instrumental value to human well being are also low in terms of commodification (being given a score of 1).
- Non-monetary regulations based on physical metrics (e.g. units of nature) such as ecological compensation without roles for price signals or market transactions (score of 2).
- Non-monetary regulations designed to maximise economic efficiency such as city parks designed and managed to maximise calculated recreation values (score of 3).
- Economic instruments that are not traded (e.g. taxes and subsidies and subsidy-like PES paid by governments (Score of 4).
- Economic instruments (voluntary market trade) (e.g. market-like PES, markets for ecosystem services, such as biodiversity offsets trading conservation credits (score of 5).
- Financial instruments (e.g. forest bonds, biodiversity derivatives (score of 6).

The underlying need for a more equitable and just alternative financial architecture should be the priority for achieving post-growth economies. **Measures to tackle monopoly power of global corporations is a key example.** Intensification of market power is occurring, measure by asset ownership, market capitalisation and rising profits, contributing to intra-national and international inequalities, increasing lobbying power and thinning democracies (Standing, 2016). Various tools such as competition or anti-trust policies and regulations can be employed and expanded to create a more balanced economy, with benefits for consumers. Addressing funding by banks and financial systems for transformative change is also important to tackle unsustainable production and consumption (Béné, 2022)

Expanding notions and practices of sufficiency is the more creative side of achieving post-growth economies. There is growing evidence of how non-material social factors shape wellbeing. Philosophies for living well together and having a good life in harmony with nature already exist. While currently sidelined by dominant economic systems, there is significant potential for wider learning from such ethics of care-based philosophies. Efforts to show that the consensus that strong materialistic values and economic growth would lead to a better quality of life, is increasingly not the case in high income countries, with high levels of inequalities and rising levels of distress in advanced economies (Blanchflower and Oswald, 2020) despite rises in GDP (depression, suicide rates, addiction ‘deaths of despair’ (Case and Deaton, 2015). Non-material dimensions of wellbeing such as social supports and networks, freedoms and notions of fairness can play a critical role in shaping future human well-being (Barrington-Leigh and Galbraith, 2019). Helliwell (2019) finds that happiness is primarily driven by social factors such as generosity and social connections. This new emerging evidence validates Ivan Illich’s earlier proposals

from 1973 (Illich, 1973) – see Box 1 below on plural philosophical conceptualisations of the good life as alternatives to materialism and consumerism. As well as reducing work-time to support wellbeing, tackling advertising is important (Hickel, 2020), beginning with limits on ads for GHG intensive goods and services Hayden and Dasilva, 2022). Alternative philosophies, including those of ancient traditions such as many Indigenous cosmologies, and more recent conceptualisations which build on them, such as frugal abundance or radical sufficiency, are sidelined by dominant political economies, yet have plenty of relevance to high consumer countries, which have growing inequalities, unsustainable reproduction systems and growing levels of distress. See Box 5.

Box 5: Support for commoning

Small-scale institutional innovations such as cooperatives, participatory budgeting, social ownership of key assets, worker self-management can prefigure economic change (Wright, 2017).

Supportive policy actions are needed to support commoning (Bollier, 2020):

- supportive legal frameworks
- intellectual property reform
- governance
- supportive economic models e.g. community-supported agriculture and cooperatives
- digital platforms using open source software and education.

Scottish Government's support for social enterprise, cooperatives under the Wellbeing Economy initiative is a positive step and could be expanded (Hayden and Dasilva, 2022).

Design of regionally based food systems, for example, and promotion of commoning is essential for alternative, sustainable food (Béné, 2022).

New imaginaries of the economy at their deepest in terms of leverage points involve goal, value and paradigm shifts. Post-growth economies require goal shifts (towards wellbeing), values shifts (from individualism and consumerism to solidarity, care and sufficiency) and paradigm shifts, challenging notions of progress and the assumption of unending accumulation with insights from decoloniality scholars who disengage from the logic of coloniality and modernity (Wanzer-Serrano, 2015; Mignolo, 2007; Arora and Stirling, 2023).

Box 6: Philosophical conceptualisations and proposals for the 'good life', oneness with nature and living well together.

- **Indigenous conceptions commonly embrace living well and oneness with nature / living in harmony with nature.** Such ways of living, being and knowing recognise interdependencies and reciprocities in a central manner. Andean Indigenous cosmologies such as Sumak Kawsay, have been the inspiration for a now widely known concept – that of Buen vivir. Quechua and Aymara

cosmologies assume and respect relations among humans and with non-humans, recognizing the agency and labour of plants, animals and phenomena or places (Merino, 2016; Blaser et al, 2010). These concepts have now been translated into normative principles in national constitutions in some Latin American countries, such as Bolivia and Ecuador. Rights of Nature are inscribed within a National Plan for Good Living 2009-2013. These developments have opened space for the expression of Indigenous concerns, facilitating policies and legislation for Indigenous Peoples (Sieder, 2011), but despite new institutions and plans, these have not successfully challenged the political economy more broadly, as yet, which is trapped into logics of extracting (Merino, 2016).

- **An African philosophy – Ubuntu:** This is based upon ethical principles of promoting life through mutual caring and sharing between and among humans and nonhumans (Mabele, Krauss and Kiwango, 2022) and thus provides a potential guide for conservation that is delinked from protectionist approaches and instead embraces solidarity and respect (Mabele, Krauss and Kiwango, 2022; Buscher and Fletcher, 2020).
- **Frugal abundance:** A concept developed by Latouche (2009) as a means for challenge the pervasiveness of market-based relations and to create space for generating a grassroots imaginary of degrowth and autonomous determination (Latouche, 2010)
- **Conviviality:** Modern industrial societies become over-reliant on technologically complex tools and systems, exceeding their utility and becoming oppressive forces with respect to human freedom and autonomy, calling for alternatives that prioritise human wellbeing and social relations above and beyond unlimited growth and efficiency, and avoiding the need for reliance on excessively centralised, bureaucratic systems, with more decentralised, participatory approaches to technology that foster autonomy, creativity and conviviality in everyday life, including in conservation and eco-tourism (Büscher and Fletcher, 2019).
- **Prosperity without Growth / Degrowth**: Various authors have been developing such concepts, notably Tim Jackson, Manuel Naredo (‘better is less’) and Jason Hickel (2021) ‘less is more’, all pointing to the possibilities of reducing growth, but sustaining or even enhancing human wellbeing.
- **Eudimonia:** Aristotle argued that this concept relates to the state or condition of 'good spirit', and which is commonly translated as 'happiness' or 'welfare.
- **Radical simplicity** does not mean poverty, which is involuntary and full of suffering and anxiety, and thus universally undesirable. Rather, it means a very low but biophysically sufficient material standard of living. A ‘sufficiency economy’ – structured to promote ‘simple living (Alexander, 2019).

Relational philosophies and the arts can support expanded notions of sufficiency. Instead of trying to simply engage people cognitively on notions of sufficiency linked to well-being and living in harmony with nature, there are potential ways to engage with communities and decision-makers utilising arts-based methods, to engage with people’s emotions and to make more visible the care labour that is undertaken by other species.

Mobilising political support is crucial for achieving post-growth economies and may be underestimated. The Wellbeing Economy concept is useful in being seen as post-ideological and hence easier to mobilise actors around, but political mobilisation for contentious actions is necessary (Hayden and Dasilva, 2022), which points to the need for micro-deliberative democracy approaches such as citizen assemblies mandated by governments, national conversation on national universal basic dividends, and improved economic and wellbeing indicators, plus more progressive taxation and closure of international loopholes to tackle luxury carbon and biosphere consumption (Earth4all.life).[16]

Alternative measures of wellbeing are widely proposed as being important for guiding national policymaking, but they also have limitations. Qualitative assessment of solidarity, ethics of care and autonomy are needed at more territorial scales**.** Various countries have adopted human wellbeing as a key measure, but frequently this sits alongside continued support for economic growth. The Bhutan Gross National Happiness Index is a holistic measure, with other proposals including a solidarity indicator and an agency indicator, alongside material gain and environmental sustainability (Shower and Lima de Miranda, 2020), which is helpful in expanding measures to a more holistic perspective, but it remains ultimately locked into economic growth. Bhutan's GNH Index includes 33 indicators measuring 9 domains (psychological wellbeing, health, education, time use, cultural diversity and resilience, good governance, community vitality, ecological diversity and resilience, and living standards.[17] More radical measures would involve an assessment of solidarity and autonomy at localised levels for sustainability, broadly defined, delinked from economic growth.

Embracing more sophisticated notions of development is necessary in the post-SDGs for transformative sustainability. The Sustainable Development Goals represent a remarkable achievement in developing a consensus and mobilizing higher income nations to assess their own progress. However, progress is less than expected and the design has inherent challenges: SDG 15, for example, follows dominant perspectives of conservation, cementing blindness to non-human agency and human-nature entanglements, and is essentially not people-centred, lacking mechanisms to protect and respect indigenous and local communities' lands, rights and knowledges (Krauss, 2022). It only recognises quantitative indicators, rather than lived experiences and enables continued injustices with respect to protectionist conservation and local peoples (Krauss, 2022). SDG 8.4 embraces economic growth, and while there is a governmental commitment to decoupling, the evidence suggests that this is not happening on required scales, durations etc, and there is no commitment to constraints on consumption by higher consuming nations. A more transformative approach to leaving no place or people behind, would be to recognise the 'legacies and histories which have produced the uneven geographies, ontologies and epistemologies of development, and requires an active dismantling of oppressive power structures, which are aligned to mainstream neoliberal development'[18] (Kumar et al, 2024).

[16] Five extraordinary turnarounds to achieve wellbeing for all (earth4all.life)
[17] Beyond GDP: Bhutan's pursuit of wellbeing and happiness revealed in latest GNH results | MPPN
[18] https://www.liverpooluniversitypress.co.uk/doi/full/10.3828/idpr.2024.4

Tackling the impacts of global supply chains, means identifying pathways and measures that can both re-territorialise economies and reduce damaging trade. Reducing consumption requires demand side measures, more than the reform-oriented approaches currently employed. Tele-coupled value chains have grown in complexity and magnitude, but the socio-ecological impacts, e.g. deforestation and child labour, in sourcing localities are hidden and significant. Ultimately, tackling global supply chains, means identifying pathways and measures that can re-territorialise economies and tackle demand side issues. Carmenta et al (2023) suggest that with respect to centres of wealth there is need for more accountable and regulated trade, supported by gratification (i.e. sufficient abundance philosophies) as opposed to growth, as well as improvements in biocultural landscapes, with improved local governance, rights and self-determination and respect and learning from diverse knowledge and plural values. However, while accountable and regulated trade is desirable, it is difficult to achieve, and Carmenta et al (2023) give limited insights, including addressing the potential blocking outcome of reform-oriented measures, not only their weaknesses e.g. voluntary standards which clearly fail to shape corporate behaviour. Decades of efforts involving reform-oriented weak supply chain measures in agrifood systems involving voluntary codes and standards, have had limited or mixed impacts (Santika et al, 2023). Research is needed on the effectiveness of new reform-oriented measures such as mandatory supply chain deforestation due diligence and mandatory human rights and environmental due diligence (HREDD), but these are likely to face similar sets of challenges, although at least a more demanding one for companies.

Figure 2: Connected Conservation

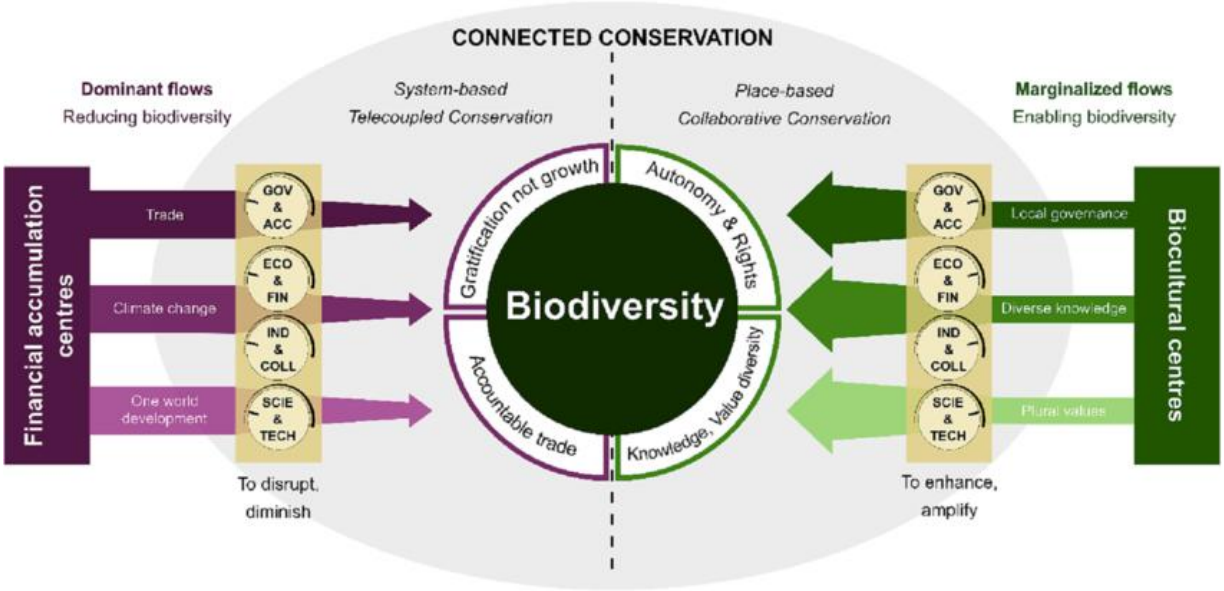


Fig 2: Conceptual overview of Connected Conservation. Three dominant negative flows from centres of wealth and reduce biodiversity: one world development model, climate change and trade (legal and illegal). Meanwhile three positive, yet presently marginalised flows, stem from biocultural centres and enhance biodiversity: local models of biocultural governance, diverse knowledge, and plural values and conceptions of good life. Connected Conservation operates through dual processes of diminishing and disrupting the negative flows from centres of financial accumulation in 'telecoupled conservation' and enabling and amplifying the positive flows in 'collaborative conservation'. Connected Conservation actions are operated through a

fourfold set of levers: Governance and Accountability (GOV & ACC; e.g. environmental law, meaningful participatory decision making; transparent value chains and trade flows; embedding multi-dimensional wellbeing in national development indicators); Economy and Finance (ECO & FIN; e.g. fading out perverse subsidies, true pricing of assets); Individual and Collective action (IND & COLL; e.g. education raising social awareness of the impact of conventional wealth; social movements, protest and mobilisation for policy change; experimenting recognizing and legitimising alternatives) and Science and technology (SCIE & TECH; e.g research to inform evidence-based action, monitor and evaluate impacts).[19]

Trade is inadequately covered in the degrowth or postgrowth literature. Proposals focus on limiting long-distance trade and fundamentally changing agreements on trade and intellectual property rights. Restricting long distance trade approaches would focus on reducing 'unnecessary intra-industry trade between nations of similar affluence, applying export quotas, and limiting the use of international aviation and shipping' (Fitpatrick et al, 2022, p7-8). The second proposition is renegotiating trade agreements such as TRIPS Agreement at the World Trade Organisation. Circular economy approaches as an economic model to minimise waste and resource use by keeping products and materials in use for as long as is viable, via recycling, reuse and remanufacturing, and thus reducing the need for new resource extraction and consumption. However, critics argue that such approaches do not tackle the underlying issues of overconsumption and resource depletion, i.e. it may prioritise economic growth and industrial interests over socio-ecological goals and merely prolong the lifespan of products in a fundamentally unsustainable economic system (Parrique et al, 2019). This returns us to proposals to amplify autonomous territorial economies and less reliance on international trade, through substitution of products, changing diets to reduce meat consumption etc.

7.2 Legal and regulatory policy instruments

Changes in justice systems present important possibly pathways to transformative change. There are practical challenges in terms of enforcement and resources, but promising examples include Earth jurisprudence, Rights of Nature, and wild law, environmental courts and restorative justice. These are interconnected concepts that share a common theme of redefining the relationship between humans and the natural world within a legal framework. They all seek to shift away from an anthropocentric perspective towards eco-centric ones, but differ in their terminology, specific foci, and applications in philosophy and environmental law. Earth Jurisprudence is the legal philosophy emphasizing the need for human laws to be aligned with the natural laws and ecological principles that govern the Earth i.e. a legal system that recognises the interconnectedness of all life and ecosystems. This approach seeks to advance a shift away from anthropocentric perspectives to eco-centric ones, i.e. that recognise the intrinsic values of nature. The terms Rights of Nature and Wild Law address specific legal recognition and protection of nature's rights. Ecocide is based on specifically addressing severe ecological harm, often in

[19] Source: Carmenta et al, 2023, p4. (0006-3207/© 2023 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/)).

the context of legal consequences for such harm. Rights of Nature emphasise the legal standing of nature, whereas Earth jurisprudence and wild law may also encompass broader ecological principles in legal systems.

The concept of 'Rights of Nature' is based on the idea that nature, including ecosystems, species and natural entities, should have legal rights, such as those afforded to individuals. It represents a shift from conceptualizing nature as property, to recognizing it as a subject with inherent value and rights. The Rights of Nature (RoN) movement has gained traction in various legal and environmental discussions and was identified as a potentially transformative pathway in the IPBES Values Assessment (2022). Some legal systems and local jurisdictions have incorporated or considered the incorporation of RoN into laws and regulations. Another effort is seeking to set a legal precedent through the creation of an artwork in collaboration with a forest in Ecuador in 2021, a forest that has already been recognised as possessing legal personhood and rights. The aim is then to establish creative rights for the 'Song of the Forest' which mixes birds, animal and tree voices and those of several artists. See Box 7.

Box 7: Examples of Rights of Nature

In Canada, a local authority (the Minganie regional county municipality) and the Innu council of Ekuanitshit, Quebec assigned riverine RoN to the Magpie River. Nine rights were granted, including the right to be safe from pollution, the right to be safe from pollution and the right to sue, and the ability to assign legal guardians to ensure rights are respected. Ecuador (2008) was the first country to recognise RoN in its constitution, which recognises nature as a subject with the right to exist, flourish and evolve. Bolivia has also incorporated RoN into its constitution, with the law recognising 11 rights of Mother Earth, including the right to life, diversity, water, clean air, equilibrium, restoration and pollution-free living. New Zealand granted legal personhood to the Whanganui River in 2017, recognizing the river as a legal entity with its own rights and interests. Also in 2017, the Uttarakhand High Court, India, recognised the Ganges and Yamuna rivers as legal entities with rights similar to those of a person, however, the decision was later put on hold by the Supreme Court of India. In some local jurisdictions in the US, several local communities (E.g. Ohio, Pennsylvania, New York) have adopted local laws recognising the RoN, often to prevent environmentally damaging practices, such as fracking. Also in the US, the NonHuman Rights Project is seeking legal personhood for nonhuman animals.

To date, there have been two attempts to grant legal personhood to nonhuman animals in UK Parliament. Firstly, the petition to Grant All Sentient Animals Legal Personhood and, secondly, the petition to Recognise Animals As Nonhuman Persons and Grant Them Legal. Both were rejected. Nonhuman animals are thus still considered legal things rather than legal persons in the UK. Inspired by the Universal Declaration on River Rights,[20] there is increased focus on riverine rights.

[20] Universal Declaration of River Rights (Draft) (google.com)

One, so far unsuccessful, effort was made to give a UK river – the River Frome – such rights, but this was not successful. Spearheaded by the NGO Nature's Rights to try and create a test case and an important legal precedent, joint guardians were to be appointed from the council and a charity, to balance the interests of the river and meadow, with the interests and safety of local people, but this was turned down. More recently, a campaign has got underway to grant the River Ouse legal rights of nature, with Lewes District Council recognizing the need to consider human interactions with waterways, and a charter is under development.[21] Within the EU, work is advancing on developing an EU Charter of the Fundamental Rights of Nature'.[22] There are many challenges associated with Rights of Nature, such as enforcement, but they can raise awareness, as well as giving local communities greater opportunities to hold authorities to account. Practical guidance is available.[23]

While Rights of Nature are promising as a transformative approach, there are also proposals to go further than giving legal personhood to nature, and instead to develop naturehood for persons, i.e. recognizing that humans are a part of nature, akin to the relations Indigenous Peoples already have with nature (Garver, 2020). On this basis, such an approach could be potentially linked to environmental courts and restorative justice (Banwell and Nelson, forthcoming). Essentially this is about engaging relationality insights in western justice systems. Achieving success with Rights of Nature ultimately requires convergent political coalitions to drive changes in values and ways of understanding reality (Braverman, 2017). See also the role of the arts in relation to rights of nature.

Other legal pathways of importance for transformative change for sustainability are legal support for community and customary land ownership and access, especially that of Indigenous Peoples. See also Rights based and customary instruments section below. Co-management and stewardship by Indigenous Peoples and local communities can be highly successful. Indigenous Peoples have an especially key role to play that is increasingly recognised in conserving biodiversity. However, dispossessions continue and legal support is needed to enable them to sustain their legal rights under international human rights law. While the biodiversity conservation evidence points to greater effectiveness in land sparing contexts compared to land sharing, there is a need to balance conservation with local communities' interests, and if combined with post-growth changes, it is entirely possible to promote regenerative, biocultural land sharing in the global North and South.

Indirect measures are legal measures that address excessive corporate power are also necessary, for example, or make other changes to the economy, which create conditions for sustainability transformations by making space for other forms of economies that are less highly resource intensive and less ecological damaging. An example is that of e.g. anti-monopoly legislation.

[21] Laws of nature: could UK rivers be given the same rights as people? | Rivers | The Guardian
[22] qe-03-20-586-en-n.pdf (europa.eu)
[23] King's College London Human Rights and Environment Law Clinic (2024) Rights of Nature Toolkit: How to Protect Rivers in England and Wales.

7.3 Social and cultural policy instruments

Dominant forms of futures exploration advance certain interests and marginalise more plural perspectives on future sustainabilities, but they can be expanded through arts and community engagement. Dominant approaches shape decision-making and advance the preferred methodological framings of more powerful actors, with implicit assumptions are often hidden. The risk of modelling and scenarios is that they advance the preferred methodological framings of the more powerful, assumptions often remain hidden, and they thus reinforce orthodoxies and can have significant unintended effects (Thompson, 2022, p. 222). Future-making is traditionally dominated by scientific modelling and scenario construction (Behagel and Mert, 2021), but more latterly, participatory approaches and foresight-type activities have expanded. Scientific scenarios and models can restrict future visions to fit within common sense norms and notions of what is plausible, effectively obscuring potentially more diverse future-thinking and speculation.

There is growing interest in the potential of the arts to explore sustainability futures in contexts of rapidly changing climates and ecologies, more creatively and in ways that can challenge common sense norms about what is plausible or acceptable. This is particularly the case with respect to shifts towards non-anthropocentric or even biocentric perspectives, to pluricentric ones, that recognise interdependencies between humans and non-humans. Speculative fabulation, combining speculation on what may be possible in a dynamic, uncertain future, and fabulation – creates stories beyond realist modes of storytelling, drawing on fantasy, myth and science fiction (Haraway, 2016) – is increasingly an option for imagining alternative futures and promoting attentiveness to everyday, symbiotic human and non-human interdependencies. Art can also support human capacity to respond to unrelatable stories, such as hyper-objects, that lie beyond immediate human comprehension, recognizing longer than human lifespans, animal sentience and invisibilities such as pollutants and animals sounds beyond human hearing. Storytelling can weave new worlds. Afrofuturism or Indigenous futurism is a good example of arts and decoloniality thinking exploring futurities. Artists, creative practitioners and community-facilitated arts can contribute to eliciting and re-imagining futures, including a deeper engagement of humans, non-humans and Inhumans in senses of place, recognizing broader definitions of community and enabling nature to speak in the active voice (Plumwood, 2013) for multi-species justice.

Box 8: Embassy of the North Sea

Inspired by Bruno Latour's Parliament of Things, first proposed in 1989, an Amsterdam based initiative – Partizan Publik - is working to facilitate an Embassy of the North Sea, advancing the idea that the North Sea owns itself, and the sea and all life within (e.g. plants, animals, microbes and people) can be listened to, so that we can learn to speak with it, and can then negotiate on behalf of it and the life it encapsulates.

Developing a public space in which humans can communicate with non-humans on an equal basis, the aim is to create new politics of representation. Involving

researchers, designers, policy-makers, biologists, artists, lawyers, philosophers and writes, the aim is that by 2030 the Embassy for the North Sea, founded in the Hague in 2018, will 'emotionally, juridically, and political' help us to relate to the North Sea in a fundamentally new way. (Embassy of the North Sea - Embassy of the North Sea; Parliament of Things — Case — Embassy of the North Sea (theparliamentofthings.org); Parliament of Things — The Parliament: a new public space (theparliamentofthings.org)

The importance of this work is that by accepting that the natural world owns itself, this can 'redefine who are as humans…."terrestrial beings" who must align ourselves with a biosphere that has its own intentions and cannot be thwarted in the long run' (The 'parliament of things': Redefining human - resilience).

Rather than assuming sustainability can be defined in a single, unchanging way with one pathway to achieving it, empowerment interpretations of transformative change argue that there are value differences and values contestations (Scoones et al, 2020. Giving plural forms of knowledge, beyond science, space and ascribing equal validity to non-scientific forms of knowledge, such as Indigenous knowledge, is important in considering and creating new futures. However, integration of Indigenous knowledge into scientific knowledge is not appropriate. Scientific scenarios and approaches which integrate Indigenous values and knowledge into the former, fail to recognise the incommensurability of these different forms of knowledge, and may thus become extractive, appropriating without acknowledgement, or scientizing Indigenous knowledge (Löfmarck and Lidskog, 2017).

Participatory approaches may have potential for articulating new future sustainability visions, but they can reinforce dominant perspectives. Participatory approaches can articulate 'seeds of change' (Raudsepp-Hearne et al., 2020), but more exploration is needed of their effectiveness in the absence of deeper state changes (McGeown, 2021). Recognizing historical injustices is important in justice-oriented future-explorations (Feola et al, 2023).

Revitalizing environmental education not merely by increasing coverage, but by changing the underlying philosophy. There is the possibility to revitalise approaches to environmental education by drawing upon relationality philosophies and associated ethics (Walsh et al, 2023), and insights from more-than-human research. Netherwood et al, 2006, p259) argues that relationality can be central to school practices to 'deepen and broaden the children's understanding of what it is to be human in relation to the world around them. At university level there are possibilities for similar shifts to occur: Adébísí, (2023) argues that universities should do this in the law schools. Intercultural education is needed (Narezo et al, 2023) to recognize Indigenous Peoples and local communities as legitimate sources of knowledge production.

More support for transdisciplinary approaches in research, but also recognition of inherent politics in knowledge production that could be

reinforced in such processes, and the importance of increased support for more marginal disciplines, as well as public engagement. Transdisciplinary approaches are a common proposition for amplifying diverse values in research, and require greater support to address complex, sustainability challenges and transformation imperatives (see for example, O'Brien (2018). Recognizing the risks of transdisciplinary research and co-creation is important. Such processes can reinforce orthodoxies in contexts of intense power inequalities, which leads, for example to disproportionate funding flowing to global North researchers and natural sciences and economics above other disciplines. Research calls requiring pre-set outcomes constrain the ability of co-creation processes supported by responsive researchers to catalyse change without prejudging topics of engagement. Power inequalities cannot easily be 'managed away' (Turnhout et al, 2020) and decolonising research practice is important (Zimmermann et al, 2023). This means addressing which forms of knowledge are valued, giving more space to non-scientific forms of knowledge e.g. Indigenous and local community knowledge and ways of being and amplifying support for marginalised disciplines (e.g. critical social sciences, environmental humanities and arts) in addressing sustainability challenges, rather than understanding the environment as something that is solely relevant to environmental sciences.

Learning from the values and cosmologies of many Indigenous Peoples and supporting the revitalisation of Indigenous cultures for sustainability and biodiversity conservation. Storytelling about positive examples of applied relationality is a route to transformative change more broadly, ideally led by those living and being in harmony with nature. Initiatives such as living Territories, the revitalisation of canoe cultures amongst First Nations in the Pacific Northwest and work by an art, culture and language camp created by Indigenous peoples to bring youth and elders together, represent examples of how such revitalisations are both important and relevant for sustainability in the localities in question and beyond (See Box 9 below).

Box 9: Revitalising Indigenous cultures, languages and ways of life for sustainability

Revitalising Indigenous ways of life, cultures and languages is central to sustaining Indigenous ways of knowing and being and ultimately, lives.

A first example is that of the 'territories of life' approach supports 'territories and areas to be governed, managed and conserved by custodian Indigenous Peoples and local communities. ICCAs — territories of life – ICCA Consortium Meanings and Resources

Another example is that of the rebirth of Indigenous canoe culture in the Pacific Northwest, in which the revitalisation of the creation of ocean-going canoes and shared journeys which carry First Nations through the interface with sacred worlds. The canoes have their own life and spirit. A recent project, Qatuwas 'People Gathering Together' festival, presented in a museum exhibition – Sacred Journey - was inspired by the 'Paddle to Seattle', through which communities have shared their stories, songs and dances, through a canoe journey and is now an annual event,

connecting communities along the coast, involving 100 canoes. Thus, the journeys become transformative in multiple ways, transforming participants emotionally, spiritually, culturally and socially. https://royalbcmuseum.bc.ca/about/our-work/publications-news/latest-news/witness-resurgence-lost-tradition-sacred-journey-royal

A third example is the work conducted by the Onaman Collective in which they are co-creating Nimkii Aazhibikong, an Indigenous led camp to revitalise art, culture and language, involving a community of youth, Elders and organisers near Elliot Lake, Ontario within traditional Anishinaabeg territory. Nimkii Aazhibikong (pronounced Nim-key Ah-zh-ih-bih-coo-ng) is a place where youth and Elders come to connect to the land, each other and to pass down the language and traditional knowledge to the next generations. This work also supports the resurgence of sustainable Indigenous practices and restoration of Indigenous land and resource protection and management. Nimkii Aazhibikong | Onaman Collective.

Recent proposals suggest the reconceptualization of conservation towards more commons-based, less exclusionary approaches and that reconnect humans with nature / recognise entanglements. Convivial conservation promotes public and community solutions instead of market based ones (Buscher and Fletcher, 2020, p. 9). Key propositions include the following: creating promoted areas and conserved by and for local people based on public mechanisms, transitioning tourism from celebrating spectacle to the joy of everyday nature and longer-term engagement with the 'wild' replacing voyeuristic short-term visits, plus governance arrangements moving away from privatised conservation expert technocracy to common democratic engagement enabling all people to live with nature. Strategies include historic reparations, strengthening social movements, a conservation basic income, rethinking relations with companies, redirecting integrated conservation landscapes to degrowth and wealth sharing, effective polycentric governance and engaging asset holders, redistributive finance (e.g. public bonds, Robin Hood taxes) (Buscher and Fletcher, 2020). Such approaches must overcome path dependencies (Kiwango and Mabele, 2022), and immediate concerns about losses of endangered species.

Place-based approaches in general are important for achieving sustainable living, building on connection to and sense of place, stakeholder participation in multi-scale governance and the development of approaches tailored to local context. However, such approaches can range from stakeholder consultations to more radical approaches supporting autonomous regeneration and even linkages between such autonomous territories in interlinked mesh-works that resist the homogenizing forces of globalization and seek to reclaim agency over their own lives and environments (Escobar, 1995). There are limitations to place-based approaches, given the higher scale constraints pertaining to democratic nation state glass ceilings, for example, and the wider global political economy – the latter requiring redesign to enable places to flourish.

Decolonising aid is relevant to sustainability transformations, as it can reinforce dominant patterns of relations that undermine other ways of thinking and being including with respect to human-nature relations and biodiversity and climate funding. Growing arguments point to the lack of equity in donor-partner country relations and persistent challenges in how aid is designed and delivered, while ignoring wider questions about accountabilities for under-development and outsourcing of ecological damage. Existing research on Belgian development aid suggests that while procedural changes are needed, structural changes are even more important (see Box 5 below). Persistent effects of colonial legacies are evident from participatory research such as structural racism and different forms of discrimination and neglect of historical power imbalances, which keep international development anchored in western values and knowledge, devaluing other forms of living and knowing (Escoar, 1995). This reflects wider literature on post-development (Escobar, 1995) and pluriversal futures (Escobar, 1995; Quijano, 2000; Mignolo, 2007; Maldonado-Torres, 2016). Dialogues needs to be facilitated on how to decolonise aid, building upon greater humility among donor countries, and investment in collective envisioning of futures in which many worlds can fit (Escobar, 1995) and that involve values shifts towards ethics of care, including for Mother Earth / nature (Cely et al, 2022).[24]

Box 10: Decolonising aid: Proposals from Belgium

A participatory process involving workshops and interviews was undertaken to explore imperatives to decolonising aid and how to achieve this.

Participants identified the following:

Proposed procedural changes: Bidirectional MEAL systems, simplifying administrative procedures, and streamlining remuneration processes and national experts instead of foreigners; and improving communication.

Proposed structural changes: No development communication; Imagining other ways e.g. reparations, debt cancellation, and equal partnerships; Daring a change from within; Acknowledging and raising awareness among development aid actors of their (neo)colonial practices; A power shift towards civil society; Working together on a shared locally-led future; Collaboration based on partner needs.

Tacit assumptions, tensions and paradoxes were identified such as the need to move beyond semantic changes to address deep rooted systemic racism in development and challenging dominance of western science, which marginalises other forms of knowledge and the lack of awareness of privileges among development actors and / or an unwillingness to give them up.

Key recommendations include, amongst other things, facilitating conversations with partner countries co-create alternative futures beyond development, growth and dysfunctional values to ethics of care, addressing colonial modernities with unlearning of cultural habits of domination and tackling socio-economic inequalities, fostering transformative dialogues for change, replace traditional donor-recipient

[24] B-LiFE Document Template (vub.be)

relations by moving to relational accountability, reciprocity and complementarity, amplifying grassroots collaboration and learning, sustain efforts despite the challenges and abandonment of privileges required, accepting policy heterodoxies if nations chart their own course of development.

Source: Moreno Cely, A., Vitantonio, C., Escobar-Vasquez, C., Lafaut, D., Sahli, H., Mugenyi, K. J., Mancilla Garcia, M., Nakabanda, N., & Vanwing, T. (2022, Jul 7). Imagine alternative future(s) of the Belgian development cooperation. Unpublished.

7.4 Rights based and customary instruments

Other legal pathways of importance for transformative change for sustainability are legal support for community and customary land ownership and access, especially that of Indigenous Peoples. See also Rights based and customary instruments section below. Co-management and stewardship by Indigenous Peoples and local communities can be highly successful. Indigenous Peoples have an especially key role to play that is increasingly recognised in conserving biodiversity. However, dispossessions continue and legal support is needed to enable them to sustain their legal rights under international human rights law. While the biodiversity conservation evidence points to greater effectiveness in land sparing contexts compared to land sharing, there is a need to balance conservation with local communities' interests, and if combined with post-growth changes, it is entirely possible to promote regenerative, biocultural land sharing in the global North and South.

Strengthening democratic processes is essential to engaging communities in decision-making and improving decisions. Disconnects increasingly occur between citizens and their elected representatives, between citizens and public spaces, and between citizens and increasingly complex policymaking, all of which affects social solidarity and cohesion and public involvement in environmental decision-making**.** These disconnects (Hendriks et al., 2020), can be repaired through processes of participatory democracy. The latter can enhance 'everyday connectivity' or 'associated living practices…communal practices, communication, civic engagement' (after Dewey, 1996 cited by Metze, 2022, p. 225) in 'doing democracy' (Hendriks et al., 2020) to shift societal practices and ultimately shaping democratic structures (Metze, 2022).

Deliberative democracy (DD) approaches can help repair disconnects. Citizen assemblies, and other forms of 'deliberative mini-publics' could enhance the 'transformability of democracies' including with respect to sustainability. Citizen assemblies have been widely applied to climate change, with new approaches to sortition and protocols. There are limits to such mini-publics, but they merit support and can be applied to a wider range of topics than those chosen to date. They could be adapted to other environmental topics (Daw et al., 2022) or indeed, how to live together well and sustainably (after Illich, 1973) and desired sustainable futures, noting increasing interest in navigating the turbulence to come (UN report, 2022) which is part of the reason for investment in creating support for collaboration on

progressive futures (e.g. the UN Summit of the Future)[25] at different scales. Sustaining space for civil society is also important to resist the de-connectivity actions of populists (Tops and Tromp, 2017) and given pressures on civic space[26]. Advisory deliberative forums (McGeown, 2021) would have greater efficacy if there were deeper shifts in the nation state e.g. if utilities and public services, and extractive, polluting and carbon intensive industries were democratically controlled (McGeown, 2021) and initiatives to tackle racism and its linkages to the causes and uneven impacts of environmental damage etc.

The arts can engage communities in deeper ways, by engaging with emotions and senses, as well as cognitive dimensions. Political representation innovations try to give active voice to nature, representing non-human interests and changing human understandings (Plumwood, 2013).

8. Conclusion

Exploring and acting to achieve transformative change has never been more necessary given the inter-connected nature of social and ecological challenges facing humanity, and intensifying damage to ecologies and peoples. Transformative change has different interpretations, but they can be considered to include deeper shifts in goals, values and paradigms than previously envisioned in many sustainability efforts. A focus on such deeper shifts and how to achieve them is where hope can be found for more effective future action, which is so urgently needed. Drawing upon existing evidence and new research, it possible to think of deep leverage points as those that reimagine and redesign economies towards post-growth approaches, including higher scale global and national measures and more autonomous regeneration in places. Legal pathways, socio-cultural approaches, and rights-based and customary approaches can all be mobilised in addition to achieve deep change towards ethics of care.

Economic and financial policy lever recommendations include reimagining and redesigning economies towards post-growth and convivial relations, expanding public participation in economic decision-making, changing notions of wellbeing predicated upon over-consumption, diverse measures to tackle growth dependency and expand alternative economies, as well as changing economics research and teaching. Indirect measures such as anti-monopoly regulation to break up large corporations is also necessary. Legal and regulatory policy instrument recommendations include initiatives on rights of nature, including relational approaches and attention to the kinds of social movements required to achieve practical change. Legal support for expanded community land ownership and access, especially Indigenous customary and community ownership/access, is essential for equitable transformations. Social and cultural policy instrument recommendations include which can revitalise Indigenous cultures and learning from Indigenous Peoples, embedding the environment across education and employing relationality insights, engaging communities in building consciousness of relationality and ethics of care, place-based approaches for autonomous regeneration, radical and speculative future-making processes, relationality in sustainability research. Rights-based and customary instrument recommendations include investment in and

[25] Summit of the Future website - EN | United Nations
[26] State Of Civil Society Report 2024 (civicus.org)

expansion of Indigenous and Local Peoples' human rights including customary land rights. Political participation measures include support for micro-deliberative democracies, steps to change the nature of democratic states for strong post-growth economies and consumption regimes, and rebuilding and reinvesting in inter-governmental cooperation including future-making.

Relationality thinking offers huge potential for revitalizing sustainability efforts, by challenging solely anthropocentric perspectives and expanding attention to the non-human, to how human-non-human relations are intimately entangled, and to how care can be actively circulated and amplified.

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Annex 1: Transformative Change in Various Global Assessments

UNEP State of the Environment Report (GEO-6, 2019): ‘The process whereby positive development results are achieved and sustained over time by institutionalizing policies, programmes and projects within national strategies. It should be noted that this embodies the concept of institutionally sustained results – consistency of achievement over time. This is in order to exclude short-term, transitory impact.’

IPBES Global Assessment (2019 and 2022): ‘Transformative change is a ‘fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values, needed for the conservation and sustainable use of biodiversity, good quality of life and sustainable development’.

IPBES Values Assessment (2022) ‘Transformative change is a ‘fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values. We build on this definition through reference to the depth, breadth and dynamics of system reorganisation. Depth refers to change that goes beyond addressing the symptoms of environmental change or their proximate drivers, such as new technologies, incentive systems or protected areas, to include changes to underlying drivers, including consumption preferences, beliefs, ideologies and social inequalities (IPBES, 2019; Patterson et al., 2017; Scoones et al., 2015). Breadth refers to change across multiple spheres, with emerging consensus that transformation requires co-evolutionary change across different spheres of society, including personal, economic, political, institutional and technological ones (Harvey, 2010; O’Brien et al; Sygna, 2013; Pelling et al., 2015; Temper et al., 2018; Westley et al., 2011). Dynamics and processes refer to the emergent patterns of change across ‘depths’, ‘breadths’, and time that unfold as non-linear pathways. These may be characterised by ‘punctuated equilibrium’ in which more stable periods of incremental change are punctuated by bursts of change in which underlying structures are reorganised into new states (Patterson et al., 2017; Westley et al., 2011).

*IPBES Transformative Change (due end of 2024). A thematic assessment of the underlying causes of biodiversity loss, determinants of transformative change and options for achieving the 2050 vision for biodiversity (underway).

IPCC 2022a: ‘A system-wide change that requires more than technological change through consideration of social and economic factors that, with technology, can bring about rapid change at scale.’

IPCC, 2022b, Annex I: ‘Transformation pathways: ‘Trajectories describing consistent sets of possible futures of greenhouse gas (GHG) emissions, atmospheric concentrations, or global mean surface temperatures implied from mitigation and adaptation actions associated with a set of broad and irreversible economic, technological, societal, and behavioural changes. This can encompass changes in the way energy and infrastructure are used and produced, natural resources are managed and institutions are set up, and in the pace and direction of technological change.’

GSDR (2019, p35): ‘Transformative change will mean harnessing bottom-up social, technological and institutional innovation, including indigenous knowledge and creativity at the grassroots level and in the informal sector, particularly – but not exclusively – in developing and emerging economies. … Transformative change also requires the reconfiguration of social practices, social norms, values and laws that promote unsustainable or discriminatory behaviour and choices ...’

GSDR (2023, p104) builds on the 2019 report, indicating that ‘Incremental and fragmented change is not sufficient and will not achieve the transformations that are required. The only way forward is to transform how we think, live, produce and consume in order to achieve a new equilibrium that balances resilience, security and well-being, and does so in harmony with nature. There are efforts to develop measurements of progress on sustainable development that complement GDP, but they should be further enhanced on the basis of socially robust science.’ GSDR 2023 takes a themed approach, including systems, suggesting that the SDGs can be achieved through transformation in six entry points: human well-being and capabilities; sustainable and just economies; sustainable food systems and healthy nutrition patterns; energy decarbonisation with universal access; urban and peri-urban development; the global environmental commons. Five levers are put forward as ‘entry points’ – governance, economy and finance, science and technology, individual and collective action, plus capacity building, with three transformation phases being envisioned (emergency, acceleration and stabilisation), to be underpinned by rigorous science. GSDR proposes that Member States should elaborate a shared SDG Transformation Framework including National plans of action, local and industry-specific planning, initiatives to increase fiscal space (e.g. tax reforms, debt restructuring and relief etc), amongst other things.

Climate Investment Fund (2021) ‘Broadly defined, transformational change is a deep and fundamental change in a system’s form, function, or processes. The concept of transformational change is agnostic to normative goals or values and transformational changes can have both positive and negative impacts.” Where intentional actions are undertaken to tackle climate change, this can mean deep changes in systems that then generate what may be judged positive impacts.

Food and Agriculture Organization (2021, p8): ‘Transformational change in land use and climate change is characterised by: (i) processes that moves away from the current regime of unsustainable land use, maladaptation and unmitigated greenhouse gas emissions, opening pathways to reverse these outcomes and work towards a sustainable planet (ii) being achieved through sustained changes that accept complexity and uncertainty (iii) a focus on root causes and nurturing relationships between scales and dimensions of change (e.g. organizations, markets, technologies, power and social relations, and ideas) (iv) being based on participation, equity and transparency (v) being supported by knowledge and data used for understanding, evaluation and course corrections.’

UNDP, 2011, p9. Focusing on development cooperation, ‘Transformational change is the process whereby positive development results are achieved and sustained *over time* by institutionalizing policies, programmes and projects within national

strategies. It should be noted that this embodies the concept of institutionally sustained results – consistency of achievement over time. This is in order to exclude short-term, transitory impact.'

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