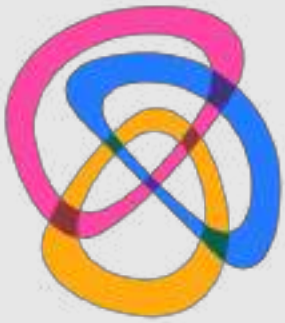

BioValue

Analytical framework

D4.1: Analytical framework detailed and specified for application within BioValue

WP4, Task 4.1

Authors: Karla E. Locher-Krause (UFZ), Yuanzao Zhu (UFZ), Heidi Wittmer (UFZ).

This report and its contents are an expression of the authors' knowledge and conclusions and do not necessarily represent all BioValue partners. This is the first version of the report; it will be revisited and revised at later stages in the project.

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2. Table of contents

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3. Introduction

BioValue is a Horizon EU project founded under the cluster on *Transformative Change and Biodiversity*. This cluster is constituted of 11 Horizon Europe-founded projects and was created with the explicit goal of providing outputs, options and evidence for policymakers to accelerate transformative change that has a positive impact on biodiversity. Within this context, the BioValue project has a clear role that aims to safeguard and enhance biodiversity by exploring the transformative potential of spatial policy and planning, seeking to better articulate Spatial Planning and Management Instruments (SP&MI), Environmental Assessment Instruments (EAI) and Economic and Financing Instruments (E&FI), individually and in combined action, across different levels of governance. As a base framework to support the achievement of the project aim, BioValue uses the conceptual framework developed by Wittmer et al. (2021), which is based on a comprehensive review of current transformative change literature, including IPBES and other seminal texts on transformative change. The conceptual framework combines different elements that make transformative change possible in a structured and integrated way, seeking to operationalise the analysis of biodiversity transformations. BioValue adapted this framework for application to spatial planning and to further explore, in practice, through the Transformative Arenas in Trento (Italy), Mafra (Portugal) and Mecklenburg-Vorpommern (Germany), the transformative potential of spatial planning processes for increasing biodiversity values to society.

The following tasks are carried out in line with the purposes of the BioValue project:

A. Further develop the analytical framework created by UFZ (Wittmer et al., 2021) by adapting it to spatial policy and planning contexts (the main purpose of this report).
B. To specify the analytical framework for each instrumental perspective (SP&MI, EAI, E&FI), allowing the transformative potential to be screened and tested in T4.2.
C. Explore the transformative potential of the joint application of all three instrumental perspectives (joint approach) in T4.2 and T4.3 to enhance their capacity for transformative change when used or acting in a coordinated way.

This report documents the adaptation of the analytical framework developed by UFZ (Wittmer et al., 2021) to the project context. Section 4 seeks to set up the base and provide the theoretical background of the concepts of transformative change, transformative change for biodiversity and transformative change in the context of spatial planning used in BioValue. Section 5 provides a detailed description of the Wittmer et al. 2021 framework, together with the adapted version for the projects developed based on a series of discussions among the BioValue consortium. The last sections provide conclusions and the next steps that will be followed to continuously revisit and reflect upon this adapted framework to truly identify and provide recommendations seeking to leverage the transformative potential of spatial planning practices and instruments to enhance biodiversity.

4. Transformative change

Transformative change has been widely recognised as the paradigm shift needed to tackle the multiple crises we currently face as humanity. Despite its importance, the growing body of literature, and the urgent calls from the international community, it is still blurry how we could enable, accelerate or achieve cross-sectoral transformations. As background, the following subsections explore the conceptual understanding of transformative change in BioValue.

4.1 What do we mean by Transformative change?

Literature on sustainability transformations makes clear that the topic of societal transformations is not new (Linnér and Wibeck, 2019). Nonetheless, in the last years, the calls for transformation have increased, for example, with the international urge of world leaders in 2015 to set up a priority agenda to transform our world (UN General Assembly 2015) and that resulted in the 2023 agenda for sustainable development (SGDs). More and more examples of these calls for social transformations are visible globally (e.g., IPBES 2019, IPCC 2021) and locally. Transformations towards sustainability entail a normality dimension embodied in the SDGs, and its fulfilment constitutes the desired alternative future state or trajectory and a dynamic or change dimension that constitutes the nature of the metamorphosis itself; both dimensions can only be jointly understood and pursued. Scholars also agree that incremental change may not be enough and that societal transformations will imply "*profound and enduring non-linear systemic changes, typically involving social, cultural, technological, political, economic, and/or environmental processes*" (Patterson et al. 2017, Linnér and Wibeck, 2019). Sconnes et al. (2020) conceptualise transformations by identifying three main and usually complementary approaches structural, systemic, and enabling, where the structural focus on perceived changes in the fundamental structures of society, systemic approaches on socioeconomic and socio-technical systems (systems thinking) and enabling on developing capacities for change to emerge through open spaces and democratic empowerment.

The differentiation between transitions and transformations is another concept that needs clarification as they come from different research communities (and different etymological origins)

and should not be used interchangeably (Hölsher et al. 2018). The concept of transitions is used by the sustainability transitions research community to refer to fundamental societal, technological, institutional and economic change mainly employed to analyse changes in societal sub-subsystems (e.g. energy, mobility, cities) (Grin et al. 2010, Loorbach et al. 2017). Research in transitions focuses on three levels of the socio-technical systems niche (spaces of innovation), regime (structural conditions) and landscape levels (overarching processes). Transformation focuses on large-scale changes in whole societies (global, national or local), involving interacting human and biophysical system components (Brand 2014, Folke et al. 2010). Hölsher et al. (2018) highlight that these two concepts are not mutually exclusive but complementary since both enrich the way to describe, interpret and support desirable radical and non-linear societal change. These two bodies of literature can be integrated by considering transitions in a broader societal context of transformations (bundle of transitions) or from the transformation point of view as multiple specific transitions (considering different sectors) (Vissen-Hammakers et al. 2022).

Scholars also differentiate transformations into incremental changes where a normative focus on sustainability transformations helps to orient incremental efforts (Patterson et al. 2017) with notions of "progressive incremental" change (Levin et al. 2012), "directed incrementalism" (Grunwald 2007), or "radical incrementalism" (Göpel 2016), and also as a change-of-path fundamental change (Feola,2015). Moreover, transformative change incorporates personal and social transformation (Chaffin et al. 2016, Otsuki, 2015), including shifts in values and beliefs and patterns of social behaviour (Chaffin et al. 2016). In the context of transitions, Loorbach and Oxenaar (2018) consider two interrelated patterns in the process of generation and anchoring new sustainable practices and structures (i) patterns of breakdown, (ii) patterns of build-up, and the feedback between them.

The integration of the concept of leverage points and levers also has an important role within the transformation discussion, where leverage points are the places "where to intervene to change social-ecological systems" (Chan et al. 2020). Levers are governance approaches and interventions as the means to achieve the changes. Abson et al. (2017) build on Meadows' (1999) set of leverage points and emphasise the need to engage with the 'deep', or ultimate, causes of unsustainability (e.g. values, goals and worldviews) and to consider interventions that address these underlying causes.

O'Brien (2012) observed that "transformation means different things to different people or groups, and it is not clear what exactly needs to be transformed and why, whose interests serve and what will be the consequences", which shows the ambiguity of the general concept. The definition developed by IPBES, where transformative change is a fundamental, system-wide reorganisation across technological, economic and social factors, including paradigms, goals and values (Díaz et al. 2019), is the work definition used in BioValue.

4.2 Transformative change for biodiversity

The fact that biodiversity is threatened at alarming rates was one of the results of the International Panel for Biodiversity Global report in 2019 (IPBES 2019). This is not an isolated conclusion as it is clearly established in several global reports, the scientific literature and also from the many examples at the local level across different regions (CBD 2020, EEA 2019, IPBES 2019, WWF 2020). Biodiversity is also not only relevant for wildlife and natural ecosystems but is the pillar of human survival since there is a clear dependence on basic needs such as food, air and water, and it is the base of our society. Despite the efforts during the last decades to slow down and stop the deterioration of biodiversity, these efforts have been proven insufficient to "bend the curve of Biodiversity loss" (IPBES 2019).

As mentioned by Vissen-Hammakers et al. 2022, transformative solutions are often synergistic, which means that by addressing indirect drivers, it is possible to address multiple sustainability issues, such as the case of creating healthy and sustainable food systems that can support the progress in all the 17 SGDs (Food Systems Summit, FAO 2021). Following this argument, transformative change represents a shift from current practice and has been identified as critical to safeguarding life on earth (IPBES 2019, WWF 2020, Dasgupta et al. 2021). In order to encourage the potential for transformative change in strategic policy agendas, in particular the Biodiversity framework, Bulkeley et al. 2020 synthesised from the literature the following six principles: (1) address root causes and underlying/indirect drivers, (2) take multiple paths, (3) expand action arena, (4) realise diverse co-benefits, (5) design deliberative & inclusive processes, and (6) adopt a proactive approach to resistance. Several key initiatives and agreements show a critical momentum for action to deeply transform current unsustainable practices, for example, the adoption of the Kumming-Montreal Global Biodiversity Framework (KMGBF) at the fifteenth meeting of the

Conference of the Parties (COP10) at the end of 2022. The KMGBF explicitly stimulates throughout the agreement its aim to "*catalyse, enable and galvanise urgent and transformative action by Governments, and subnational and local authorities, with the involvement of all of society, to halt and reverse biodiversity loss, to achieve the outcomes it sets out in its Vision, Mission, Goals and Targets, and thereby contribute to the three objectives of the Convention on Biological Diversity and to those of its Protocols*".

4.3 Transformative change and spatial planning

Although the term "spatial planning" has no generally agreed-upon definition, the EU Commission, 1997 refers to it as "*methods used largely by the public sector to influence the future distribution of activities in space*". Schröter-Schlaack and Blumentrath (2011) define it as "a policy mix in itself, as it combines instruments with different binding forces and is applied across governmental levels and sectors complementing one another". From these definitions becomes clear that spatial planning and, with it, landscapes-related decisions are characterised by multilevel processes that emerge from the interaction between multiple actors, processes, and institutions, from local to global levels. These make them critical arenas for action where strategies to leverage transformative potential can be explored and agents of change enabled.

Lukkarinen et al. (2022) explored the interaction between sustainability visions and planning practices in two case studies, one evaluating spatial planning processes for the circular economy and the second as a strategic planning intervention for the blue bioeconomy. The results of this study show that the planning process acted as a bidirectional intermediary space, refining both the general transition visions and established planning practices. The next section will explore questions such as: what kind of knowledge is needed to design strategic interventions towards transformations at the landscape level, how spaces can be created for delivering just transformations, as well as which actors, instruments and governance modes are required in order to achieve the future that we want (based on Wittmer et al. 2021).

5. Transformative change analytical framework

5.1 Original analytical framework Wittmer et al., 2021

The analytical framework from Wittmer et al. 2021 aims to operationalise the analysis of biodiversity transformations by bringing together the elements that make transformative change possible (vision, knowledge, dynamics, agency, and governance) in a structured and integrated way. This framework was developed based on academic literature within the context of a project supported by the German Ministry of Development Cooperation (BMZ).

The conceptual framework is constituted by five building blocks for transformation sustainability and argues that intended interventions (Figure 1, yellow boxes) are much more likely to encourage transformation to sustainability if embedded within a more comprehensive framing of transformative change (Figure 1, blue boxes) consisting of:

1. A compelling transformative vision – Block 1
2. Knowledge of systemic change – Block 2
3. Navigation of the dynamics inherent in changing development pathways – Block 3
4. Emancipated agency providing room for inclusive deliberation – Block 4
5. Transformative governance reflects this framing by being inclusive, informed, integrated, adaptive and accountable – Block 5

The following subsections provide a detailed description of the five building blocks as it is described in the original framework (Wittmer et al. 2021).

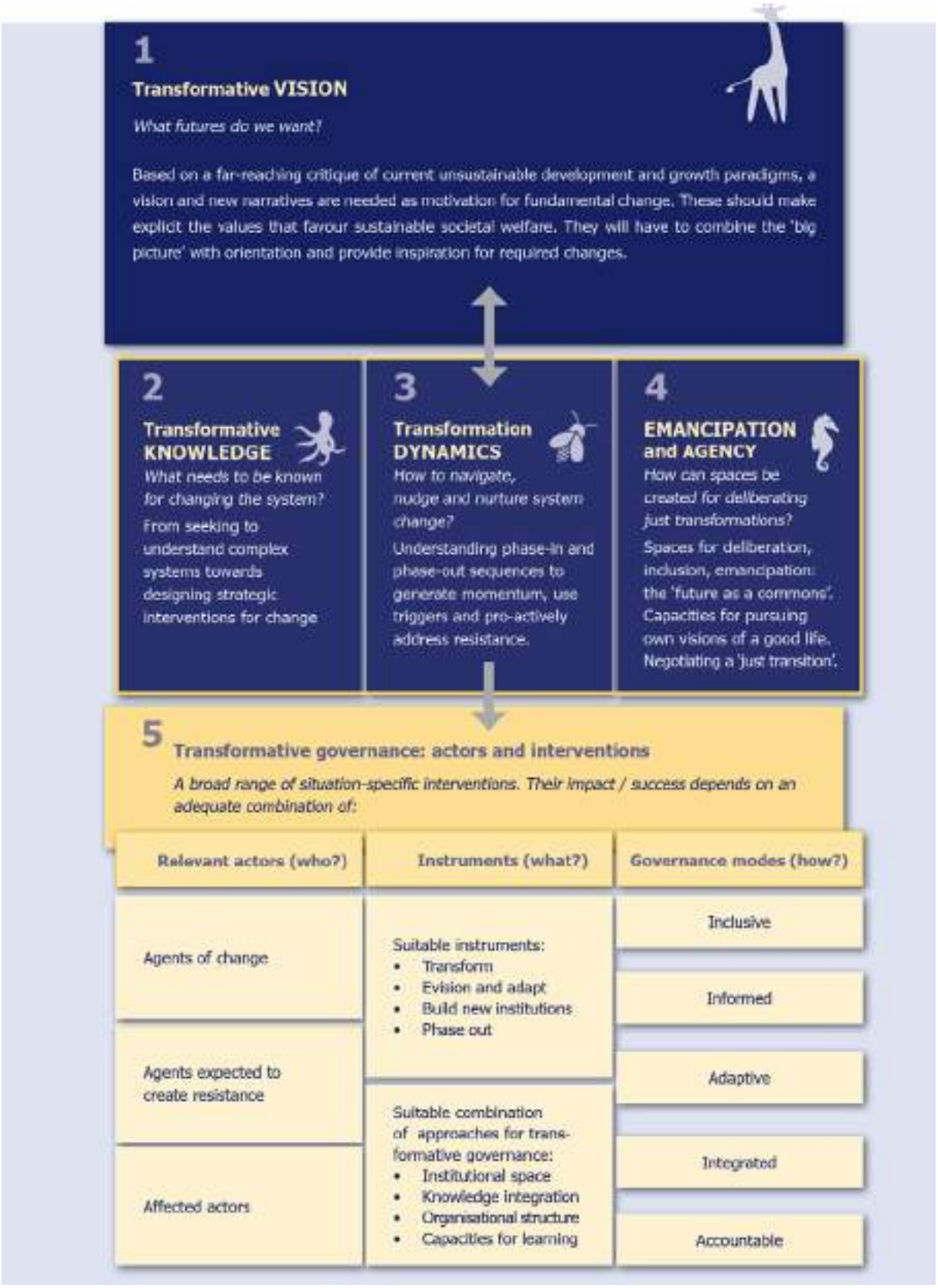

Figure 1. Transformative change framework

5.1.1 Transformative vision (What futures do we want?)

A transformative vision provides ideas for the future that makes the desired state tangible or at least imaginable. It thus provides people orientation, inspiration and motivation to work towards this future. In terms of system change, it provides answers to the big questions of how the new system will be different from the current. How do we create a safe and just space for humanity (Hajer et al. 2015)? How can we transform our development trajectories to safeguard the biosphere as our "natural capital" (Neumeyer and Dietz 2009)? The SDGs are signposts of the desired state of environmental, social, and economic conditions. However, modern development narratives do not convincingly cope with the fact that the SDGs will unlikely be met (UN Stats 2021): blind faith in the 'invisible hand' of the market, in a responsible private sector, or (multilateral) geostrategic policy is unwarranted to drive the 'big leap' towards the SDGs at global scale. Intergovernmental efforts have seen mixed outcomes, and national governments have preferred to try steering change towards selected SDGs in a top-down manner rather than mobilising new agents of change, such as businesses, cities and civil society (Hajer et al. 2015). At a larger scale and concerning global commons narratives of liberalism (Harari 2018) and neoliberalism (Monbiot 2019) are increasingly seen as intellectually obsolete. Sustainability and sustainable development, which have techno-scientific and management connotations (Salmivaara and Kibler 2020), have also lost some of their original appeal over the nitty-gritty of implementation, indicators and monitoring. The core ideas of sustainability have become diluted. Many actors claim to contribute to sustainability or to be sustainable. However, few understand the implications of the SDGs being inseparable, and given that there are 17 goals and five principles, this is indeed a challenging task.

Therefore, new, mobilising narratives are needed. They will have to build on a clear critique of prevailing yet outdated development and growth paradigms and recognise the politics of global sustainability issues (Patterson et al. 2017). A new narrative will also have to make explicit those values that favour sustainable societal welfare (and those that do not), and it will have to offer a new 'way out' (Monbiot 2019). Such a narrative would combine the 'big picture' of what goes wrong with answers that provide orientation and inspire change. While some objectives might be predefined and easy to specify, others and their trade-offs might only appear during the transformation process. Hence, developing a transformative vision means specifying a feasible scenario that combines the different development targets for the specific context.

The term 'transformation' itself does not tell this story. While it has gained traction in various problem domains (e.g. energy, mobility), it does not offer the visionary answers needed. Transformation as a concept describes the degree of change but not necessarily its trajectory (Pelling et al. 2015). One of the risks of 'transformation' is that its vaguely positive and solution-oriented connotation can be used for all kinds of ideas and interests (Blythe et al. 2018); it could become the next buzzword that loses traction over time. For example, a 'radical economic transformation' – as had been propagated in South Africa – does not necessarily pursue more sustainable and equitable economic futures (Desai et al. 2018).

Transformative visions will require a step back to consider a society's socio-ecological system and its international linkages. They have to address the root causes of current unsustainability (Bulkeley et al. 2020). The role of economic growth for human well-being needs to be revisited without dogmatism. Natural capital is vastly more important than solely as input to production processes.

Transformative visions will also face resistance from those who benefit from current setups and expect to lose out in the new narrative. Therefore, both content and genesis of a new vision will have to be normatively legitimised, e.g. by emphasising common ground (content) and facilitating debate (genesis). To pre-empt denial of inconvenient truths, the narrative should refrain from claims of superior knowledge (Chilisa 2017). This narrative should identify a common problem ('formerly good ideas are not so anymore because the world has changed – old convictions in unhealthy pathways trap us') and a common emancipation story towards alternative futures ('we actually know enough to find ways out of the dilemma, and now is a good moment to begin this voyage') (Wittmayer et al. 2019, Kothari and Joy 2017).

Overall sustainability conditions should be embraced and taken seriously as a 'bottom line' and guidance for efforts aimed at changing the system. They should include at least: respect for planetary boundaries, provision of living wages or incomes, concern for future generations, and life in dignity.

5.1.2 Transformative knowledge (What needs to be known for changing the system?)

The second building block of the framework connects visions to actions and indicates a continuous learning process. This is due to the very nature of transformative change, where: i) uncertainty is inherent in each transformative vision since it is not a final goal but a beacon that guides a plurality of possible interventions; ii) knowledge needs may change with time; iii) knowledge gaps are progressively filled with scientific advancement; iv) the process becomes more inclusive. An essential part of the transformative knowledge process is identifying and understanding system elements with the potential to solve the respective sustainability problem, including the actors, their functions, the connections between them, available knowledge and knowledge needs on how practises can change. It is important to keep in mind that the bigger the system, the more complex it becomes due to the many possible relationships and levels of interaction. To understand the levels within a system, the notion of a multilevel perspective is useful, with different degrees of knowledge precision at different systemic levels (Patterson et al. 2015). Importantly, transformative knowledge in our understanding goes beyond scientific or technical knowledge (despite using metaphors of systems analysis) and includes practical, traditional, and indigenous perspectives.
Locating entry points within a system to stimulate transformation (Loorbach and Rotmans 2010) becomes especially important. What aspects of the system are to be addressed first, and, therefore, what knowledge is to be prioritised? Ultimately, such scoping should involve broader groups of stakeholders, thus also cross-checking for a shared understanding of transformation: technical solutions are usually insufficient and societal innovation or adjustments required (Hajer et al. 2015).

While analysis and understanding can be expected to remain incomplete due to the complexity of systems, it should be possible to identify entry points and try out interventions to support the transformation of the system. It is also important to differentiate knowledge gaps and knowledge needs. The former describes missing information for better system understanding; the latter describes necessary information for making decisions or taking action (Dewulf et al. 2020). Distinguishing entry points within a system means identifying the 'neuralgic points', also called 'leverage points' in a system for which strategically oriented interventions are feasible and promising (Meadows 1998). These are intimately related to understanding the root causes of the problem, and this requires being able to navigate and distil, from the rapidly growing supply of data

and information, knowledge relevant for transformation whilst referring back to the transformative vision. At this point, three knowledge skills have been identified as essential for designing interventions:

i. Knowledge about how to identify action-oriented knowledge needs from a decision-making perspective: This is knowledge at a more specific or granular level because it relates to the already identified intervention strategy and specific actions. It entails specific knowledge required for informed decision-making. Trust and relationship building are essential, as this demands a trustful exchange between not only technical and political experts but also incorporating local knowledge from a plurality of sources (Berghöfer et al. 2016). The latter is important as action-oriented knowledge needs to account for context, resources and the feasibility of achieving consensus to enable (local) implementation (Caniglia et al. 2021).

ii. Knowledge about how to deal constructively and pragmatically with the unknown: A major obstacle for transformation is that one cannot anticipate all relevant components and consequences of decisions in a complex system (Westley et al. 2011). This means the effects of decisions can also be counterproductive or unsatisfactory in promoting the desired change. In other words, when aiming at transformation, the need for ex-ante knowledge coincides with cognitive limits in grasping complex systems (Chaffin et al. 2016). Since transformation efforts aim at systemic tipping points, they require taking higher risks because of the scale of the attempted change (Chaffin et al. 2017). Such systemic risks necessitate more integrative risk analyses beyond single cause-event chains (Renn 2020). However, this raises concern about what is unknown. Concepts such as the 'safe operating space' (within planetary boundaries) or the 'precautionary principle' (within environmental law) are intended to orient policy in view of insufficient knowledge (Rockström et al. 2009, Kriebel et al. 2001). At the same time, supporting transformation requires process knowledge and 'learning by doing' in a trial-and-error mode. It is important to include different perspectives and types of knowledge when discussing proposals, negotiating priorities and monitoring results to increase the probability of recognising changes in time to react.

iii. Knowledge about designing strategic interventions for sustainability transformations: Moving towards sustainability requires competencies such as systems thinking, multi-

stakeholder communication, and multi-disciplinary analytical skills to identify which changes would lead to more sustainability. For most transformation processes, and certainly, for transforming the use of and impacts on the global commons, this requires negotiation processes and settings that enable adaptive learning. In addition, knowledge and abilities are needed to design appropriate interventions and conduct the actual change process (Salgado et al. 2018, Caniglia et al. 2021). For designing and implementing sustainability interventions, several specific competencies have been identified (Salgado et al. 2018):

- Being able to engage in political-strategic thinking, combined with personal goal-directedness (strategic decision-making);
- Being able to steer towards collectively produced proposals and decisions, articulating policies and/or proposing initiatives which challenge existing non-sustainable practices;
- Being able to translate this diversity into propositions and decisions for interventions.

Typically applied concepts include the development of a Theory of Change, focusing on change agents, or establishing social-ecological change labs. Another important aspect is the idea of levers and leverage points, which describes those actions with high impact across sectors and sustainability dimensions (Meadows 1998, Chan et al. 2020). These will be further discussed in the following sections.

5.1.3 Transformative dynamics (How to navigate, nudge and nurture system change?)

As 'transformation' involves fundamental changes across different realms of society, it cannot be designed nor steered by a master plan or expert panel. Far-reaching system change can be nurtured, nudged, and navigated, but such processes cannot be managed or controlled. To nurture change means to create fertile ground for it; to nudge towards change means to provide situation-specific stimuli; and to navigate change refers to seizing opportunities and recognising obstacles along the way. For transformation to sustainability, we can differentiate between two different yet complementary processes (Loorbach and Oxenaar 2018): (i) The innovation and establishment of new sustainability solutions ('phase in'), and (ii) the reduction and ultimately closure of unsustainable practices ('phase out'). Both phase-in and phase-out processes have to coincide to

lead to bigger system change – yet, they tend to have different stages and dynamics. Phase-in processes involve initial promoting and extensive mainstreaming efforts for successful niche experiences and pilot solutions. Once these gain traction, we can imagine a stabilising phase. In contrast, 'phase-out' processes are about challenging established rationales and confronting– or convincing – those who adhere to them. 'Phase out', by definition, has to disrupt routines and practices until solutions are found for those who lose out from such change (see Figure 2).

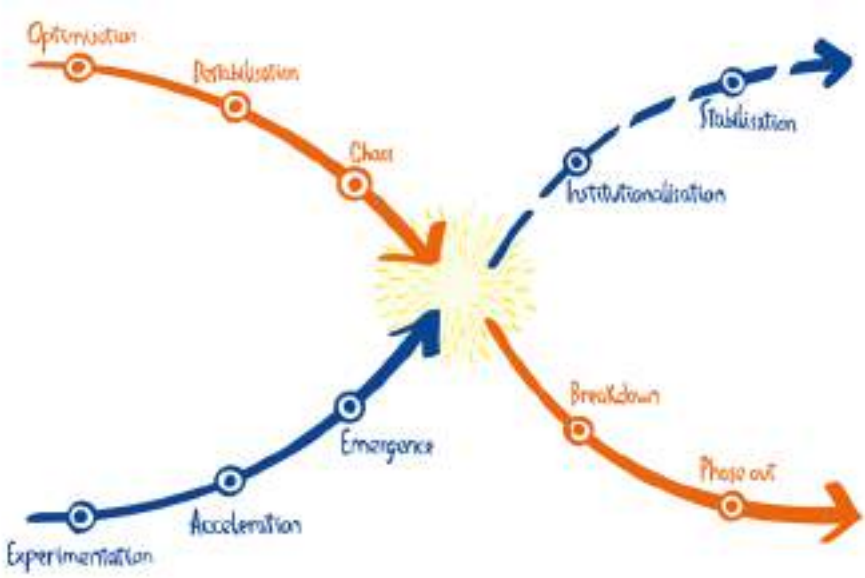

Figure 2. Dynamics of societal transitions as an iterative process of build-up and breakdown over a period of decades (source: Loorbach and Oxenaar 2018).

From a dynamic perspective, generating momentum for change is of central interest. Chaffin et al. (2017) emphasise the importance of moments of opportunity. These are created by ecological, social, or political instability (such as by crises and catastrophes); by the innovative and creative processes of individuals and groups; and by dramatic shifts in social norms, values, or ethics. Such moments of opportunity are seldom planned, nor do they inherently stimulate change in the 'right' direction. They merely bear the possibility of questioning truths, rules, and practices which would otherwise not be subject to debate, i.e. under formerly stable circumstances. In phase-out processes, obstacles to transformation arise from vested interests that benefit from existing system configurations or technical or institutional legacies ('lock-ins') and stabilising factors that favour current trajectories, often linked to behaviour, culture, and lifestyle. All of these potential obstacles

should ideally be anticipated and proactively addressed. Bulkeley et al. (2020) suggest that "addressing concerns about who will [lose] and who will gain from transformative action for biodiversity proactively whilst also adopting strategies to build diverse 'coalitions of the willing' and generate radical incrementalism through multiple forms of intervention towards a transformative outcome" are means through which structural resistance can be countered.

The transformative potential of any measure or intervention depends not only on how adequately it addresses the specific situation. Timing is also of key importance: instruments to institutionalise new practices can only work if these practices are already known and proven by a relevant number of users. Likewise, heavily subsidising new technologies in the experimental stage can lead to breakthroughs, but continuing this support beyond the experimental stage may prevent efficiency gains and even inhibit widespread use.

5.1.4 Emancipation and agency (How to open spaces for deliberation, inclusion and emancipation?)

Even with broad agreement on a vision, there will be different possible ways of achieving it. Next to a compelling vision, a more selective pursuit of knowledge, and awareness of change dynamics, transformation to sustainability requires an opening of political spaces "for individuals and communities to take action on their own behalf" (Scoones et al. 2020). The conditions for exercising collective will and for human agency are unevenly distributed within societies. However, as previously discussed, transformation itself cannot be managed and, therefore, cannot be imposed or spoon-fed. The size of the sustainability challenge, the enormous implications of any radical system change, and the ethical compass of present-day societies command active involvement, voice, and fairness – which will also increase the legitimacy and acceptance of possibly inconvenient measures geared towards transformation.

Moreover, new ideas often emerge from diverse, open-ended, bottom-up processes. The kind of large-scale system change envisaged here is essentially a political affair. How to make sure that the interests and perspectives of diverse groups and individuals, especially marginalised ones, are fairly represented in debates about transformative measures? How can the politics and governance of transformation be organised? How to ensure that democratic institutions are adequately involved in

making far-reaching decisions? The devolution of political powers does not per se lead to just and sustainable transitions (Swilling et al. 2015). It needs to come along with practices and capacities for fair deliberation (Dryzek 2001, Curato et al. 2017). Centralist autocratic regimes might be able to more swiftly impose radical system change than federal democratic regimes. However, it seems highly unlikely that mandated or imposed change will be able to achieve sustainable outcomes at a global scale.

Locally adapted approaches evolving from the respective socio-cultural setting seem far more suited to achieve these. In both coerced and liberal societies, conditions are often absent that would support negotiating the choices and consequences of transformation. This is further exacerbated by increasing structural inequality (Tschakert et al. 2013). The public – and often subnational – arenas for cultivating and facilitating open-ended negotiation need to be strengthened and expanded (Scoones et al. 2020). Key ingredients for driving a just transformation include civic articulation and engagement and the recognition and enactment of plural values and worldviews (Stirling 2014). In order to encourage open societal debate and enable the creation of agencies for affected groups, it helps to anticipate who will create resistance to proposed changes (Bulkeley et al. 2020). Although resistance is often attributed to individuals, most evidence suggests that these will typically be part of those groups that benefit from the current system and would be expected to forgo benefits or incur higher costs in the future.

5.1.5 Transformative Governance (Adequate combination of relevant actors (who?), instruments (what?) and governance modes (how?))

It is not a single action, solution or technology that shifts trajectories from 'small improvements of business as usual' to 'transformation towards sustainability'. Instead, implementing a whole set of actions drives transformation. This fifth block looks at the governance of transformation processes in the sense of organising and taking decisions towards actions and solutions that achieve the transformative dynamics (Block 3) and agency (Block 4). We distinguish the "who" (actors), "what" (policies) and "how" (modes of governance) of governing the transformation process.

Who: Addressing different roles in transformation processes

Transformative processes need to be initiated and facilitated by key agents. The scientific literature identifies market initiatives, governmental regulation and self-regulating communities as key agents who can either act deliberately/intentionally or whose actions evolve as part of the social dynamics (Chaffin et al. 2016). Analyses of 'agents of change' focus on organised actors with different degrees of organisation and influence on the respective policy, either as agents of change or as carriers of transformation processes (for example, Bliesner et al. 2013, Sommer and Schade 2014). 'Agents of change' can be leaders across different actor groups, including governmental agencies, NGOs, practitioners, communal leaders, and others (Griffin et al. 2016). The multilevel system-wide interactions and interdependencies between different actors can be affected by external or internal disturbances (Chaffin et al. 2016) and require coordination and cooperation.

What is more, powerful actors often advocate for political persistence (Brand 2017). Overcoming powerful resistance requires disconnecting existing institutional configurations and societal structures to subsequently facilitate targeted interaction that favours the development of new coalitions and societal paradigms (Abson et al. 2017). Moreover, transforming a system from one development path to another requires identifying winners and losers of decisions, mapping the distribution of costs and benefits among them and shedding light on conflicts (Selbmann 2015). Therefore, we conclude that to enhance transformation in any given setting, it is necessary to identify all relevant actors and the role of key actors in the transformation process, including 'agents of change', 'agents expected to create resistance' and 'affected actors'.

What: Selecting strategic actions and instruments

Loorbach and Oxenaar (2018) group four types of interventions (see Table 1), distinguishing on the one hand between their roles for 'phasing in' versus 'phasing out' and, on the other hand, between top-down and bottom-up approaches.

Table 1: Examples of policy instruments for different types of interventions which, in combination, drive transformation. Source: Loorbach and Oxenaar 2018.

Transform ('top down')	Envision and adapt (ideas for phasing in)
• Legal and regulatory instruments • Market and pricing instruments • Industry Policies • (International) Collaboration, agreements and accords • Institutional and organisational labelling	• Societal dialogues and transition arenas • Future visioning and imaging • Scenarios, roadmaps • Reflexive monitoring • Social Learning and Evaluation
• Innovation instruments • Subsidies and niche management • Network Instruments • Experimentation areas and urban labs • Impact investment funds • Incubators and the right to challenge	• Phase-out pathways • Divestment strategies • Training and retraining • Financial support for stranded assets • Prohibition and penalties • Removal and decommissioning
Build ('bottom up')	**Phase out**

How: Combining governance approaches for enhancing their transformative potential

Chapter 6 of the IPBES Global Assessment (by Razzaque et al. 2019) elaborates on the modes of transformative governance, namely that governance needs to be at the same time inclusive, informed, adaptive, and integrated in order to enhance the transformative potential of interventions and to be able to adjust as transformation unfolds. In addition, literature discusses the importance of accountability, especially in integrating biodiversity concerns into decision-making at all levels. Accountability is seen as relational, asking who is held accountable by whom, what actors are accountable for, and which elements can serve for monitoring, evaluation and possible sanctions in case of non-compliance (Mashaw 2006, Biermann and Gupta 2011). As highlighted by the literature on mainstreaming and policy integration of biodiversity concerns, effective design and implementation requires leadership and a clear allocation of responsibilities (Karlsson-Vinkhuysen et al. 2017, Lambin et al. 2018, Zinngrebe 2018).

- Inclusive: The multiplicity of political stakeholders, interest groups and local actors in sustainability governance requires the consideration of different value systems, needs, rights, gender perspectives and knowledge systems in participatory settings (Visseren-

Hamakers et al. 2021).

- Informed: A broad array of local and scientific knowledge on diverse aspects needs to be integrated into structured, problem-oriented processes (Raymond et al. 2010); for this, a relevant, effective and transparent exchange of sustainability knowledge between society, science and politics has to be organised.
- Adaptive: Structures should be responsive to new insights – the idea of adaptive management describes the capacity and willingness to adjust actions to newly developed knowledge.
- Integrated: Sustainability challenges demand coordinated responses across sectors, jurisdictions, policy areas, and strategy processes (Persson and Runhaar 2018).
- Accountable: Governance shapes accountability. All key actors need to assume their respective responsibilities. In contexts of a bigger change, evaluation and sanction processes determine to what extent agents can be held accountable (Mason 2020).

Based on these insights, the following enabling conditions for the governance of transformation processes can be defined. Institutional spaces provide room for inclusion and for knowledge integration across different sectors, needs and sources, which enables adequate feedback for informed and integrated decisions. Accountability benefits from organisational structures that ensure actors and institutions can be held responsible. Capacity for adaptive responses and for ensuring that all five approaches are combined need to be built and will benefit from learning and reflective loops.

5.2 Adapted analytical framework

The adapted analytical framework (from now on referred to as BioValue framework) has been developed to explore, in practice, through the case studies, the transformative potential of spatial planning processes for increasing biodiversity values to society.

In detail, it will contribute to the following:

a. Understand and assess the strengths and weaknesses of the three instrumental (SP&MI, EAI, E&FI) perspectives in terms of their transformative potential to enhance biodiversity and foster sustainable green growth.
b. Identify and explore remaining gaps in terms of addressing indirect drivers and achieving transformative change.
c. Analyse how the instruments can be improved in terms of coherence and concerted action to boost their potential and effectiveness in creating transformative change in spatial planning processes.

The BioValue framework follows the structure of building blocks already introduced in section 5.1.

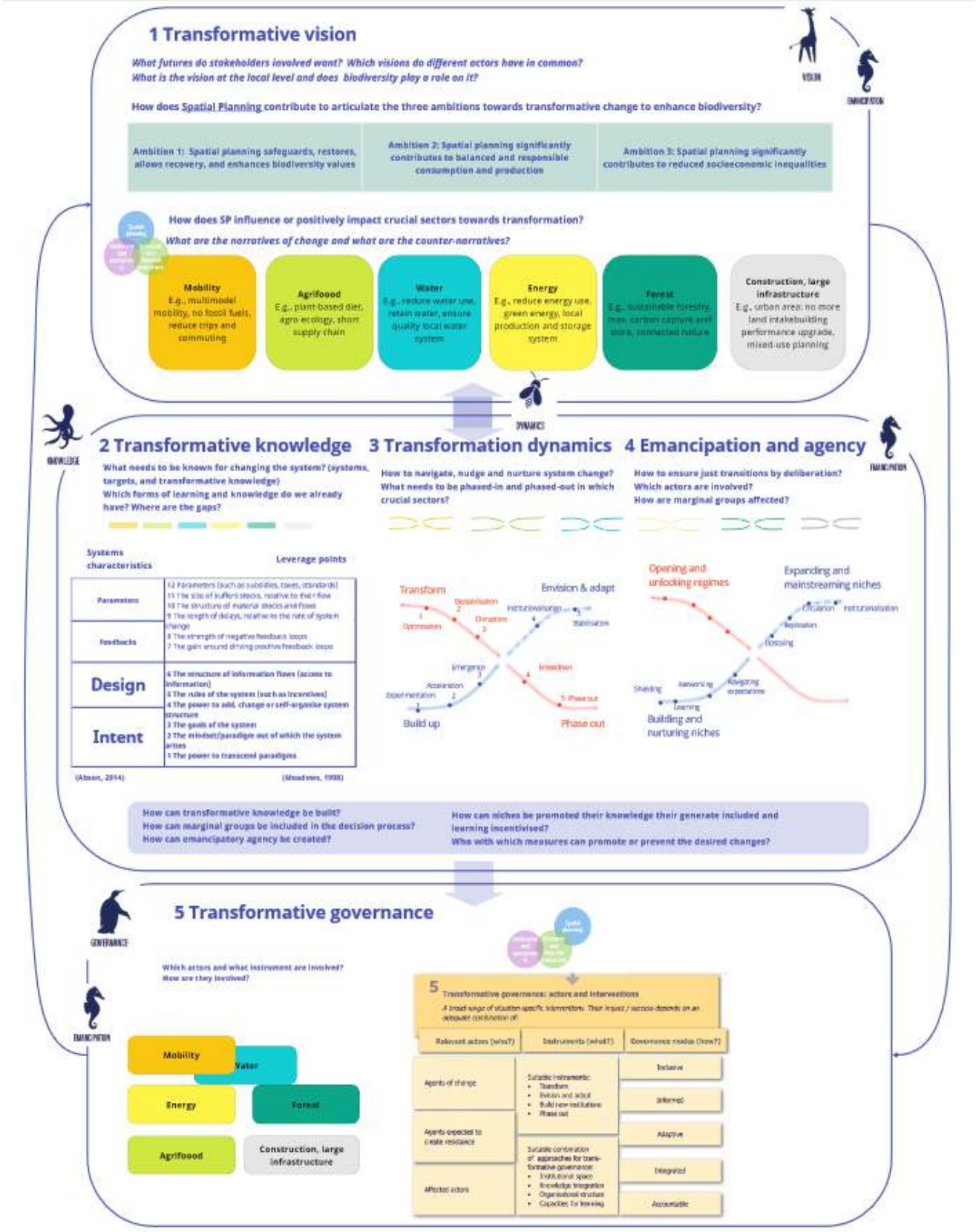

Figure 3. BioValue framework.

5.2.1. Transformative vision (what futures do we want?)

As shown in section 5.1.1, a transformative vision provides orientation, inspiration and motivation to explore and collectively work towards a desirable future. It helps to ensure that small changes point in the "right" direction and cumulatively allow transformations to unfold. In terms of process organisation, it is helpful if the vision is broadly shared by most stakeholders, who, in a best-case scenario, have been involved in formulating it, in particular, the groups that are often marginalised. Besides an outline of the desired future, narratives outlining how to reach such future states are important. Narratives are "short stories" that help everyone involved to make sense of what the process is about. Such approaches are widespread in spatial planning but are sometimes incomplete in terms of how the desired state is to be achieved and often do not explicitly include biodiversity and the values and benefits it provides to society. Ideally, such narratives build on synergies, contain positive roles, depart from the current state and provide indications on how possible trade-offs and resistance can be addressed.

Whether or not a specific vision is actually transformative is an empirical question, which can only ex-post be answered with certainty. However, we believe that transformative ambition and transformative potential can also be assessed ex-ante. Assessing transformative potential refers to the contribution a single measure or a combination of measures makes towards creating an environment conducive for transformative change, as outlined in the building blocks of the transformative change framework. To identify, understand and evaluate the potential and the role of spatial planning in supporting transformative change for biodiversity, it is important to understand that it affects biodiversity both directly and indirectly.

By using so-called *ambitions*, which we outline below, we can a) outline these direct and indirect impacts and assess how ambitious specific instruments or combinations thereof are in terms of safeguarding biodiversity as a global commons. The ambitions were derived from underlying causes that drive the degradation and depletion of global commons (biodiversity, forest, oceans) identified from an analysis of global assessment reports (Wittmer et al. 2021). From this analysis, and for the context of spatial planning, we have subsumed the original four "ambitions" into three. We use them firstly to better understand how spatial planning contributes to transformation processes. This facilitates the identification of leverage points and levers in different sectors and subsystems that

can be employed in spatial planning. Secondly, they can be used to identify and evaluate how ambitious a measure is in terms of transformation and to estimate the magnitude of spatial planning's contribution to reducing pressure on respectively enhancing conditions for biodiversity, which will occur in later tasks. Using the ambitions as orientation formulating objectives, they can help to address cross-cutting challenges that currently affect biodiversity and thereby help to orient change towards more transformative outcomes. For spatial planning, the three ambitions are formulated as follows:

- Ambition 1: spatial planning safeguards, restores, allows recovery and enhances biodiversity. As is emphasised in target 1 of the KMGBF, inclusive spatial planning should be ensured to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030. Here, spatial planning usually operates in direct ways by reducing or enhancing certain uses in certain areas. Examples of approaches that significantly contribute to this ambition are Nature-based solutions and ecosystem services (Albert et al. 2019).
- Ambition 2: spatial planning significantly contributes to balanced and responsible consumption and production without external social and environmental costs. Here, the effects of spatial planning can induce more balanced, sustainable territorial relations between urban, peri-urban and rural communities. Examples of approaches to contribute to this ambition are the reduction (and stop) of land take and land consumption and urban food system production (Schatz et al. 2021, De Simone et al. 2023).
- Ambition 3: spatial planning significantly contributes to reducing socioeconomic inequalities, for example, in the context of urban areas, which is reflected, e.g., in unequal access to transport, housing, among others that primarily affect the integration of marginalised communities, migrants, youth, and disadvantaged groups.

These ambitions can provide a clear orientation of spatial planning contributions towards transformative change while allowing many different measures for achieving them, thus leaving

sufficient leeway for (deliberation and inclusion to decide on) context-specific choice and

implementation. Figures 4, 5 and 6 provide illustrations of how different pathways of impact can be traced for specific measures.

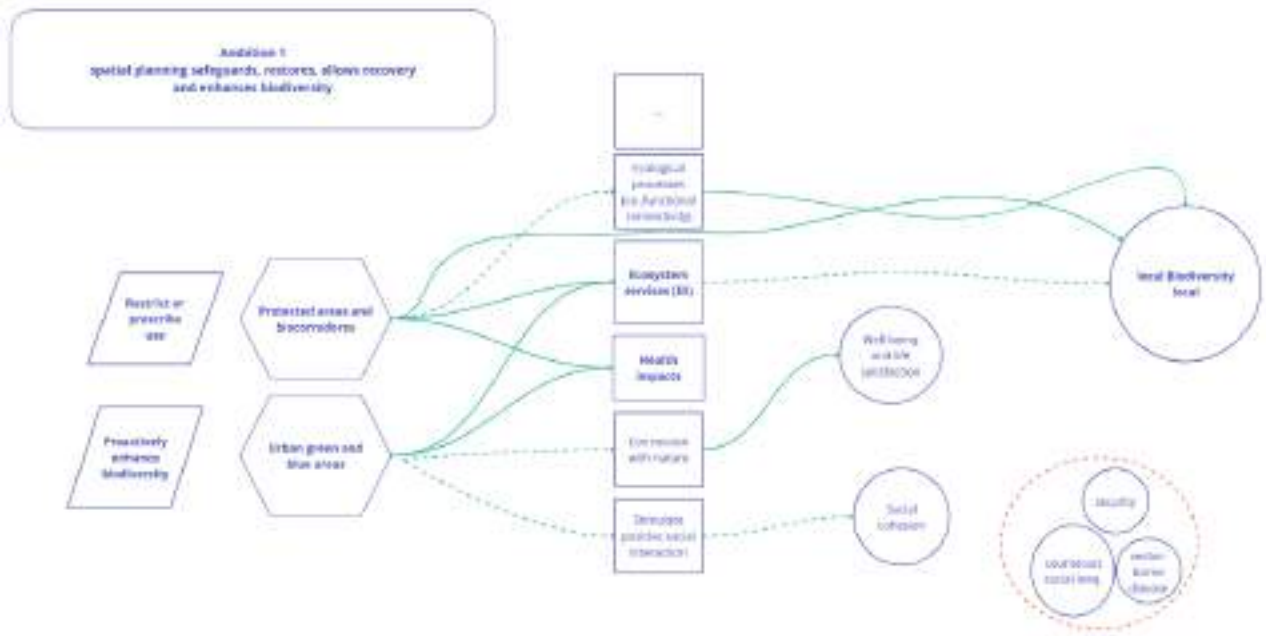

Figure 4. Illustration of different pathways of impact within the context of ambition 1.

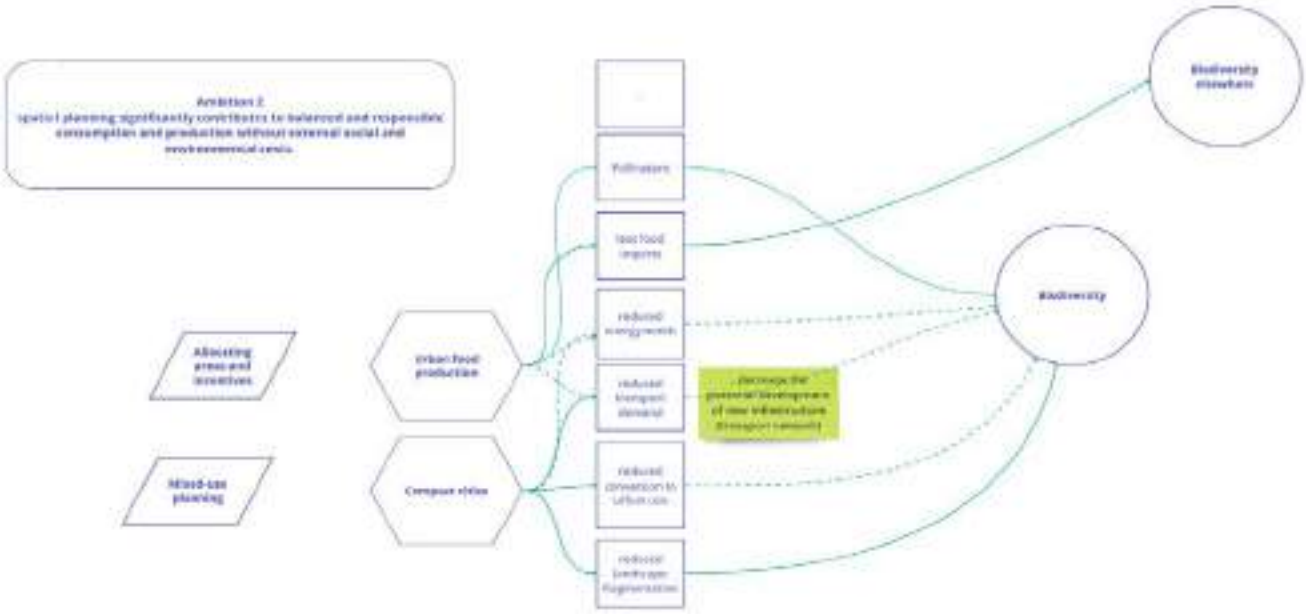

Figure 5. Illustration of different pathways of impact within the context of ambition 2.

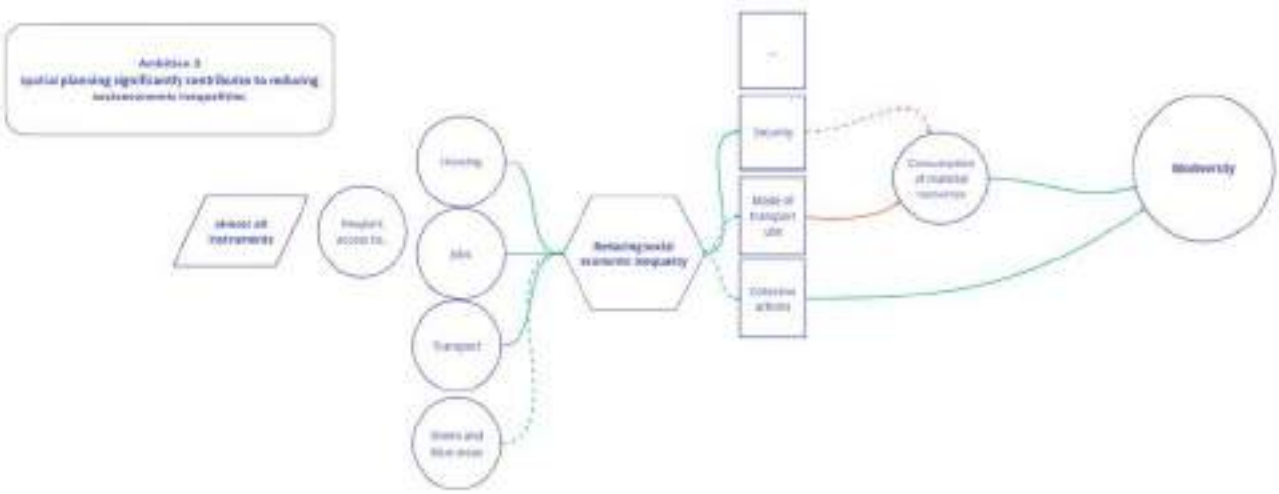

Figure 6. Illustration of different pathways of impact within the context of ambition 3.

Moreover, a set of questions are included within the framework in order to further guide and explore the case-to-case contributions from spatial planning to the three ambitions towards transformative change that enhance biodiversity (Table 2, below). It is important to clarify that in order to be able to achieve the transformative change necessary for biodiversity, the ambitions cannot be considered stand-alone aims, which means that the positive impact on one or more of the ambitions cannot have a negative impact on the rest. In order to achieve improvements for biodiversity from a global perspective, impacts on all accounts should be positive or at least neutral.

Table 2. Guiding questions to understand how spatial planning can contribute to articulating the three ambitions towards transformative change to enhance biodiversity.

Ambition 1: Spatial planning safeguards, restores, allows recovery and enhances Biodiversity values.	Ambition 2: Spatial planning significantly contributes to balanced and responsible consumption and production.	Ambition 3: Spatial planning significantly contributes to reduced socioeconomic inequalities.
• Does spatial planning contribute to restoration or allow the recovery of biodiversity and ecosystems, and how? • How can spatial planning enhance biodiversity values? • Is it at least preventing degradation? • Is it linked to positive efforts to safeguard, restore or will enable biodiversity recovery?	• Does spatial planning contribute to reducing wastes and consumption of new material, increasing circularity and how? • Does spatial planning contribute to uncovering and (if possible) significantly reducing, or at least internalising, the social and ecological costs of (different economic) activities?	• Does spatial planning enhance equal access to (biodiversity-related) benefits, and how? • How does spatial planning contribute to reducing socioeconomic inequality (e.g., income, wealth, education, capacity, access)? • How does spatial planning ensure that measures do not (un-intendedly) shift costs to other sectors, regions, or stakeholders?

Due to the multilevel dimension of spatial planning that include different subsystems and actors at a diverse territorial level, understanding how spatial planning influences or positively impacts crucial sectors towards transformation is crucial. Within the BioValue framework, we initially consider six sectors to identify and evaluate the contribution of spatial planning to achieving/contributing to achieving significant progress in reaching the three ambitions that enable transformative change for biodiversity. The sectors or subsystems considered within the BioValue framework are mobility, agrifood, water, energy, forest and construction/large infrastructures; these sectors should be analysed separately but also taking into consideration the interactions among them. The outcome of this process will also help us to identify and understand the narratives of change and its counter-narratives.

Figure 7 below shows a summary of the main elements introduced regarding the transformative vision.

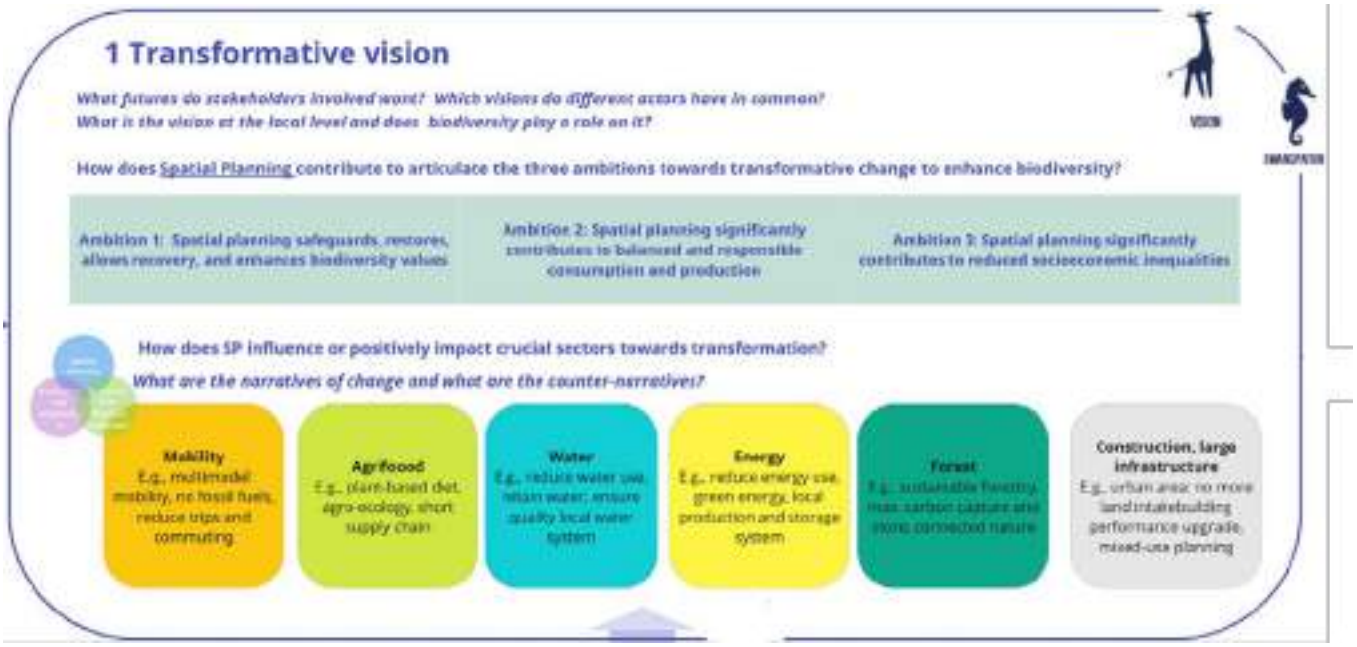

Figure 7. Summary of the BioValue transformative vision elements.

5.2.2 Transformative knowledge (what needs to be known for changing the system?)

As is shown in section 5.1.2, transformative knowledge connects the transformative vision to action, integrating the need for a continuous learning process. The knowledge required to nurture a transformative process is not easy to define since many different intervention options exist to work towards the desired transformative vision. Moreover, the knowledge needed may change throughout the transformation because of its nature of being a continuous and dynamic process.

Within the BioValue framework, transformative knowledge that needs to be considered with the different sectors refers to:

- Target knowledge: knowledge on what state is desirable or which projects can establish a state achieving the vision (i.e., the knowledge required to translate a desired vision to specific targets or projects at a particular place by establishing a territorial logic).
- Knowledge regarding constructive and pragmatic ways to deal with the unknown and resistance (e.g., for the prevention and/or mitigation of spatial conflicts such as spatial competition by understanding the needs of different actors and building spatial planning and non-spatial panning solutions/ strategies that also enhance biodiversity).
- Knowledge regarding the design of strategic interventions in order to change the system

(transformative or transformation knowledge)

- Knowledge about feedback loops between social and ecological systems and within sectors (i.e., the knowledge base for spatial planning and environmental assessment instruments, how has this knowledge continuously been generated? Is this new information been fed into the system?)

In order to identify and understand which knowledge is needed for spatial planning to contribute to achieving the desired transformative vision, each sector (mobility, agrifood, water, energy, forest and construction/large infrastructure) needs to be evaluated separately but also considering the interactions among them.

Questions that help to provide orientation on the required transformative knowledge needs within each sector are described below:

- How does the sector contribute to biodiversity loss?
- How can spatial planning interact with this system?
- What needs to be known for changing the system?
- What are the system elements with the potential to solve the respective sustainability problem? Including the actors, their functions, and the connections between them.
- Which is the entry point (leverage point) within a system to stimulate transformation?
- What aspects of the system must be addressed first, and, therefore, what knowledge must be prioritised?
- Which forms of learning and knowledge do we already have? Where are the gaps?
- …

For the above, the concept of leverage points or points to intervene in a system can help identify strategic interventions. However, as pointed out by Meadows (1998), they should be carefully examined, as it is pointed out that they might frequently be not intuitive and, if not used properly, often can worsen the problem they were meant to solve. The BioValue framework integrates the research from Abson et al.2017 (adapted from Meadows 1998) that focuses on less obvious but potentially more powerful areas of intervention. The 12 leverage points described by Meadows,

1998 are then allocated to a given system of interest (system characteristics), where different interventions have deeper or shallower effectiveness to act as leverage of transformations depending on the system characteristic (Figure 8, below)

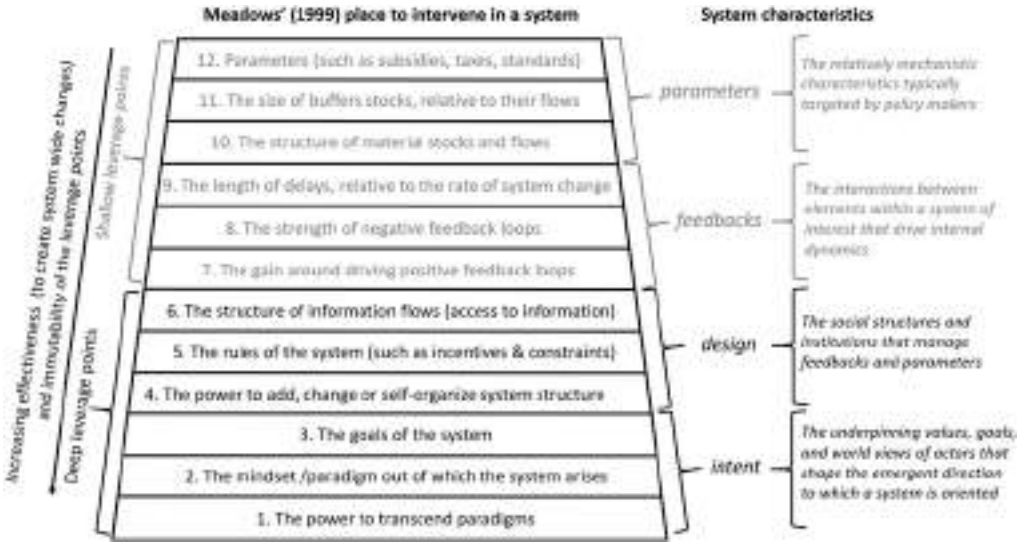

Figure 8. Leverage points and systems characteristics (source Abson et al. 2017). Spatial planning can influence/impact these leverage points to different extents within the different sectors. Examples of leverage points within the context of spatial planning, shallow leverage points: 12. Parameters: impervious surface ratios; building coverage ratio, Transfer of Development Rights (TDR); 11. Buffer stocks: square meters of green spaces/inhabitant, distance from the pollution source. Deep leverage points: 6. Structure of information flows: collaborative governance, engagement/collaborative planning; 5. Rules of the system: TDR (design of the system); 3. Goals of the system: strategies and visions, regulations; 2. Mindset: planning laws/policy frameworks.

To further explore potential impacts, the frame integrated the following guiding questions (adapted from Leventon et al. 2021):

1. What is the system of focus, and what are its properties (paradigm, design, processes and materials)?

2. What are the problem framings and norms that underpin this system framing?

3. What systems is the focal system nested within (multi-scale systems) or connected to (different

system framings)?

4. Which system properties (paradigm, design, processes and materials) does the intervention target, and in which focal system?

5. What properties are impacted over time, space, or via indirect impacts?

6. How does a specific intervention influence and work in connected or nested systems?

7. Where are the different instrumental perspectives in the system?

8. What are the boundary objects within this system?

9. How do the different instrumental perspectives contribute, and what do normative framings add to this system?

Also, from system theory, the BioValue framework integrates the multilevel perspective (MPL) concept, which provides clear advantages in order to better understand changes happening simultaneously at different dimensions (e.g., economic, cultural, social, scientific) within the different sectors, across system levels (niche, regime, landscape) and time creating feedback mechanisms and cumulative processes (TIPC – The motion handbook 2021), and with it the knowledge needed or developed throughout these processes.

An important element to keep in mind is that not only new knowledge needs to be produced, but also existing knowledge (e.g. traditional, scientific) needs to be better integrated and used to inform policymaking. To ensure that all decision-makers across all societal sectors have direct access to evidence-based knowledge when planning, budgeting and deciding on actions that have an impact on biodiversity at different levels.

5.2.3 Transformative dynamics (how to navigate, nudge and nurture system change?)

As is shown in section 5.1.3, transformation processes cannot be designed up-front or fully controlled. Profound and enduring system change must be nurtured to create fertile ground and navigated by seizing opportunities and recognising obstacles. The BioValue framework includes the X-curve sensemaking tool to identify, explore, and understand transformation dynamics. To do so, the X-curve is applied in the context of transitions to the different sectors (mobility, agrifood, water, energy, forest and construction/large infrastructure). Within each sector, patterns of build-up

(experimentation, acceleration, emergence, institutionalisation, and stabilisation) of new desirable alternatives and practices, as well as patterns of breakdown (optimisation, destabilisation, chaos, breakdown, and phase-out) of unsustainable practices, should be identified (Figures 2, from the original framework, and 9 from the BioValue framework). The following elements should be considered within the different sectors:

- Within breakdown patterns, it is critical to identify lock-ins (path dependencies) in terms of way of working, infrastructure, standards, access to and availability of resources and technologies, which can be further cemented by mainly results from the incremental optimisation of unsustainable practices and structures that must be phased out to unfold deep change. Also, close attention must be paid to structural barriers such as vested interests and resistance to change.
- Within build-up patterns, opportunities for emerging sustainable practices/initiatives to compete within the prevailing system/structure must be analysed (e.g., instruments). Exploring how these sustainable practices/initiatives can compete is critical in order to scale up and later institutionalise them (phase-in).

Questions that help to provide orientation on the required transformative dynamics needs within each sector are described below (adapted from the X-curve booklet):

- What needs to be phased in and phased out in which crucial sectors?
- Are signs of experimentation within the different sectors? Are these initiatives becoming visible and accessible or the new normal?
- Are unsustainable practices optimised instead of creating room for emerging sustainable options? Which ones?
- Are established unsuitable practices being challenged/abandoned for more sustainable ones? Which ones?
- Are there options, e.g. sustainable practices, to be institutionalised? Do they have the potential to become the new norm?
- What is the role of spatial planning in all of the above?

5.2.4 Emancipation and Agency (how to open spaces for deliberation, inclusion and emancipation?)

As is shown in section 5.1.4, transformations require opening-up political spaces for society (individuals and groups) for taking action on their own behalf. To achieve that, the ideas that emerge from diverse, open-ended, bottom-up processes must be nurtured, promoted and strengthened. Here again, the transitions thinking multilevel perspective with the concepts of niches, regime (old and emerging), and landscape provide a useful structuring (Transformative Innovations Policy Consortium - TIPC). The integration of a new set of approaches related to building and nurturing niches, expanding and mainstreaming niches and opening up and unlocking regimes can further enable emancipation and agency. More in detail and by using the X-curve introduced in the previous chapters, the following sub-processes need to be identified within the different sectors:

- Building and nurturing niches by promoting and strengthening new ideas and practices:
  - Shielding by creating safe spaces for ideas to emerge and for growth.
  - Learning from each other
  - Networking to improve and expand new ideas
  - Navigate expectations
- Expanding and mainstreaming niches:
  - Upscaling desirable actions and practices
  - Replicating desirable actions and practices
  - Circulation or exchange of knowledge and ideas
  - Institutionalisation of desired practices
- Opening up and unlocking regimes:
  - Destabilisation of unsustainable practices
  - Unlearning and deep learning dominant unsustainable practices
  - Niche-regime interactions, creating new opportunities for learning
  - Changing perceptions, creating opportunities for profound and enduring system change

As pointed out in the previous sections, it is relevant to mention the interconnection among the

transformative knowledge, dynamics and agency building blocks (e.g., with the involvement of diverse types of knowledge and expertise in the co-creation process, the benefits of also using transformation dynamics to further promote emerging sustainable practices - niches while opening up spaces for inclusive deliberation).

Much greater attention needs to be paid to inequality in order to empower individuals and communities, with special attention to marginalised communities. Addressing inequality by better understanding causes and effects and by enhancing agency is, therefore, a central aim.

Further questions to provide orientation on the required emancipation and agency for transformation needs within each sector are described below:

- How to make sure that the interests and perspectives of diverse groups and individuals, especially marginalised ones, are fairly represented in debates about transformative measures?
- How can the politics and governance of transformation be organised?
- How can the creativity of a wide range of groups and individuals be integrated into policy design and implementation but also in governance arrangements?
- How to ensure that democratic institutions are adequately involved in making far-reaching decisions?

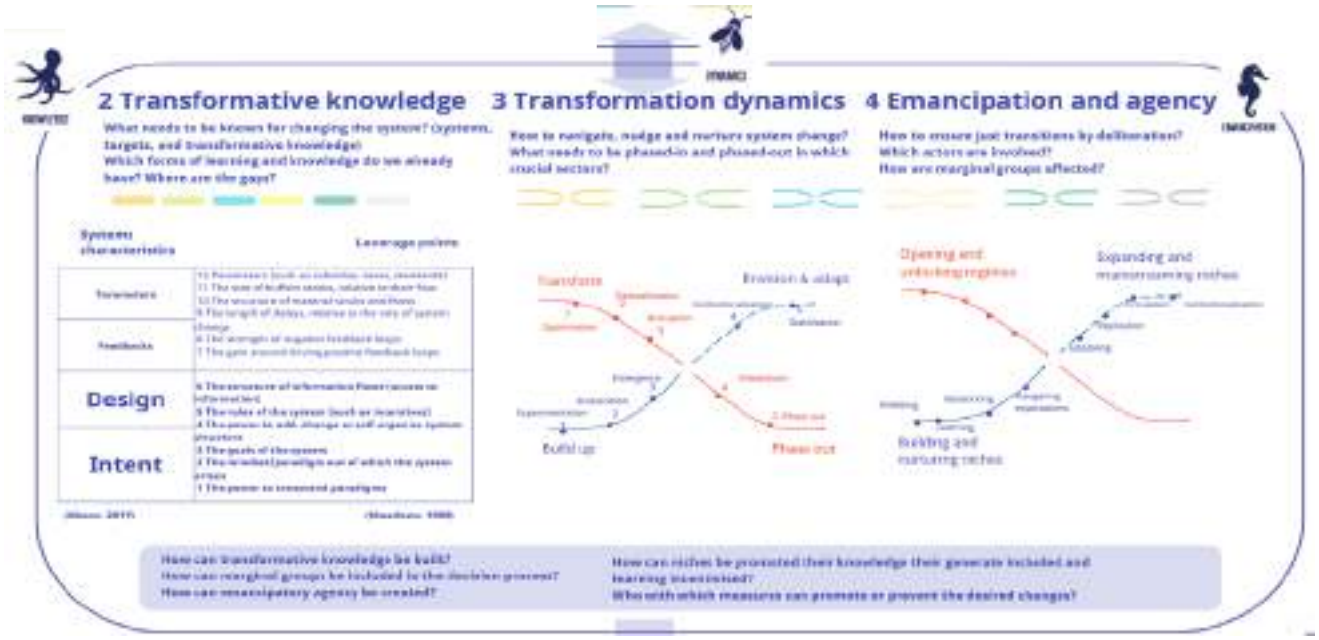

Figure 9. Summary of the BioValue transformative knowledge, transformation dynamics and emancipation and agency building blocks elements.

5.2.5 Transformative Governance (adequate combination of relevant actors (who?), instruments (what?) and governance modes (how?))

As pointed out by Vissen-Hamakers et al. 2022 transforming biodiversity governance means prioritise not only biodiversity but also ecological, justice and equity concerns over economic ones enabling ecocentric, compassionate and just sustainable development. Another central aspect is ensuring accountability, and also to this end, increasing emancipatory agency is an important contribution. Based on the previous building blocks that outline how to create settings conducive to transformative change, this fifth block contributes to identifying strategies for spatial planning towards transformative change to enhance biodiversity. This building block distinguishes the "who" (actors), "what" (policies) and "how" (modes of governance) of governing the transformation process.

- *Who: Addressing different roles in transformation processes: identification of the different agents of change, agents expected to create resistance, and affected actors within the spatial planning process. Within the BioValue project, the project partners connected to the arenas for transformation (Mafra, Trento and Mecklenburg-Vorpommern) will play a critical role as agents of change; they will involve further stakeholders, understand who will likely create resistance and identify who else will be impacted in particular the local level (task 4.2)*
- *What: Selecting strategic actions and instruments: identification of sustainable spatial planning, environmental assessment, as well as economic and financial instruments that has the potential to transform, envision and adapt, build new institutions and phase out unsustainable practices seeking to enhance biodiversity and its value to people. Sustainable combination of approaches for transformative governance: institutional space, knowledge integration, organisational structure, capacities for learning (task 4.2, 4.3 in cooperation with WP 1, 2 and 3).*
- *How: Combining governance approaches for enhancing their transformative potential: considering the points above, the framework will assess the elements from spatial planning that have the potential to contribute to inclusive, informed, adaptive, integrated, and accountable governance oriented to address underlying causes and indirect drivers of unsustainable trajectories that impact biodiversity.*

Guiding questions:

- What spatial planning, environmental assessment, as well as economic and financial instruments, can help to move the system in the right direction, and who are potential agents of change?
- How are those actors that can leverage change expected to create resistance and be affected in the context of the spatial planning process?
- …

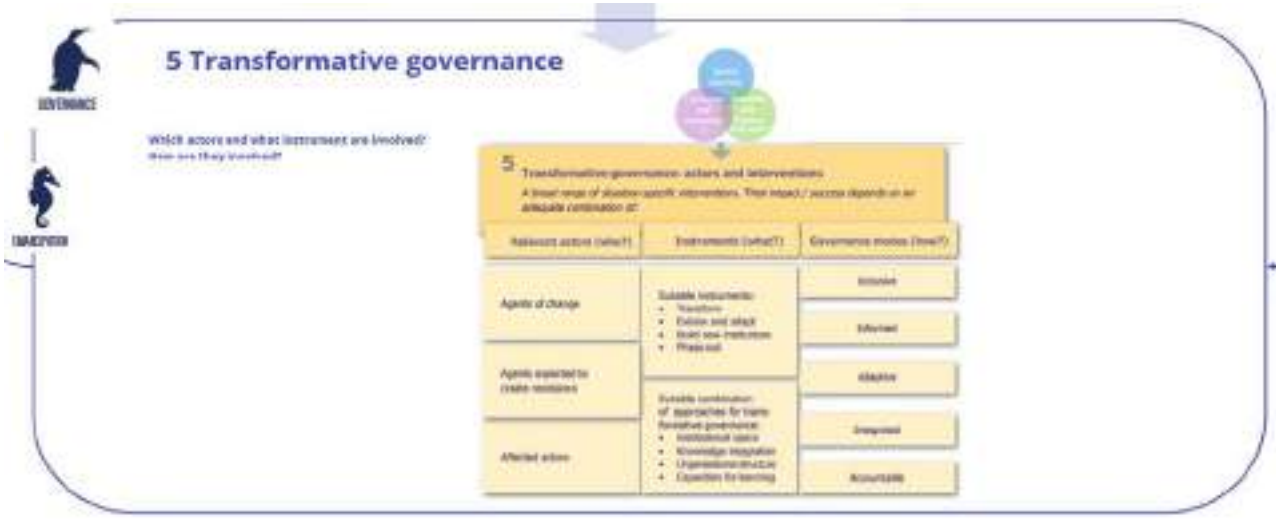

Figure 10. Summary of the BioValue transformative governance building block elements.

6. Implication for the areas for transformation

In the context of the Transformative Arenas in Trento (Italy), Mafra (Portugal) and Mecklenburg-Vorpommern (Germany), the BioValue framework will be applied to further explore, in practice, the transformative potential of spatial planning processes for increasing biodiversity values to society. The BioValue framework application within the arenas for transformation has the potential to improve, redesign and complement planning processes by opening up forums that involve different societal stakeholders to develop, legitimise, challenge and test transformative policies at the ground level.

As a starting point, Figure 11 shows the different elements from the BioValue framework considered within the areas for transformation in order to understand how biodiversity is currently considered in spatial planning processes and to test the application of the framework that will be developed in task 4.2.

Figure 11. First consideration of the different elements from the BioValue framework to explore the areas for transformation.

7. Next steps

The previously introduced BioValue framework constitutes the basic analytical thinking to be used within the BioValue project in order to better understand and leverage the transformative potential of spatial planning towards enhancing biodiversity. It is important to mention that this is a living and dynamic framework that will be detailed and enriched throughout the upcoming months, particularly by integrating specific elements from spatial planning, the different instrumental perspectives (spatial planning environmental assessments and economic and financial instruments) as well as the local level with the areas for transformation.

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