Part I

Introduction

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The Urgency of Transforming Biodiversity Governance

INGRID J. VISSEREN-HAMAKERS AND MARCEL T. J. KOK

1.1 Introduction: The Third Era in Global Biodiversity Governance

This book is written at a vital time for biodiversity around the world. Biodiversity is threatened more than ever before in human history, and nature and its vital contributions to people are deteriorating worldwide, as highlighted by various recent reports (CBD, 2020a; EEA, 2019; IPBES, 2019; WWF, 2020). This is not only a problem for these ecosystems and their inhabitants, but also for humans, since we depend on biodiversity for many vital processes such as food production and provision of natural resources. These risks of biodiversity loss are increasingly recognized among policymakers, academics and society at large (IPBES, 2019; WEF, 2021).

The worldwide deterioration of biodiversity is taking place despite over half a century of efforts to combat biodiversity loss by governments, civil society and, increasingly, business, at all levels of governance from the local to the global. Past and ongoing efforts are therefore not effectively supporting the conservation and sustainable and equitable use of biodiversity, and this worldwide failure to address biodiversity loss has created a growing consensus that fundamental, transformative changes are needed in order to reverse these trends, or "bend the curve of biodiversity loss" (IPBES, 2019; Mace et al., 2018).

This increasing attention for transformative change can be seen as the start of a new, third era in global biodiversity governance. During the first era, early nature conservation policies were developed in silos – the focus was on conserving biodiversity and developing and better managing protected areas. These older intergovernmental processes, such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Ramsar Convention on Wetlands and the Convention on the Conservation of Migratory Species of Wild Animals (CMS), date back to the 1970s.

The central intergovernmental biodiversity process, the Convention on Biological Diversity (CBD), was adopted in 1992 at the United Nations Conference on Environment and Development (UNCED), along with the United Nations Framework Convention on Climate Change (UNFCCC) and the UN Convention to Combat Desertification (UNCCD) (Le Prestre, 2002). The CBD has three main objectives, namely the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources (CBD, 1992). In 2002, parties to the CBD agreed on targets to significantly reduce of the rate of biodiversity loss by 2010. After this target was not met, the CBD developed new targets for 2020, the Aichi

Table 1.1 *Overview of the Aichi Targets (CBD, 2010)*

Strategic goal	Target
A. Addressing the underlying causes of biodiversity loss	1. Raising awareness
	2. Integration of biodiversity values into national development policies
	3. Elimination of harmful incentives and development of positive incentives
	4. Sustainable production and consumption
B. Reducing the direct pressures on biodiversity	5. Loss of natural habitats
	6. Sustainable fish harvesting
	7. Sustainable agriculture, aquaculture and forestry
	8. Pollution
	9. IAS
	10. Coral reefs and other vulnerable ecosystems
C. Safeguarding ecosystems, species and genetic biodiversity	11. Protected areas
	12. Threatened species
	13. Genetic diversity of cultivated plants and farmed animals
D. Enhancing benefits	14. Ecosystem services
	15. Conservation and restoration of carbon stocks
	16. Nagoya Protocol
E. Enhancing implementation	17. NBSAPs
	18. Indigenous and local communities
	19. Knowledge, science base and technologies
	20. Financial resources

targets, as part of its Strategic Plan 2011–2020 (Table 1.1). With this strategic plan, a second era started as attention shifted toward mainstreaming biodiversity in the most relevant policy domains and sectors, such as forestry and fisheries. However, most of these targets, again, were not met (CBD, 2010; 2020b) (also see Chapter 3).

The adoption of the United Nations Sustainable Development Goals (SDGs) in 2015 can be seen as the start of the third biodiversity governance era. Biodiversity concerns are well integrated into the SDGs (See SDG 14 and 15 in Table 1.2), and are part of a broader transformative change agenda for sustainability and environmental justice. The focus of biodiversity policy has thus broadened over time, and the call for transformative change now recognizes the need for deepening such efforts. In this third era, all three strategies are recognized as vital: stepping up protection and restoration of nature, broadening biodiversity efforts across society and deepening effects to enable transformative change (as elaborated in Section 1.3 below). With the COVID-19 pandemic, discussions on the urgency of such transformative change and changing our relationship with nature have further intensified (see e.g. Platto et al., 2020 and Chapter 5).

Despite growing societal and academic interest in transformative change, it is far from clear how to enable, achieve or accelerate transformative change for biodiversity. This book aims to provide and further develop a governance perspective on achieving such

Table 1.2 *The United Nations Sustainable Development Goals (SDGs) (UN, 2015)*

SDG	Topic
1	No poverty
2	Zero hunger
3	Good health and wellbeing
4	Quality education
5	Gender equality
6	Clean water and sanitation
7	Affordable and clean energy
8	Decent work and economic growth
9	Industry, innovation and infrastructure
10	Reduced inequality
11	Sustainable cities and communities
12	Responsible consumption and production
13	Climate action
14	Life below water
15	Life on land
16	Peace and justice, strong institutions
17	Partnerships to achieve the goals

transformative change. The book captures the state-of-the-art knowledge on transformative biodiversity governance and further explores its practical implications in various contexts and issues relevant for the long-term biodiversity policy agenda.

The book is written against the backdrop of the development of the Post-2020 Global Biodiversity Framework (GBF), the new global framework following the CBD Strategic Framework 2011–2020 and its Aichi targets. At the time of writing, the GBF was expected to be adopted in 2022 at the 15th Conference of the Parties of the CBD (COP15) in Kunming, China. COP15 was originally due to be held in 2020 but was postponed because of the COVID-19 pandemic. The GBF represents the guiding policy framework for biodiversity action across societies and governments, and, in our view, should provide a global answer to shaping transformative change in the multilateral system, and through implementation at the national and subnational levels by state and nonstate actors. We hope that the book will contribute to transformative action for biodiversity in the implementation of the Post-2020 GBF around the world over the coming years.

This first chapter is organized as follows. We first set the stage by providing an overview of the current state of biodiversity, causes of biodiversity loss and its implications. We then introduce the concepts of transformative change and governance. The two final sections explain the book's logic and organization, and provide an overview of the book.

1.2 The Problem of Biodiversity Loss and the Potential for Transformative Change

According to the Global Assessment of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES GA),[1] "nature, and its vital contributions to people, which together embody biodiversity and ecosystem functions and services, are deteriorating worldwide" (Díaz et al., 2019: 10). Most indicators of the state of nature are declining, including the number and population size of wild species, the number of local varieties of domesticated species, the distinctness of ecological communities and the extent and integrity of many terrestrial and aquatic ecosystems. Around one million species are threatened with extinction. Biodiversity in areas owned, managed or used by Indigenous People and local communities (IPLC) is declining less rapidly than elsewhere (Díaz et al., 2019).

This biodiversity loss has accelerated over the past fifty years (the period analyzed by the IPBES GA), and is caused by the following *direct drivers*: land and sea use change, with agricultural expansion representing the most important form of land-use change; direct exploitation, and especially overexploitation, of animals, plants and other organisms, mainly through harvesting, logging, hunting and fishing; climate change, which is becoming an increasingly important driver; pollution and invasive alien species. Land-use change is the main direct driver in terrestrial areas, and direct exploitation is the most important one in marine systems. These trends in nature and its contributions to people are projected to worsen over the coming decades, unevenly in different regions. These direct drivers are influenced by *indirect drivers*, or underlying causes, which can be demographic (e.g. human population dynamics), sociocultural (e.g. consumption patterns), economic (e.g. production and trade), technological, or relating to institutions, governance, conflicts and epidemics. These indirect drivers are underpinned by societal values and behaviors (Díaz et al., 2019).

Biodiversity issues are an integral part of broader sustainable development debates, and are intertwined with many other sustainability issues, including climate change. Humans depend on nature and biodiversity for human health through the production of food, medicines and clean water, among others, and the provision of natural resources, such as timber. Nature also provides regulatory ecosystem services that are vital for humans, including regulating air quality and climate. Nature is thus essential for achieving the SDGs, and biodiversity loss and ecosystem degradation will undermine progress toward the vast majority of the SDG targets, as the capacity of nature to provide these services has declined significantly over the last decades.

In this context, it is important to address biodiversity loss coherently with climate change mitigation and adaptation, since there are both synergies and trade-offs among biodiversity and climate change efforts. Limiting climate change to well below 2 degrees Celsius is crucial to reducing the impacts on nature and ecosystem services, but some large-scale land-based climate change mitigation measures, such as large-scale afforestation and

[1] This section relies strongly on the IPBES GA because it represents the most recent and comprehensive global assessment of biodiversity-relevant knowledge. Both authors were involved in the GA.

reforestation or bioenergy crop development, will have negative impacts on biodiversity. Other efforts, such as ecosystem restoration or avoiding and reducing deforestation, can provide synergies between climate and biodiversity goals (Díaz et al., 2019; Pörtner et al., 2021).

As discussed above, biodiversity policy has so far not been able to deliver the intended results, and it is clear that conservation efforts need to be improved, broadened and deepened: "Goals for conserving and sustainably using nature and achieving sustainability cannot be met by current trajectories, and goals for 2030 and beyond may only be achieved through transformative changes across economic, social, political and technological factors" (Díaz et al., 2019: 14). Explorative scenario-projections, covering a wide range of plausible socioeconomic pathways and biodiversity policies, indicate that global biodiversity will continue to decline, even under optimistic socioeconomic pathways oriented toward sustainability. Only specific solution-oriented scenarios that step up ambition levels in conservation and restoration, address indirect drivers of biodiversity loss and capitalize on nature-based solutions, which use nature to address societal challenges, are able to bend the curve while also mitigating climate change (Kok et al., under review; Leclère et al., 2020). However, many of the social dimensions of such scenario analyses require further attention to evaluate the equity implications of these future pathways (Ellis and Mehrabi, 2019; Mehrabi et al., 2018; Otero et al., 2020; Schleicher et al., 2019). Transformative change is thus urgently needed.

1.3 Understanding, Shaping and Delivering Transformative Change and Governance

1.3.1 Transformative Change

As accurately noted by Otsuki (2015: 1): "Current debates on sustainable development are shifting their emphasis from the technocratic and regulatory fix of environmental problems to more fundamental and transformative changes in social-political processes and economic relations." However, discussions on societal transformations are of course not new (see for a detailed overview of the literature on sustainability transformations Linnér and Wibeck [2019]). The concept of social transformation generally "implies an underlying notion of the way society and culture change in response to such factors as economic growth, war, or political upheavals" (Castles, 2001: 15). Often-named examples include the "great transformation" (Polanyi, 1944) in Western societies brought about by industrialization and modernization, or more recent changes such as decolonization (Castles, 2001).

Scoones et al. (2020) distinguish structural, systemic and enabling approaches to conceptualizing transformations, with structural approaches focused more on societal change, systemic approaches on transitions in specific socioecological systems, and enabling approaches on developing capacities for change. Others differentiate between discussions on transformations and transitions (Grin et al., 2010), with the former focused on societal change and the latter on change in subsystems (e.g. the food, energy or mobility systems). These two approaches are also rooted in different literatures (Hölscher et al., 2018;

Loorbach et al., 2017). In our view, all these different approaches can be seen as complementary (see Chapter 4 for a more elaborate overview of the literatures on transformations and transitions, and their governance).

Transformative change can be differentiated from incremental or gradual change, which often occurs as a result of disturbances and is often aimed at resolving problems without changing existing systems or structures, although there are incremental changes that can contribute to transformations (Termeer et al., 2017). Transformative change incorporates both personal and social transformation (Chaffin et al., 2016; Otsuki, 2015), and includes shifts in values and beliefs, and patterns of social behavior (Chaffin et al., 2016).

Burch et al. (2019) highlight that transformations can be studied analytically, normatively and critically. Although debates among academics and policymakers on transformative change toward sustainability have often remained rather apolitical, a more critical perspective has emerged that incorporates politics, power and equity issues in the debates on transformation (see e.g. Chaffin et al., 2016; Lawhon and Murphy, 2012). Transformations include the making of "hard choices" by decision-makers (Meadowcroft, 2009: 326). Blythe et al. (2018) highlight the potential risks of apolitical approaches to transformative change, arguing that consideration of the politics of transformative change is necessary to address these risks, which include: shifting the burden of response onto vulnerable parties; the transformation discourse may be used to justify business-as-usual, pays insufficient attention to social differentiation and excludes the possibility of non-transformation or resistance; and insufficient treatment of power and politics can threaten the legitimacy of the discourse of transformation. In this book we recognize these risks and actually place them center stage by focusing on the governance of and for such transformations.

The IPBES GA defines transformative change as a fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values (Díaz et al., 2019). Building on this definition, we here define *transformative change* as follows:

> a fundamental, society-wide reorganization across technological, economic and social factors and structures, including paradigms, goals and values.

With this renewed definition, we emphasize changes in generic, societal structures. Such a society-wide transformation encompasses transitions in specific subsystems or sectors, and is necessary, since current societal structures inhibit sustainable development – they actually represent the underlying causes of biodiversity loss. Thereby, transformative change addresses both generic societal underlying causes and underlying causes in specific transitions (see Chapter 4 for an extensive discussion on the relationships between transformations, transitions, transformative change and transformative governance).

Transformative solutions are often synergistic: By focusing on the indirect drivers, they simultaneously address multiple sustainability issues, since the same indirect drivers simultaneously cause various problems. An example is the development of healthy and sustainable food systems, including through reducing production and consumption of animal products (especially in developed and newly industrialized countries), which can support progress on the majority of SDGs, and also addresses animal interests (Visseren-Hamakers, 2020). With this emphasis on the societal underlying

causes of environmental problems, environmental policy becomes less "environmental" and increasingly integrated into mainstream policy and politics, becoming an integral part of discussions on the economy, innovation, development and societal values (also see Biermann, 2021).

While this book is focused on transforming biodiversity governance, we explicitly reflect on this issue as embedded in discussions on transformative change toward sustainability more broadly. We do so because biodiversity and other environmental and social justice issues are interwoven, and broader societal transformations are necessary to address all of these sustainable development issues.

1.3.2 Transformative Governance

While a burgeoning literature discusses transformative change, less research investigates how to govern such transformations (Chaffin et al., 2016; Patterson et al., 2017), and very few authors have specifically used the concept of transformative governance (Chaffin et al., 2016; Colloff et al., 2017; Visseren-Hamakers et al., 2021). Chaffin et al. (2016: 400) define transformative environmental governance as "an approach to environmental governance that has the capacity to respond to, manage, and trigger regime shifts in coupled socio-ecological systems at multiple scales." It thus has the capacity to shape nonlinear change. An important literature related to transformative governance is work on "transition management," defined as "the attempt to influence the societal system into a more sustainable direction, ultimately resolving the persistent problem(s) involved" (Grin et al., 2010: 108). The thinking on governing transformative change has thus so far focused on systemic – and not necessarily societal – change.

Hence, there is a difference between the concepts of transformative change and transformative governance, with change referring to the actual shift and governance to "steering" the shift, although some authors do not clearly differentiate between the two concepts (e.g. Chaffin et al., 2016). An important question is the extent to which the shift can actually be governed (Meadowcroft, 2009), with some authors noting that transformative sustainable development "is a contingent and creative process, which cannot be readily planned" (Otsuki, 2015: 4). Chaffin et al. (2016) list several constraints and opportunities for transformative governance, with constraints including: entrenched power relations, capitalism and dominant economic and political subsystems, and cognitive limits of humans; and opportunities including: law, formal institutions and governmental structure, previous success of adaptive governance, and human agency and imagination (Chaffin et al., 2016: 411). Interestingly, all of these opportunities and constraints are part of the underlying causes of biodiversity loss that need to be addressed through transformative change.

Transformative governance is deliberate (Chaffin et al., 2016), and inherently political (Blythe et al., 2018; Patterson et al., 2017), since the desired direction of the transformation is negotiated and contested, and power relations will change because of the transformation (Chaffin et al., 2016). Current vested interests (including in dominant technologies) are expected to inhibit, challenge, slow or downsize transformative change, among others, through "lock-ins" (see e.g. Blythe et al., 2018; Chaffin et al., 2016; Meadowcroft, 2009).

Transformative governance is about framing and agenda setting, and requires leadership, financial investment and capacity for learning. Also, the change needs to be increasingly institutionalized (Chaffin et al., 2016).

Literature on earth system governance has explored different ways of conceptualizing the governance of transformations. Burch et al. (2019) and Patterson et al. (2017) differentiate between the following conceptualizations of governing transformations:

- Governance for transformations (i.e. governance that creates the conditions for transformation to emerge from complex dynamics in socio-technical-ecological systems),
- Governance of transformations (i.e. governance to actively trigger and steer a transformation process),
- Transformations in governance (i.e. transformative change in governance regimes).

Based on these insights and earlier definitions on environmental governance (Biermann et al., 2010), we here define *transformative governance* as:

> The formal and informal (public and private) rules, rule-making systems and actor-networks at all levels of human society (from local to global) that enable transformative change, in our case, towards biodiversity conservation and sustainable development more broadly
>
> *(Visseren-Hamakers et al., 2021: 21)*

Since governing transformative change is inherently difficult because of its political character, transformative governance needs to take on board various lessons learned from the governance literature. We therefore propose that, based on Visseren-Hamakers et al. (2021), transformative governance includes five governance approaches, namely: integrative, inclusive, transdisciplinary, adaptive and anticipatory governance, which are based on various niches in the governance literature. These governance approaches have been studied separately in detail, and in the literature on sustainability transformations combinations of these approaches are often recognized as important (Linnér and Wibeck, 2019). We hypothesize that governance can only become transformative when the five governance approaches are (Visseren-Hamakers et al., 2021):

a) focused on addressing the underlying causes of unsustainability;
b) implemented in conjunction; and
c) operationalized in the following specific manners.

Thereby, in order to be transformative, governance needs to be:

1. *Integrative*, operationalized in ways that ensure solutions also have sustainable impacts at other scales and locations, on other issues and in other sectors (see e.g. Castán Broto et al., 2019; Chaffin et al., 2016; Visseren-Hamakers, 2015; 2018a; 2018b; Visseren-Hamakers et al., 2021; Wagner and Wilhelmer, 2017);
2. *Inclusive*, in order to empower and emancipate those whose interests are currently not being met and who represent values that constitute transformative change toward sustainability (see e.g. Biermann et al., 2010; Blythe et al., 2018; Chaffin et al., 2016; Li and Kampmann, 2017; Meadowcroft, 2009; Otsuki, 2015);

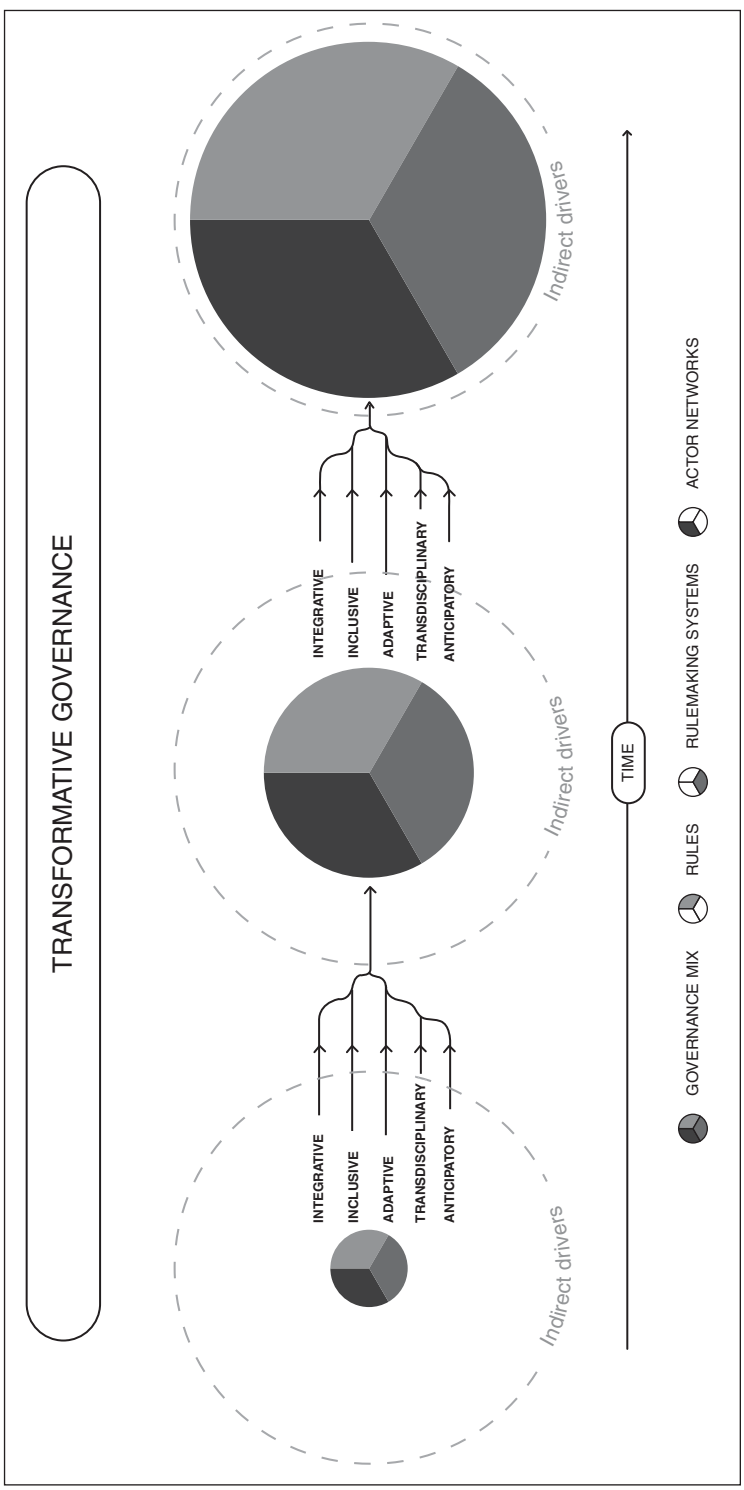

Figure 1.1 Transformative governance
Governance (including rules, rulemaking systems and actor networks) becomes transformative if integrative, inclusive, adaptive, transdisciplinary and anticipatory governance approaches are: 1) implemented in conjunction; 2) operationalized in a specific manner; and 3) focused on addressing the indirect drivers underlying sustainability issues. Over time, governance then becomes increasingly capable of addressing the indirect drivers (as indicated by the growth of the governance mix from left to right, i.e. over time). (adapted from Visseren-Hamakers et al., 2021).