Utrecht University

BIODIVERSITY, A 'REGRETTABLE' 'SOLUTION' FOR CLIMATE CHANGE?

A DISCOURSE ANALYSIS ON THE GOVERNING OF BIODIVERSITY BY TRANSNATIONAL CLIMATE INITIATIVES

Master Thesis – Master 'Sustainable Development' (30 EC)

Track: Earth System Governance

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20-07-2021

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Acknowledgements

It is my pleasure to present to you my MSc thesis about the governing of biodiversity by TCI. Accordingly, I would like to express my gratitude to my supervisor Harriet Bulkeley, for sharing her expertise and providing me with helpful insights, which contributed greatly to this thesis. Furthermore, I was really impressed by her written work, which is reflected in the numerous citations of her work in this study.

Additionally, I would like to thank Marcel Kok from the PBL Netherlands Environmental Assessment Agency for his contribution. He shared helpful insights in the domain of transnational biodiversity governance, and provided me with the database which was employed in this study.

Lastly, I would like to thank Michel Foucault for his analytical work which not only enabled the criticize-ability of this study, but also taught me a valuable critical lens which shows that things are less obvious as they seem:

'[criticism] consists in uncovering that thought and trying to change it: showing that things are not as obvious as people believe, making it so that what is taken for granted is no longer taken for granted. To do criticism is to make harder those acts which are now too easy' (Foucault, 2000b, p. 456)

Abstract

The loss of biodiversity is argued to be among the largest environmental problems today as it impairs the long-term viability of the world's ecosystems. In order to halt this complex problem, it is increasingly argued that there is a need to move away from 'cockpit-ism' and instead include a broader range of actors. This recognized potential of non-state actors sheds light on another challenge, in which there is increasingly attention drawn to nature by actors operating outside the biodiversity domain – notably in terms of Nature-Based Solutions (NbS). Biodiversity or nature are here constructed as potential 'solutions' for a range of issues, such as climate change. However, framing nature or biodiversity as a 'solution' or 'service' for issues such as climate change, will result in certain biodiversity aspects to be overlooked or downplayed. Nevertheless, there are notable gaps in the understanding of framing and governing of biodiversity by actors operating outside the classic biodiversity domain. Especially interesting are the actors who already derived 'legitimacy to act' for being proactive on climate change and are increasingly entering the biodiversity arena - Transnational Climate Initiatives (TCI). Therefore, this research aims to get a better understanding in how biodiversity is framed and governed by TCI by performing a discourse analysis. This research draws on a governmentality lens of Michel Foucault which assists in assessing how TCI define the problem of biodiversity (so-called 'rationalities) and how these are governed through techniques and accordingly, how they generate the authority to exert their influence. This research reveals two overarching rationales of biodiversity as a means to climate change and biodiversity loss as 'risk' which are rendered governable through a myriad of techniques, such as standards, tools and guidelines. Through the 'taken-for-granted' and habitual nature of these rationales and techniques, these TCI gain authority to exert their influence. However, a governmentality lens points to several dangers in constructing biodiversity as 'extended administrative domain' of climate change in which biodiversity is reduced to their function or service they have for combatting climate change. Consequently, this study argues that framing and constructing biodiversity in terms of 'services' or 'solutions' could turn into a dangerous, 'regrettable solution'.

Key concepts: Biodiversity; Governmentality; Transnational Governance; Transnational Climate Initiatives (TCI); Discourse Analysis

‘my point is not that everything is bad, but that everything is dangerous, which is not exactly the same as bad. If everything is dangerous, then we always have something to do. So my position leads not to apathy but to a hyper- and pessimistic activism’ (Foucault, 1984, p. 343).

Table of content

List of abbreviations

CBD - Convention on Biological Diversity

COP - Conference of the Parties

CPR - Common Property Regimes

EC – European Commission

ESS – Ecosystem Services

IPBES - Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

IPCC – Intergovernmental Panel on Climate Change

IUCN - International Union for the Conservation of Nature

MRV - Measurement, Reporting and Verification

NbCS - Nature-based Climate Solutions

NbS – Nature-Based Solutions

NBT - Nature-Based Thinking

NCP - Nature's Contributions to People

NCS – Natural Climate Solutions

PES - Payments for Ecosystem Services

REDD+ - Reducing Emissions from Deforestation and Forest Degradation

SDG - Sustainable Development Goals

TCI – Transnational Climate Initiatives

UN – United Nations

UNEP - The United Nations Environment Programme

UNFCC - UN Framework Convention on Climate Change

Chapter 1 - Introduction

1.1 Background information

The loss of biodiversity is argued to be among the largest environmental problems today as it impairs the long-term viability of the world's ecosystems (Beumer & Martens, 2013). Biodiversity – the diversity of ecosystems, between species and within species – is rapidly decreasing (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 2019). Around one million species are at risk of extinction, and extinction rates are still accelerating (IPBES, 2019). Drivers of biodiversity loss are diverse, ranging from climate change, invasive species, land use changes for agriculture to landscape fragmentation caused by urbanization. Furthermore, these causes are interconnected with multiple economic, societal and cultural conditions. As a result, biodiversity loss is classified as a 'wicked, persistent and complex problem' (Beumer & Martens, 2013, p. 3105).

Since the Convention on Biological Diversity (CBD) in 1992, successive government-led attempts have been unable to halt this wicked and complex problem (Van den Burg & Bogaardt, 2014). As a result, there is a need to move away from this 'cockpit-ism' – the perspective that top-down steering 'by governments and intergovernmental organisations alone can address global problems' – and include a broader range of actors (Hajer et al., 2015, p. 1652). This request to involve non-state actors is reflected in more recent agreements, such as the launched 'Action Agenda for Nature and People' in 2018 (Kok et al., 2019; Pattberg et al., 2019).

This recognized potential of non-state actors sheds light on another challenge, in which there is increasingly attention drawn to nature by actors operating outside the biodiversity domain – notably in terms of Nature-Based Solutions (NbS). This NbS narrative focuses on actions which 'are inspired by, supported by or copied from nature' (European Commission (EC), 2015, p. 5). It is increasingly argued that nature could be promoted 'as a means for providing solutions to climate mitigation and adaptation challenges' (Nesshöver et al., 2017, p. 1216), or that biodiversity is at 'the heart of climate solutions' (Seddon et al., 2019, p. 87). Attention is directed towards combining biodiversity with the mitigation and adaptation of climate change, increasing the relevance to study whether and how actors outside the classic biodiversity domain are approaching biodiversity. Especially interesting are the actors who already derived 'legitimacy to act' for being proactive on climate change and are increasingly entering the biodiversity arena - Transnational Climate Initiatives (TCI) (Okereke et al., 2009). Whereas many scholars have reflected on how a broad network of transnational actors contribute to halt biodiversity loss, how actors outside this classic biodiversity arena are tackling biodiversity loss remains unknown (Pattberg et al., 2019; Kok et al., 2019). Therefore, there is a need to examine how these actors outside the biodiversity arena are approaching biodiversity.

1.2 Problem definition

Constructing biodiversity or nature as a 'solution' or 'service' for other issues such as climate change, could have severe implications for biodiversity. For instance, framing biodiversity in terms of 'services' and 'solutions' has a performative effect on our thinking, which directs our attention away from contributions of nature that are not argued to be a service or solution (Randrup et al., 2020; Ernstson & Sörlin, 2013). As illustration, using trees and ecosystems for their 'carbon storage' could draw the attention away from the need to conserve these native biodiverse ecosystems (Seddon et al., 2021). Following a constructivist perspective, assumptions about nature and human-nature relationships 'define the way conservation practices are envisioned and produced' (Beumer & Martens, 2013, p. 3106). In other words, the framing of biodiversity as a solution for climate change will result in certain biodiversity aspects to be overlooked or downplayed (Uggla, 2018). This will not be without consequences as the way biodiversity is framed determines the solutions which will be practiced

(Elliott, 2020). Therefore, it is increasingly relevant to study these assumptions hidden in practices and discourses (Beumer & Martens, 2013).

Discourse analysis is useful in studying these hidden assumptions, especially in the domain of environmental politics where framing is argued to be decisive (Litfin, 1994; Hajer & Versteeg, 2005). A myriad of discourses concerning the kind of nature-society relationships have been identified in environmental politics (Bäckstrand & Lövbrand, 2006; Clapp & Dauvergne, 2011; Fletcher, 2010; Goldman, 2001; Hajer, 1995; Lövbrand et al., 2009). Discourse analysis has been used to analyse the evolution of framing of biodiversity governance (Nilsson, 2011), European Union Policy (Uggla, 2018) and IPBES (Borie & Hulme, 2015), though there are notable gaps in the understanding of framing and governing of biodiversity governance by actors outside the biodiversity domain.

Additionally, whereas these studies shed light on the framing of biodiversity, there are notable gaps in the understanding what this framing means in terms of action. An analytical lens which enables the examination of this interlinkage between framing and actions, is the governmentality lens developed by Michel Foucault. According to this governmentality lens, scholars need to study how problems are framed (so-called 'rationalities') and how these are enacted and governed through technologies of the government (Lovell & Mackenzie, 2011; Dean, 1999). Following a Foucauldian approach, governance is not regarded as a set of actors and institutions, but rather 'in terms of the specific modes of power through which governing is conducted and the processes and practices through which this takes place' (Bulkeley, 2015, p. 8).

Subsequently, if governance is argued to be 'a specific means through which power is articulated, at its heart lies the working of authority' (Bulkeley, 2015, p. 54). In fact, the success of TCI in governing biodiversity is argued to depend on their capacity to generate authority (Hajer, 2009). As these transnational arrangements have a lack of traditional forms of authority, the rise of these TCI raises interesting questions in how they govern biodiversity without the presence of formal kinds of authority of state sovereignty and international law (Bulkeley et al., 2014). However, there have been relatively few attempts to analyse 'what being authoritative means in a transnational sense' (Bulkeley & Jordan, 2012, p. 561). A governmentality lens which focuses on how authority is generated, and especially through what kinds of rationales and techniques, will assist in resolving this knowledge gap (Bulkeley et al., 2014). All in all, by employing a governmentality lens, this research assesses how TCI define the problem of biodiversity, its solutions and accordingly, how they generate the authority to exert their influence (Lovell & MacKenzie, 2011). By examining the framing and governing of biodiversity by TCI, this research aims to move beyond biodiversity as an issue which needs to be governed, but rather critically asks 'how it comes to be constituted as requiring intervention, how this is mobilized, sustained and contested' (Bulkeley, 2015, p. 4).

1.3 Research aim and questions

This research aims to generate a better understanding in how biodiversity is framed and governed by TCI. This will be done by firstly exploring a broader sample of TCI in order to study how they in general frame and govern the issue of biodiversity, which will assist in revealing overarching rationalities and accompanied techniques. Secondly, six initiatives will be studied in-depth in order to examine how these rationalities and techniques are practiced. Accordingly, the consequences of the framing and governing of biodiversity by TCI can be discussed. Additionally, this study will shed light on the level of variation in terms of rationalities and techniques amongst TCI. Lastly, the employed rationalities and techniques will shed light on how novel forms of authority are generated which enables them to exert their influence**.** Consequently, the research question states: *'How is biodiversity framed and governed by Transnational Climate Initiatives?'*

1. What kinds of rationalities and techniques are used to govern biodiversity by Transnational Climate Initiatives, and with what consequences?

2. To what extent do these rationalities and techniques vary across Transnational Climate Initiatives?

3. To what extent do these rationalities and techniques generate forms of authority amongst Transnational Climate Initiatives to govern biodiversity?

1.4 Research framework

In this study, a two-level content analysis will be performed. Figure 1.1 shows the steps which need to be taken to answer the main research question. The research will start with a literature review and a case selection of 20 TCI based on a database which is provided by the PBL Netherlands Environmental Assessment Agency (Negacz et al., 2020). This will be followed by two phases of content analysis: an explorative content analysis of 20 TCI and an in-depth content analysis of 6 TCI. Based on the gathered secondary data, a comparative content analysis will be performed. Lastly, the acquired deeper understanding of the framing and governing of biodiversity by TCI will be translated in implications for biodiversity governance and accordingly, a discussion and conclusion.

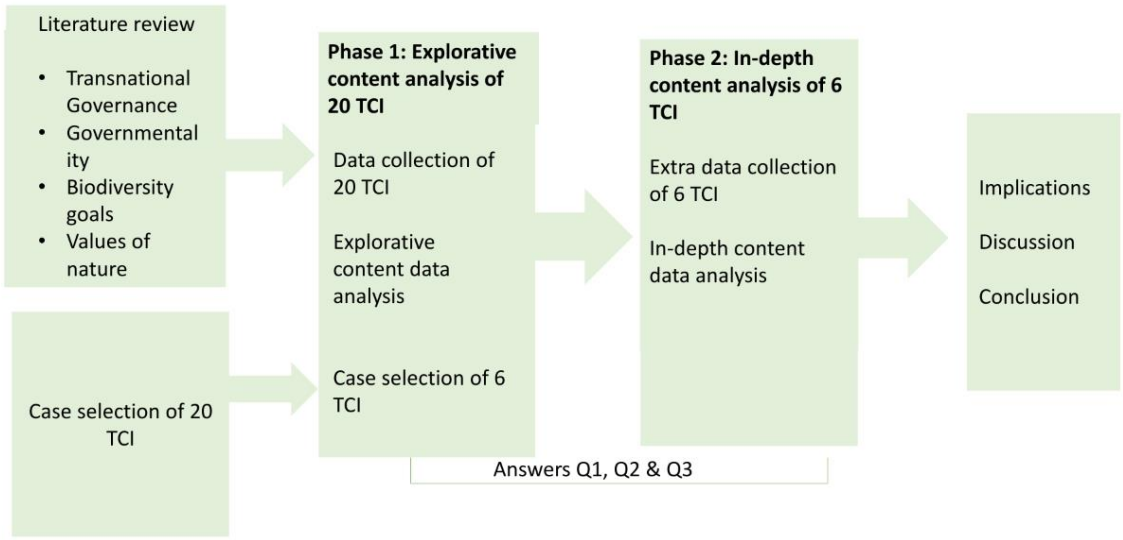


Figure 1.1: Research framework

1.5 Scientific relevance of the research

This research connects to the literature on biodiversity governance. This research aims to fill the defined knowledge gap: assessing the framing and governing of biodiversity by TCI.

More specifically, this research connects to the analysis of discourses in biodiversity governance. Several scholars analysed the framing of human-nature relations in the context of biodiversity issues. For instance, Borie & Hulme (2015) discuss that competing framings and discourses can be found in global biodiversity governance. Furthermore, Nilsson (2011) assessed the evolution of framing of biodiversity governance over time and concludes that the framing of biodiversity has shifted several times. This research adds to these studies as it assesses the framing of biodiversity through a governmentality lens, which enables to study the link between framing and actions through the examination of rationalities and techniques. Whereas biodiversity governance has been frequently studied from a governmentality perspective (e.g. Avron, 2017; Bryant, 2002; Fletcher, 2010; Nøhr,

2011; Turnhout et al., 2014; Waage & Benediktsson, 2010), research on how actors outside this classic biodiversity arena are tackling biodiversity loss remains unknown.

Overall, this research adds methodologically to the field of Sustainable Development by applying a method which contributes in revealing the embeddedness of language in practice (Hajer & Versteeg, 2005). This research will show how insights from governmentality can advance the understanding of theorizing biodiversity governance by TCI. Accordingly, this research fits within the normative analytical theme within the research program of the Environmental Governance group by taking an innovative approach in seeing power in facilitative and immanent terms, as mutually and relationally constituted, rather than seeing power as a held and finite capacity, the 'who gets what, where and how' (Bulkeley, 2015; Okereke et al., 2009, p. 62).

1.6 Societal relevance of the research

The proposed research project addresses the fundamental need for action on biodiversity. Biodiversity loss could harm the long-term viability of the world's ecosystems which could have disastrous consequences for society (Beumer & Martens, 2013). Not only has biodiversity loss accelerated over the last decades, climate change could lead to an accelerating rate of species loss as well (Rockström et al., 2009). In fact, Platto et al. (2020) argue that the loss of biodiversity in ecosystems created the conditions which favoured the all-disrupting insurgence of the COVID-19 pandemic.

Additionally, this research is particularly timely as currently negotiations for the strategy for the Post-2020 Global Biodiversity Framework are taking place after its postponement due to the COVID-19 pandemic. Whereas the postponing of this Post-2020 Global Biodiversity Framework could lead to a loss of momentum, it could also be the case that the pandemic results in a renewed urgency to tackle biodiversity loss. The UN Biodiversity Conference at the end of 2021 in China will show whether biodiversity has lost momentum or is gaining urgency in light of the current circumstances.

From a constructivist perspective, the way people think about a problem determines which solutions will be practiced (Elliott, 2020). Consequently, a lack of understanding of this framing will have severe implications for the governing of biodiversity. Insights derived from this study could contribute to the knowledge on biodiversity governance, which is required in order to shift more resilient, biodiverse societies. Therefore, this research aims to contribute to the on-going debate on how to halt biodiversity loss in a dynamic, complex, global socio-ecological system.

Chapter 2 – A set of lenses: Transnational governance and Governmentality

This research is underpinned by the two conceptual lenses of transnational governance and governmentality. Firstly, a conceptualization and typology of transnational governance will be given. Secondly, the governmentality lens will be discussed. This will be followed by a conceptual interrogation of both lenses. Together with Chapter III on biodiversity, its goals and values of nature and accompanied biodiversity rationalities and techniques, these will provide the theoretical basis for this research.

2.1 Transnational Governance

Governance, can be referred to 'as a social function centered on efforts to steer or guide societies toward collectively beneficial outcomes and away from outcomes that are collectively harmful' (Young, 2009, p. 12). Governing then 'implies a focus on how collective action is organised and conducted' (Bulkeley et al., 2007, p. 2734). Biermann et al. (2017) argue that governance includes both traditional activities by governmental actors and actions by nongovernmental actors 'as long as these activities include a claim to authority, have some legitimacy, and are designed to steer behaviour' (Biermann et al., 2017, p. 75). While there are debates 'regarding the exact boundaries of what counts as governance, there is general agreement that authority and steering are its two core components' (Biermann et al. 2017 p. 75). For Andonova et al. (2009), the presence of mutual recognition of authority distinguishes governance networks 'that *influence* the creation and operation of governance institutions but are not recognized as authoritative' (p. 56) and those that *govern* 'in the sense of bringing together a sufficient marriage of power and legitimacy to establish, operationalize, apply, enforce, interpret, or vitiate the [network's] behavioural rules' (Conca, 2005, p. 190, as cited in Andonova et al., 2009).

Moreover, governance can be argued to be a public matter (Bulkeley, 2015). This public nature of governance can be attained through the public character of the actors and institutions included, or through the kinds of goals or problems which it aims to act upon (Bulkeley, 2015). Andonova et al. (2009) argue that in governance, steering occurs towards certain behaviour or goals, which are targeted at the public domain. The public domain can be referred to as a domain where 'expectations regarding legitimate social purposes, including the respective roles of different social sectors and actors, are articulated, contested, and take shape as social facts' (Ruggie, 2004, p. 504). Climate change as well as biodiversity are often framed as a 'public goods problem' or 'collective action' problem in which 'the causes are distributed and the benefits of action are shared' (Bulkeley, 2015, p. 128). In turn, the 'publicness' does not result from the involved actors, but from the location of the actor within the public domain, such as climate change or biodiversity (Andonova et al., 2009; Bulkeley et al., 2012).

Accordingly, governance differs from other forms of power such as coercion or persuasion because it involves the legitimate use of power (Bulkeley et al., 2014; Bulkeley, 2015; Allen, 2003). Subsequently, governing can also be understood as 'a specific means through which power is articulated' (Bulkeley, 2015, p. 54). In this perspective, the two core components - authority and steering – function as different forms of power. If governance is argued to be 'a specific means through which power is articulated, at its heart lies the working of authority' (Bulkeley, 2015, p. 54). A claim of authority is an essential feature of governance – ''to govern' is to rule with authority, that is, to rule with some basis'' (Dean, 2007, p. 36). Authority as one form of power, is defined as 'the rightful governance of human action by means other than coercion or persuasion' (Litfin, 2000, p. 123). Therefore, by thinking about authority, the concept of legitimacy arises. A common way of thinking about these terms 'is that authority presupposes legitimacy' (Bulkeley et al., 2014, p. 136). Authority,

is conventionally referred to as sitting between ideas of power and legitimacy, and are understood by Weber 'as the condition in which power is married to legitimacy' (Hurd, 1999, p. 400; Conca, 2005). Therefore, Bulkeley (2015) argues that the study of power enables the analysis of authority. Allen (2004) argues that 'power relationships are exercised through a variety of different modes, each of which is constituted differently in space and time' (p. 25). In other words, power is created and located through its geographies (Bulkeley, 2015). As a result, analysing governance is 'not a matter of identifying the particular institutions or territories', but rather the orchestration of power 'through complex geographies' (Bulkeley, 2015, p. 49).

This orchestration of power through 'complex geographies' is reflected in a plurality of means of how governance is employed. Governance is increasingly thought of as a global phenomenon which includes 'both the co-ordination of states and the activities of a vast array of rule systems that exercise authority in the pursuit of goals and that function outside normal national jurisdictions' (Rosenau, 2000, p. 178). These forms of global environmental governance, which is characterized by its multi-modal, multi-actor and fragmented nature, has implications for dimensions of power and authority (Bulkeley, 2015; Biermann & Pattberg, 2008). Bulkeley (2015) argues that the legitimacy of the state is fading due to the complexity of today's challenges, which is illustrated by the complex issues of biodiversity loss and climate change, resulting in the need for other forms of governing and the involvement of new actors. Moving outside these traditional national jurisdictions, resulted in myriad of studies towards new forms of governing 'beyond', 'below' and 'outside' these traditional state governance regimes (Jordan & Huitema, 2014, p. 388; Bulkeley, 2015). Interestingly, this shift in governance does not imply that the state is not involved, but it rather expresses a new means of governing 'through which states seek to achieve their effects' (Bulkeley & Jordan, 2012, p. 564). Concepts emerged to capture these more 'plural means' through which governance is enacted, such as 'meta-governance' (Jessop, 2005), 'modes of governance' (Driessen et al., 2012) and 'modes of steering' (Bulkeley et al., 2007). Nonetheless, all of these approaches direct attention towards governing beyond the state or 'government', towards an interpretation of governing by multiple actors and across multiple domains (Bulkeley et al., 2007).

Seeing governance as such a multi-level phenomenon entails a shift towards actors operating 'beyond', 'below' and 'outside' this traditional regime such as cities and regions, non-state actors and accordingly the central actor of this study - transnational networks (Bulkeley et al., 2007). These transnational networks include arrangements that 'work across the boundaries of nation-states and between public and private actors' (Bulkeley, 2012, p. 2434). Accordingly, this study employs the definition of Andonova et al. (2009) in which they suggest that transnational governance can be identified '*when networks operating in the transnational sphere authoritatively steer constituents towards public goals'* (p. 56). These networks as specific means of governing are in particular interesting as they are orchestrating power through issues as biodiversity through 'complex geographies' – highlighting the need to examine how these transnational networks are authoritatively steering constituents to the public goal of biodiversity.

2.1.1 Towards a typology of transnational governance

As transnational governance is a multifaceted, complex concept, typologies can assist in identifying the different components and assessing the interplay between these elements (Andonova et al., 2009). Several scholars developed databases in which they contributed to the systematic mapping of these typologies and identification of variation among initiatives (Andonova et al., 2009; Bulkeley et al., 2014; Hoffmann, 2011; Roger et al., 2017; Widerberg & Stripple, 2016). Different typologies in terms of actors, governance functions and arrangements exist which assist in structuring the complex concept of transnational governance.

In terms of actors, different typologies reflect on the type of actors involved. Firstly, Andonova et al. (2009) distinguish between public, hybrid and private transnational governance networks. Public transnational governance networks are established and controlled by and for public actors. In contrast, private transnational governance networks are initiated and managed by solely non-state actors. Lastly, in hybrid transnational governance networks both public and private transnational actors are included (Andonova et al., 2009). Furthermore, Abbott & Snidal (2009) created a 'governance triangle' in which actors are placed based on their constituents´ actors (public, firm and civil society organization) in transnational governance. Interestingly, Roger et al. (2017), who also distinguish between public, hybrid and private schemes, show that while initially public actors dominated within TCI, after 1998 private TCI initiatives grew to be the largest variety of TCI.

Several typologies exist in analysing the functions of these initiatives as well. Abbott & Snidal (2009) distinguish between the functions of financing, standards & commitments, operational activities and information & networking (applied by e.g. Abbott, 2012; Pattberg et al., 2019; Roger et al., 2017; Widerberg et al., 2016). Hoffmann et al. (2011) discuss the core functions of networking, planning, action and oversight. Furthermore, Marcussen & Toring (2003) argue that governance networks could govern in terms of the following four types: normative, cognitive, identity construction and regulative. Pattberg (2007) distinguishes between regulative, cognitive, discursive and integrative governance functions within private governance networks. Accordingly, Andonova et al. (2009) build upon this work and develop another commonly used typology to distinguish transnational networks. This typology, differs according to Andonova et al. (2009) from other approaches which mainly focus on the changing structure of governance processes. Andonova et al. (2009) refer to Sending & Neumann (2006), who argue that the literature mainly emphasizes 'the types of actors involved and the authority they are able to bring to bear, as opposed to the substance of the processes of governance that flows from such authority' (p. 654). Therefore, this approach of Andonova et al. (2009) aligns with the aim of this study to examine how the governing of biodiversity by TCI takes place.

Accordingly, Andonova et al. (2009) distinguish several governance functions, which range from the function of information-sharing, capacity building or implementation to the function of rule-setting. They argue that first of all, information sharing is central in transnational governance, as information is the main resource that steers constituents in the network. Andonova et al. (2009) argue that information sharing becomes a governance function when it is authoritative and directs constituents through processes of consensus building, norm diffusion or changing practices. Furthermore, they argue that capacity building and implementation include networks which arrange resources which allow action to take place, such as monitoring, finance, expertise, labour or technology. Andonova et al. (2009) argue that capacity building and implementation is more than a transferal of practices but rather 'a process entangled with negotiation over rights and responsibilities and struggles over the nature of the problem and its appropriate solutions' (p. 64). Lastly, the function of rule-setting concerns a set of norms and rules which directs constituents of the network. Andonova et al. (2009) argue that this function imitates – through alternative arrangements of authority - more traditional governance systems of international or domestic law. They argue that this rule-setting function of transnational governance networks could co-exist with intergovernmental or domestic law, or could function as a substitute for missing rules from the international or domestic domain. Bulkeley et al. (2014) broaden these governance functions towards information sharing, capacity building, rule-making and the function of target setting and the provision of funding. With the selection of these functions, they aim to include the varied ways of how transnational initiatives govern in terms of forms of regulation and through capacity building. In order to build capacity, Bulkeley et al. (2014) argue that the provision of funding and direct forms of actions such as the development of new technologies, is also relevant to study. They propose to disaggregate the category of regulation into the functions of

monitoring or certification, inclusion of targets and installing specific rules for members of the initiatives (Bulkeley et al., 2014). Interestingly, Bulkeley et al. (2014) found that capacity building (88%) and information sharing (93%) were the most regular functions, followed by forms of direct action (60%) and forms of target setting (60%). Furthermore, they argue that most initiatives have some monitoring, target or rule-setting in their functions (75%). This is similar to the findings of Roger et al. (2017), who argue that the TCI they researched were largely focused on information and networking schemes. Interestingly, this aligns with the study of Negacz et al. (2020) on transnational biodiversity governance, who argue that the key function of initiatives is information sharing and networking (60%), followed by operational activities (33%) and standards and commitments (26%).

While these functions help to distinguish different typologies of networks, many transnational governance networks will undertake several functions at the same time (Bulkeley et al., 2012). In fact, Andonova et al. (2009) argue that all types will contain some information sharing as this function assists rule-setting activities and capacity-building and implementation. Furthermore, Bulkeley et al. (2012) hypothesize that the cluster of functions may be more relevant to study than analysing them in isolation. Therefore, it could be questioned whether the study of these single categories will satisfy the study of governing of biodiversity by TCI, or that another approach could deepen this analysis. In fact, the dominance of information sharing and capacity building could imply that the initiatives 'all seek to shape the subjectivity of those they govern' (Bulkeley et al., 2012, p. 605). Bulkeley et al. (2012) argue that one possibility is that 'by changing the informational context and the resources available to actors, they seek to ensure that actors internalize more deeply norms about how to act on climate change' (p. 605). Accordingly, they argue that this aligns with the governmentality concept which sheds light on the given that information sharing and capacity building facilitate the governing of the issue. When governing is defined as 'a matter of shaping the conduct of constituents through establishing new norms and practices', the concept of governmentality emerges - an interesting conceptual lens which will deepen and extend this conceptual discussion on governance functions in the next section (Bulkeley et al., 2012, p. 596).

2.2 Bringing governmentality to the study of transnational governance

Whereas the governance lens employed by Andonova et al. (2009) assists in analysing how the governing of biodiversity by TCI takes place, there is a need for an approach which does not solely focuses on governance, as this 'cannot capture the elements of multiplicity with which analysts of contemporary polities should be concerned' (Bulkeley et al., 2007, p. 2739). Instead, there is a need to examine 'how and why these structures are being produced' (Whitehead, 2003, p. 6; Bulkeley et al., 2007). In fact, the term 'transnational' highlights the goal to exert influence over extensive distances and therefore requires a 'topological' understanding of power (Kortelainen & Albrecht, 2013). Power topologies 'come into play when the reach of actors enables them to make their presence felt in more or less powerful ways that cut across proximity and distance' (Allen, 2011, p. 284). In this sense, power is not something what an actor already has, but it is rather 'it is a dispersed and relational phenomenon generated through practices' (Kortelainen & Albrecht, 2013, p. 146). Accordingly, studying the 'art of governing at a distance' in terms of transnational networks requires a framework which allows to study this relational nature of power: governmentality. A governmentality approach 'considers extensively the modes of government that function at a distance from the places where power makes itself felt and visible' (Uitermark, 2005, p. 146). Bulkeley et al. (2007) suggest that the concept of governmentality offers an alternative conceptual ground to explore how governing takes place. Consequently, when there is a need to deepen the analysis of how biodiversity is governed by TCI, the concept of governmentality arises.

Linking the words of *governing* and *mentality*, generally speaking ''*governmentality'* deals with how particular mentalities – ways of thinking and acting – are invested in the process of governing'' (Stripple & Bulkeley, 2013, p. 9). In governmentality, developed by Michel Foucault, governance is seen as the ways in which power is contested and orchestrated (Bulkeley, 2015). Power is not seen as a finite capacity, but rather as mutually and relationally constituted (Bulkeley, 2015; Bulkeley, 2012). Governance is understood as 'a heterogeneous and pervasive' activity (Dean & Hindess 1998, p. 2) rather than a 'formal apparatuses of politics and government' (Walters, 2012, p. 2).

However, governmentality as a concept is used in a number of ways, and its interpretation varies amongst his readers (Walters, 2012). To clarify this amount of work, Walters (2012) distinguishes between three emphases of Foucault's work. Firstly, governmentality in its widest sense is understood as the exercise of power, which seeks to govern the populations at large (Walters, 2012; Bulkeley et al., 2014). Whereas governance approaches focus on the governing of actors, institutions and arrangements, governmentality takes a broader approach and focuses on the sociomaterial nature of governing (Bulkeley, 2015). Foucault (2007) argues that governing the population is concerned with 'a sort of complex of men and things' which includes 'wealth, resources, means of subsistence, and of course, the territory with its birders, qualities, climate, dryness, fertility … customs, habits, ways of acting and thinking… accidents, misfortunes, famine, epidemics and so on' (p. 96). Government is seen as one mode of power, which operates alongside discipline and sovereignty, and is frequently understood in its widest sense: as the 'conduct of conduct'. This 'conduct of conduct' refers to the ´modes of action, more or less considered and calculated, that were destined to act upon the possibilities of action of other people' (Foucault, 2000a, p. 341; Bulkeley, 2015). In this mode of power, one 'will engage in more or less rationally reflected, calculated attempts to shape one another's conduct' (Walters, 2012, p. 30). Here, governance occurs when actors seek to shape the conduct of conduct, which entails the study of practices, techniques and rationalities which are shaping the conduct (Walters, 2012). Governance is understood not in terms of institutions, or in terms of ideologies, but rather as a practical activity that can be analysed at the level of rationalities and techniques. 'Government' does not imply the state, but rather can be understood as:

'any more or less calculated and rational activity, undertaken by a multiplicity of authorities and agencies, employing a variety of techniques and forms of knowledge, that seeks to shape conduct by working through our desires, aspirations, interests and beliefs, for definite but shifting ends and with a diverse set of relatively unpredictable consequences, effects and outcomes' (Dean, 1999, p. 11).

Secondly, Walters (2012) discusses the idea of governmentality in which he refers to the history of 'the art of government at the level of the state' by referring to 'the genealogy of the modern state' (Foucault, 2007, p. 354). Walters (2012) argues that this approach of Foucault attempts to study the history and presence of practices and techniques which rendered the 'state' thinkable. Accordingly, in this interpretation governmentality entails the study of 'the conditions of possibility of the modern state' (Walters, 2012, p. 12). Accordingly, the third interpretation sees governmentality as almost synonymous with liberal or neoliberal governance (Walters, 2012). These studies of governmentality focus on liberalism in terms of practices, rationalities and techniques (Walters, 2012).

These ideas of governmentality have been used by multiple scholars in many contexts with resulting varying interpretations of what the study of governmentality entails. For instance, Dean (1999) explores the governmentality concept as a lens which allows the study of 'regimes of practice' (Dean, 1999; Methmann, 2013). These 'regimes of practices' can be referred to as 'our organised ways of doing things' (Dean, 1999, p. 17) in which 'rationalities, technologies, authorities, and subjectivities are created and sustained' (Dean, 1999, p. 30-33). Furthermore, Dean (1999) developed two types of

technologies of advanced liberal government[1] (Higgins & Lockie, 2002). Firstly, technologies of performance aim 'to delimit relevant expertise and entrain local action to governmental programmes' (Bulkeley et al., 2007, p. 2737). Examples are targets, monitoring, audit processes, accountancy, the measure of best practices and statistics (Bulkeley et al., 2007; Higgings & Lockie, 2002; Okereke et al., 2009). Secondly, the conduct is shaped through technologies of agency which 'seek to invoke particular subjects and their participation in processes of governing, and include different forms of participation and partnership, as well as infrastructures and materials through which action is created and sustained' (Bulkeley et al., 2007, p. 2737). Examples are participatory forms of steering, stakeholder dialogues and public-private partnerships (Stripple & Bulkeley, 2013). However, these categories are not mutually exclusive (Higgins & Lockie, 2002). In fact, often technologies operate between both of these two categories. Therefore, due to this fluidity this study interprets techniques in its broadest sense – they comply the criteria 'techniques' when they are shaping the conduct.

Moreover, this study explores the art of governing *at a distance* in the form of transnational networks rather than the art of governing at the level of the state, which rules out a Foucauldian interpretation of governmentality as 'the art of the government' at the level of the state. Moreover, Walters (2012) argues that conflating governmentality and liberalism could be critiqued as 'liberal and neoliberal forms of government do not exhaust the different ways in which the state has been governmentalized, nor the conduct of conduct operationalized' (Walters, 2012, p. 39). Accordingly, Walters (2012) argues that one should not limit 'the analysis of liberalism and neoliberalism to the myriad little devices, techniques and tactics that have been conscripted into the conduct of conduct in liberal democracies' (p. 147). In fact, overrating neoliberalism could hinder the inclusion of other ways of governing (Walters, 2012). In light of this discussion, Rose et al. (2006) argue to watch out for a 'cookie-cutter typification' in which programs with neo-liberal components are classified as neoliberal, 'as if this subsumption of the particular under a more general category provides a sufficient account of its nature or explanation of its existence' (p. 98). Additionally, such a neoliberal understanding can be critiqued as it is primarily based on Foucault's analysis of politics in Western Europe (Death, 2013). Taking into account that the TCI in this study cross both Western and non-western parts of the world, an extension of these ideas about Western neoliberal power relations to non-Western parts of the world would be inadequate (Death, 2013). In other words, Death (2013) argues that 'if governmentality is used to refer to neoliberal power relations, then the limits of neoliberalism also represent the limits of a governmentality analysis' – making this approach inappropriate for the study on transnational biodiversity governance (p. 81). Therefore, to avoid this ´liberal bias', this study explores a more plural account of governance (Walters, 2012, p. 72). Seeing governmentality as an analytical construct, similar to the first 'broadest' governmentality approach, is better fitted in addressing transnational dimensions of biodiversity governance (Death, 2013). Therefore, this study aligns with the conceptual interpretation of governmentality as an 'analytical perspective for relations of power in general' (Foucault, 2007, p. 388) rather than 'treating governmentality synonymously with neoliberalism' (Death, 2013, p. 80) or as 'art of government' at the level of the state. This research will focus on governmentality in its broadest sense: the analysis of actors which seek to shape the conduct of conduct and accordingly the hybrid mixes of rationalities and techniques which go beyond rationalities and techniques operating in the neoliberal state.

Accordingly, in this study the understanding of governmentality by Rose et al. (2006) is mainly employed. Here, governmentality is understood as, above all, the 'empirical mapping of governmental

[1] Advanced liberalism can be understood as the different types of discourses and rationalities that emerged in Western countries over the last three to four decades (Raco, 2003). These include rationalities such as marketization of welfare services and consumerism (Dean, 1999; Raco, 2003)

technologies and rationalities' (p. 99). First, scholars need to study how problems are framed, which entails 'the process by which people develop a particular conceptualization of an issue or reorient their thinking about an issue' (Chong & Druckman, 2007, p. 104; Lovell & Mackenzie, 2011; Dean, 1999). The framing of problems occurs through 'rationalities' of government, which can be defined as the 'collective and taken for granted body of knowledge and styles of thinking that render aspects of reality thinkable and governable' (Lövbrand & Stripple, 2013, p. 32-33). Rose & Miller (1992) argue that these rationalities possess an 'intellectual machinery' which render natural reality thinkable, which includes the 'distribution of tasks and actions between authorities of different types' – such as political or familial (p. 179). Moreover, they embody the 'ideals or principles to which government should be directed', such as justice or freedom (Rose & Miller, 1992, p. 179). Furthermore, these systems of thought not only articulate the nature of the objects governed (e.g. society, nature, economy) but also 'embody some account of the persons over whom government is to be exercised' (Rose & Miller, 1992, p. 179; Lövbrand et al., 2009).

Examining these rationalities involved, provides 'a conceptual link between the intangible ways in which we perceive, describe, and interpret the world, and the ways in which we act upon the world, and are in turn acted upon, through tangible practices and technologies' (Gale et al., 2017, p. 68). From this perspective, certain tools and standards that are used to govern biodiversity, are seen as a 'technology', which in turn expresses a rationality how biodiversity should be governed (Gale et al., 2017). 'Governing at a distance' (Rose & Miller, 1992, p. 173) becomes possible through the standardization, migration and translation of these technologies and practices (Wang, 2015). More specifically, 'technologies of government' in turn refers to the 'the vast assemblage of techniques, devices, tools, instruments, materials and apparatuses that render rationalities operable' (Lövbrand & Stripple, 2013, p. 32-33). Accordingly, 'if political rationalities render reality into the domain of thought, these technologies of government translate thought into the domain of reality' (Miller & Rose, 2008, p. 32).

In turn, technologies and practices affect the rationalities in a two-way relationship (Lovell & Mackenzie, 2011). Interestingly, the extent that biodiversity is governable, depends on the technical abilities of technologies of government, which in turn 'limit the scope of what is ex-ante thinkable' (Gale et al., 2017, p. 78). For instance, Gale et al. (2017) argue that the Big Data revolution is 'rendering aspects of the environment visible in new ways, also changes the scope of what is thinkable about how environmental resources can and should be governed' (p. 78).

Accordingly, notions of 'biopower' are instructive here. According to Foucault (2003), governmentality forms the essential means through which 'biopower' is exercised (Fletcher, 2010). Biopower, can be referred to as the ''exercise of power in the interest of nurturing and sustaining 'life'' (Fletcher, 2010, p. 178). In this type of governmentality, the population is the object of government rather than 'individuals or territories' (Lovell, 2013). Moreover, Lovell (2013) also relates this to ideas about biopolitics, which is about 'the struggle for life – the infiltration of political issues into the biological sphere (humans, nature, genomes, ecosystems, biological science)' (p. 184). Interestingly, she argues that in these theories of biopower and biopolitics, science knowledge is prioritized. Lovell (2013) argues that 'in order to successfully govern populations, one must understand how they function' (p. 184). Lovell (2013) illustrates this role of knowledge in effective governing with the metaphor of the state as 'shepherd tending to his flock', further explained by Rutland & Aylett (2008):

'The shepherd, Foucault argues, comes to control his flock because he has clear and precise knowledge of each of its members. He uses this knowledge to attend to and care for each of them in a way that allows him to guide them as he wishes. Thus, the creation and use of specific forms of knowledge becomes central to the exercise of governing. Knowledge is central both because it helps the governing body to properly orchestrate the

various elements of the state, and because it is the primary vehicle through which the state spreads its particular priorities and goals among the population´ (p. 630)

In other words, the role of knowledge is crucial and becomes dominant in governing (Lovell, 2013). In this study, the subject to be governed is biodiversity, which includes both the individual species as well as the whole ecosystem, and hence the aspiration to 'know' these subjects and collect data to understand these species and their ecosystems. Accordingly, in understanding biopower and biopolitics, measurement, calculation, expertise and data become central means how populations are controlled (Lovell, 2013; Lovell & Mackenzie, 2011). Li (2007) suggests that with the adoption of a rationality, 'multiform tactics' emerge in which:

'Calculation is central, because government requires that the 'right manner' be defined, distinct 'finalities' prioritized, and tactics finely tuned to achieve optimal results. Calculation requires, in turn, that the processes to be governed be characterized in technical terms. Only then can specific interventions be devised' (p. 6)

Calculation is found to be critical in 'rendering technical' (Li, 2007) according to – among others - research on forest carbon (Lovell, 2013), financial accounting standards for greenhouse gas emissions allowances (Lovell, 2014), forestry science (Agrawal, 2005a), carbon markets (Mackenzie, 2009), development projects in Indonesia (Li, 2007) and biodiversity offsetting[2] (Damiens et al., 2020; Jones et al., 2013)(Table 2.1). These calculative means could operate through various practices, varying from certain standard-setting tools or devices, to the technique of expertise which renders the issue governable. Especially interesting are the 'Smart' Earth techniques such as remote sensing, drone technology and Artificial Intelligence which illustrate a shift from 'manual to automated ecogovernance' (Bakker & Ritts, 2018, p. 208). For instance, Avron (2017) reflects on the use of drone technologies in conservation science, through which species are rendered visible and therefore governable.

Table 2.1: Examples of techniques of government

Techniques	Examples
Standard-setting and certification	financial accounting standards for greenhouse gas emissions allowances (Lovell, 2014) Standards and guidelines translate forest carbon knowledge and expertise into MRV policy and practice (Lovell, 2013)
Expertise	Agrawal (2005a) shows how through calculative practices within forestry science, the ecological system becomes an object of the government, which enable the Forest Department to implement certain policy programmes and to set targets, which enables particular forms of expertise and power and disenables others
Practice of commensuration	'making things the same' through particular devices, practices and techniques (Mackenzie, 2009; Bulkeley, 2015, p. 22).
Statistics and measurement	science measurement and data (Lovell, 2013) statistical indicators (Wang, 2015) risk assessment procedures and imaging technologies (Wang, 2015) Remote sensing (Lovell, 2013)
Programmes	Development projects through which problems are translated into manageable technical programmes in Indonesia (Li, 2007)
'Smart' Earth techniques	Drone technology (Avron, 2017)

[2] Offsetting biodiversity aims to compensate for biodiversity losses by producing biodiversity gains elsewhere (Damiens et al., 2020)

Furthermore, Lovell (2013) argues that in assessing technologies of the government, standards – 'rules, principles and 'how to' guides' – operationalize the concept government (p. 188). She argues that through the development of guidelines, protocols and standards the translation of science knowledge occurs. Lovell (2013) refers to the standardization as defined by Timmermans & Epstein (2010) as 'a process of constructing uniformities across time and space, through the generation of agreed-upon rules' (p. 71). For instance, Lovell (2013) illustrates this with her research on the policy initiative 'Reducing Emissions from Deforestation and Forest Degradation' (REDD+) under the UN Framework Convention on Climate Change (UNFCC). In this initiative, developing countries who are protecting their forests, are financially rewarded. Interestingly, Lovell (2013) demonstrates the dominance of a 'Measure and Manage' discourse in forest carbon. Tropical forests are framed as 'wild, unmanageable and unquantified: untamed forests that need to be brought to order and under control through systematic measurement by nation-states' (Lovell, 2013, p. 180; Lövbrand & Stripple, 2010). Lovell (2013) points to this Measurement, Reporting and Verification (MRV) storyline which includes an optimistic belief that one can 'know' the forest and in turn generate policy programmes through measuring, quantifying and verifying practices (Lovell, 2013). These practices enable to see the climate as an 'administrative domain' through which they 'shape the realm of the possible' (Lövbrand & Stripple, 2010, p. 21). In light of this discussion on 'Measure and Manage', Turnhout et al. (2014) refer to a 'measurementality' in biodiversity conservation, which they describe as the 'privileging scientific techniques for assessing and measuring the environment as a set of standardized units which are further expressed, reified, and sedimented in policy and discourse and which, in turn render the environment fungible' (p. 583). In other words, biodiversity is broken down into units in a way that they are rendered commensurable and exchangeable, which in turn renders the issue of biodiversity governable (Turnhout et al., 2014, p. 583).

Accordingly, Lovell (2013) argues that standards and guidelines translate forest carbon knowledge and expertise into MRV policy and practice. She argues that the remote sensing technique has been the most influential in shaping the direction of REDD+ policy as it facilitated the measurement of forest carbon. Furthermore, Lovell (2013) concludes that science measurement and data are essential techniques which control forest populations and their forest carbon. Moreover, Lovell (2014) illustrates this further with her research on financial accounting standards for greenhouse gas emissions allowances, in which these standards enable 'calculation to take place by shaping issues and things into technical programmes that can be managed' (p. 270). Lovell (2013) argues that through this process of constructing uniformities, ideas are left out which do not fit. Standards as a technique of the government enables the 'conduct of conduct' by creating uniform practices (Lovell, 2013). Consequently, Lovell (2013) argues that 'the formalization of knowledge into standards and guidelines is a way of enacting and formalizing power' (p. 188). These calculative means such as standards, protocols and 'how to' guidelines will be explored in the field of biodiversity by TCI.

Alongside calculation, the practice of commensuration is another technique which refers to 'making things the same' through particular devices, tools and practices (Bulkeley, 2015, p. 22). Through techniques such as models, indicators and measurement, information is abstracted and reduced (Espeland & Stevens, 1998). Bulkeley (2015) refers to Espeland & Stevens (1998) who argue that commensuration, similar to calculation, works through realizing that 'everyday experience, practical reasoning, and empathetic identification become increasingly irrelevant bases for judgment as context is stripped away and relationships become more abstractly represented by numbers' (p. 317). Thus, commensuration simplifies and accordingly enables 'the smooth working of governmental programmes' (Bulkeley, 2015, p. 115). Additionally, besides the 'black-box, taken-for-granted nature of commensuration' one should pay attention towards practices of incommensurability (Bulkeley, 2015, p. 115; Lovell, 2014). Lovell (2014) argues 'that most can be learnt from cases of things that do

not fit with these existing standards', such as commodities which are hard to be measured or standardized (p. 267). Accordingly, 'incommensurability is not incidental, but is also a product and a force that is actively produced' (Bulkeley, 2015, p. 115).

Thus, the governing of biodiversity by TCI entails the study of the technologies of the government which will entail a broad set of developed techniques, such as expertise, tools, and standards that render rationalities governable. It is through standard setting as calculative means, measurement and mechanisms of certification that biodiversity is governed (Bulkeley, 2012; Lovell & Mackenzie, 2011). A common feature of all these techniques is that they seek to govern the 'conduct of conduct'. However, these techniques which are found in the literature give by no means a comprehensive view of techniques of government, rather they are particular techniques found in a specific space and time. In fact, the risk exists of taking a 'programmers view', in which rationalities and techniques 'are rolled out to govern at a distance, smoothing space and negating difference and contestation' (Bulkeley & Stripple, 2013, p. 248). This contestation, and further criticism towards the governmentality approach will be discussed in the next section.

2.2.1 'Keep moving'

While the study of governmentality effectively promotes a kind of scepticism, the perspective has received sustained criticism over the years as well (Walters, 2012). Firstly, Foucault does not provide one consistent definition of governmentality, but rather his understanding of the concept varies between different fragments of his work resulting in varied interpretations of the concept (Walters, 2012). Foucault's governmentality is based on solely lectures on governmentality, rendering the approach partial and incomplete. These lectures were work in progress, and as he died relatively young, he was unable to expand his work (Walters, 2012). As a result, this incompleteness adds to the complexity of the approach. Nonetheless, based on overlapping themes and projects within the initial work of Foucault and the ongoing work by scholars the study of governmentality is enabled. Moreover, Walters (2012) argues when governmentality is not interpreted as a theory, or a systematic framework which applies to all societies, 'it matters less if we treat Foucault's writings not as the final word', but rather 'as a set of methodological and conceptual guidelines' (p. 40). Unlike many social theories, governmentality does not contain laws and principles of how the world works, rather it is a diagnosis which fulfils 'the quest to know the world in all its depth' (Walters, 2012, p. 3). Governmentality, can be seen as an 'ongoing conceptualization' which itself requires 'critical thought – a constant checking' (Foucault, 2000a, p. 327; Walters, 2012). As a result, one should be cautious with the 'overvaluation of governmentality' (Collier, 2009, p. 98; Walters, 2012). Accordingly, Walters (2012) points towards the dangers of 'applicationism':

> *'applicationism is the tendency – perhaps a habit as much as a practice – to regard governmentality as a fully formed perspective that one simply applies to a particular empirical area or topic. At its extreme, applicationism risks turning the analytical toolbox into a self-contained theoretical system' (p. 5)*

Thus, governmentality risks becoming a 'rather fixed grid through which we simply pass empirical phenomena to produce some rather predictable findings' (Walters, 2012, p. 148). Likewise, Blok (2013) warns of the danger of totalizing narratives in governmentality, as this downplays the inherent plurality in environmental politics. Stephan et al. (2013) refer to this danger of totalizing narratives as the 'harmonization trap' where 'a top-down application of ideal types creates a harmonizing tendency which does not account for contingency and resistance' and accordingly 'obscures the heterogeneity of governmental assemblages' (p. 61). This is related to the critique that governmentality literature develops rather abstract ideal types (Rose et al., 2006). However, Rose et al. (2006) argue that these claims of 'hypostasis' ignore the mutable nature of rationalities and techniques. In fact, Rose et al. (2006) argue that 'the mere existence of a diagram of government

implies either its generalized acceptance or implementation' (p. 99). Instead of a fixed grid, Walters (2012) points towards the idea of 'critical encounters', in which he refers to the need to revise existing concepts based on new empirical domains and other unexpected findings. Moreover, he argues that the analytical toolbox 'needs to be reimagined as a dynamic, transactional space' (Walters, 2012, p. 5). Whereas concepts such as biopolitics, neoliberalism and other tools can be very useful, 'they should not substitute for the essential work of crafting concepts that get closer to specific logics, tendencies, and styles of conduct and counter-conduct' (Walters, 2012, p. 144).

Another line of critique of governmentality relates to agency and subjectivity (Death, 2013; Rose et al., 2006). Firstly, an often mentioned critique is that governmentality studies are solely based on the 'the mind or text of the programmer' and ignores 'the messy world of realpolitik' (Rose et al., 2006, p. 99-100). Critics argue that governmentality analysis disregard the role of resistance, experience and agency, 'thereby producing an image of government as a juggernaut that is somehow willing itself into existence, implementing itself into reality by mysterious means' (Rose et al., 2006, p. 99). Related to this discussion is the critique in terms of agency. While governmentality approaches are well suited to study 'governing at a distance', it ignores dimensions of 'government from below' (Herbert-Cheshire, 2003, p. 458). Herbert-Cheshire (2003) argues that the role of local communities in seeking to shape the conduct, is seldom examined in governmentality literature. Furthermore, Bulkeley et al. (2007) argue that governmentality approaches sometimes neglect geographical dissimilarity in government. Governmentality analyses are argued to disregard 'the ways in which institutional structures, routinised practices, and, significantly in the case of environmental issues, infrastructural networks mediate regimes of practice' (Bulkeley et al., 2007, p. 2738). Additionally, the governmentality approach is quite 'aspatial' as it 'fails to take full account of the importance of the properties of the institutional context in which authorities operate and which facilitate as well as constrain their actions' (Uitermark, 2005, p. 147). Moreover, the 'multiscalar nature of governmentalities' is often neglected (Bulkeley et al., 2007, p. 2738; Uitermark, 2005). As a result, Bulkeley et al. (2007) argue based on Raco (2003, p. 77) that 'collectively, such criticisms suggest that governmentality approaches can appear to lack the space for the development of alternative, and critical, politics, and for change in dominant government rationalities' (p. 2738). However, Rose et al. (2006) argue that this ignores the 'mutable' nature of governmental thought and technique, and they argue that in governmentality analysis 'human powers of creativity are centered rather than marginalized, even though such creation takes place within certain styles of thought and must perforce make use of available resources, techniques' (p. 99). In fact, they argue that 'if there are foundational principles to governmentality, one of these is a rejection of such totalizing tendencies, replete with the overtones of grand theorization that explains the transformation of society into something substantially novel' (Rose et al., 2006, p. 98).

All in all, this criticism comes back to the notion that governmentality does not provide a causal explanation of social phenomena, nor does it possess the ambition to predict the future, rather it is a flexible and adaptable 'analytical toolbox' with a loose set of tools (Rose et al., 2006, p. 100; Walters, 2012). In this toolbox, a cluster of concepts exists which contributes to increasing the 'think-ability and criticize-ability' of varied forms governance (Walters, 2012, p. 2). Consequently, Rose et al. (2006) fiercely state that:

'Those who criticize governmentality for not doing what it never claimed to do can only make their criticism bite to the extent that they imagine governmentality as a systematic theory that can be regarded as having logical incompatibilities with other theories. If, on the other hand, it is regarded as part of an analytical toolbox, good for some purposes but not for others, and capable of being used in conjunction with other tools, then the problem appears more as a limitation of the critique than a critique of the limitations of governmental analyses' (p. 100)

In fact, governmentality requires that we 'keep moving in such a manner that one does not get entangled in a fixed set of concepts that would then congeal into another imprisoning discourse' (Brass, 2000, p. 312). In other words, one should not miss one of the key lessons of Foucault: 'to keep moving' (Walters, 2012, p. 8). This 'keep moving' argument implicates that the set of discussed rationalities and techniques are anything but set in this study, rather, it is a loose set of analytical tools which contribute to studying how TCI seek to shape the conduct of conduct. This flexible and adaptable perspective will be taken in this study, whereas one looks beyond particular rationalities and techniques found by previous research. In the end, the overall aim is to 'get closer to specific logics, tendencies, and styles of conduct and counter-conduct' (Walters, 2012, p. 144).

2.3 Transnational governance through a governmentality lens

All in all, the concepts of governance and governmentality have some shared conceptual starting points. For instance, both approaches focus on dimensions of power in other ways than in terms of the state in which they aim to unravel homogenous approaches of the state (Uitermark, 2005; Gale et al., 2017). Interestingly, the governance functions proposed by Bulkeley et al. (2014) overlap with several techniques of the government (Table 2.2). However, variations in terms of key variables and outcomes illustrate the distinctiveness of the lenses. For instance, whereas a transnational governance lens takes as its starting point governance as a set of actors and institutions, a Foucauldian lens approaches governance 'in terms of the specific modes of power through which governing is conducted and the processes and practices through which this takes place' (Bulkeley, 2015, p. 8). Moreover, beyond these functions discussed by Bulkeley et al. (2014) lay a multiplicity and plurality of competing rationales and families of techniques which render the issue of biodiversity governable (Bulkeley et al., 2012). These rationalities result in various 'regimes of practices that criss-cross both conventionally understood state/civil society divisions and each other' (Bryant, 2002, p. 273; Bulkeley et al., 2007). Thus, governmentality sheds light on various ways of governing wherein both state and non-state actors are included, which differs from a more 'general' modes of governing approach (Bulkeley et al., 2007). In other words, Bulkeley et al. (2007) argue that a governance approach alone 'cannot capture the elements of multiplicity with which analysts of contemporary polities should be concerned' (p. 2739). Therefore, this study suggests that the analysis of transnational governance could be enriched by studying 'governing at a distance' from a governmentality perspective.

Table 2.2: Governance functions and examples of techniques (Bulkeley et al., 2014; Bulkeley et al. 2007; Andonova et al., 2009)

Governance approach		**Governmentality**
Governance functions	**Description function**	**Examples of techniques**
Information sharing	consensus building; changing practices; norm diffusion	Educational campaigns
Capacity-building and implementation	Financing; expertise; technology	Expertise
Direct action	Development of new technologies; direct actions of members of TCI to reduce negative impact	Introduction of new techniques
Monitoring and certification	Targets; forms of monitoring or certification; specific rules towards members	Auditing, monitoring, certification
Provision of funding	Funding	Funding mechanisms and criteria
Target setting	Target setting	Performance targets
Rule setting	a set of norms and rules which directs constituents of the network	Standards, guidelines, principles

2.4 Attaining authority in transnational biodiversity governance

The success of TCI in biodiversity governance is argued to depend on their capacity to generate authority (Hajer, 2009). However, in transnational governance schemes, novel forms of authority emerge in which a variety of actors is shaping and steering the conduct (Breslin & Nesadurai, 2018). The rise of these TCI raises interesting questions in how these TCI govern without the presence of formal kinds of authority of state sovereignty and international law (Bulkeley et al., 2014). In this context, authority is not a fixed condition given by their operations in national and internal law, but rather something that has to be attained (Bulkeley, 2012). In order to study authority – or the 'rightful exercise of power'- an analysis of how recognition is searched for and attained is then required (Bulkeley et al., 2014, p. 142). Bulkeley (2012) argues that authority has distinct modalities, varying between consent, consensus and concord, 'each of which is constituted through the purposes for which power is deployed, the nature of recognition and compliance, and distinct forms of sociospatial relations' (p. 2434) (Table 2.3). As pointed out by Bulkeley (2012), these different modalities of authorisation are not operating in isolation. Whereas understanding authority from a governmentality perspective mainly includes the study of concord, this study will also shortly shed light on authority as consent and consensus.

Table 2.3: Modes of authority and its 'ideal-typical characteristics' (Bulkeley, 2012, p. 2434)

	Consent	**Consensus**	**Concord**
Purpose	Instrumental	Associational	Governmental
Recognition	Concessional	Mutual	Habitual
Compliance	Exclusion	Compromise	Normalisation
Spatiality	Connection	Proximity	Presence

Firstly, the first mode of authority involves the 'consent' to be governed. Bulkeley (2012) argues that authority as consent is operating through tools and standards. These kinds of arrangements are generating authority based on recognition, which rests on constituents accepting and complying with these criteria and indicators as 'new rules' provided by these standards (Bulkeley, 2012). Accordingly, Bulkeley (2012) argues that 'obligations to comply are sustained through various processes of exclusion', which could be the case when organisations do not meet the biodiversity criteria set by TCI (p. 2436). Furthermore, this mode of authority is spatially mediated through practices of connection with their constituents, such as arrangements with indigenous communities. These constituents are in turn brought close through techniques such as personal endorsement stories or case studies (Bulkeley, 2012).

Secondly, authority as consensus is established through the capability of TCI to generate rationales and techniques which attain mutual recognition. Furthermore, through the standards, tools and guidelines TCI employ, they attempt to produce a consensus of what includes governing biodiversity in a 'correct' or 'good' way. Bulkeley (2012) argues that authority as consensus includes compliance which is 'constantly mediated and renegotiated through compromise in this dual sense. Goals are not reached, but principles hold; constituents may not deliver on specific outcomes, but continually justify their intentions to do so in order to remain party to the consensus at hand' (p. 2438). Additionally, authority as consensus is established through establishing practices of proximity, in which constituents are drawn close to rationalities and techniques (Bulkeley, 2012). Through these practices of proximity, TCI gain legitimacy and become 'recognized' for their practices in biodiversity loss.

Thirdly, authorisation as concord results from the normalisation of particular biodiversity discourses, from the artefacts TCI organize and the practices through which these TCI operate (Bulkeley, 2012). In order to analyse how authority to govern is realized from a governmentality lens,

this research examines the practices of authority as concord (Bulkeley et al., 2014). By thinking about authority, the ways in which power is orchestrated and practiced can be analysed. Analysing these practices of authority through a governmentality lens, assumes that power operates through the conduct of others, in which actors attempt to construct the problem of biodiversity and seek to normalize certain solutions or interventions (Bulkeley et al., 2014). From a governmentality perspective, there is a background consensus prior to individual actions, which shapes 'what can be said and thought in the first place' (Bulkeley et al., 2014, p. 141). Here, authority 'emerges through doing those things that are naturalised discursively and normally' (Lipschutz, 2005, p. 766). In other words, Bulkeley et al. (2014) argue that this 'presupposes a level of concord about the way a problem is constructed and thus a common rationality of action' (p. 138).

Accordingly, Bulkeley (2012) argues that the process of concord includes 'the bringing into agreement of heterogeneous elements – social and material – in such a manner that they are taken for granted as authoritative in the shaping of conduct' (p. 2439). She argues that the practice of concord involves the organization of materials or artefacts, such as particular tools and targets within biodiversity governance through which the 'bringing into agreement' of actors and discourses is attained (p. 2439). In this study, authorisation as concord results from normalisation of particular biodiversity discourses, from the artefacts TCI organize and the practices through which these TCI operate (Bulkeley, 2012). These forms of political authority are not 'determined outside of the particular rationalities and technologies of government, but are actively created and mobilised through this process' (Bulkeley et al., 2007, p. 2737). As a result, the set of rationalities and techniques of the government provide ways in how these initiatives derive authority (Bulkeley, 2012). Arguably, accomplishing these kinds of authority entails the practices through which the presence of TCI is felt, even if these govern 'at distance' – which is the case in these transnational governance arrangements (Bulkeley, 2012). Therefore, Bulkeley (2012) argues that presence is a 'critical means through which authority as concord is spatially mediated' (p. 2440). Consequently, a governmentality lens focuses on rather *how* legitimacy and authority are generated, and especially through what kinds of rationales and practices (Bulkeley et al., 2014). By taking a governmentality perspective, answering questions related to if and how TCI derive forms of authority to govern biodiversity, the study of these rationalities and practices will assist.

Chapter 3 - Biodiversity

Whereas the previous chapter gave insight into the analytical lenses of transnational governance and governmentality, this chapter will apply these lenses in the light of biodiversity - its goals and associated values. First of all, this chapter will explore biodiversity as a concept and its associated goals. Second, systems of values will be discussed, giving insight in the debate on biodiversity and frequently used concepts which dominate in this debate. Third, rationalities and techniques in the field of biodiversity will be discussed. Lastly, the theoretical findings of transnational governance, governmentality, biodiversity and systems of values will be merged into an analytical framework.

3.1 Biodiversity: conserving, restoring and thriving with nature

Biodiversity is referred to by the IPBES (2019) as the 'diversity within species, between species and of ecosystems' (p. 10). These three interconnected levels of biodiversity were already decided upon on the Rio Conference in 1992 (United Nations Environment Programme (UNEP), 1992; Xie & Bulkeley, 2020). As these facets of nature are deeply interconnected, there is an interdependence between ecosystems, genetic diversity and species – and a need for multiple goals (Díaz et al., 2020). According to the CBD (2020), three main goals have to be achieved: conservation, sustainable use and equitable access to and benefit sharing of biological resources (Díaz et al., 2020). In order to preserve genetic-based, species-based and ecosystem-based biodiversity, the CBD (2020) formulated the goal of 'recovery of natural ecosystems in the following 20 years, with net improvements by 2050 to achieve the Convention's vision of ''living in harmony with nature by 2050'' (p. 2). In this overarching CBD vision 'living in harmony with nature', 'biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people' (CBD, 2020, p. 3).

This emphasis on 'Nature's Contributions to People' (NCP) has recently been introduced by the CBD vision and the IPBES assessment (Taylor et al., 2020). Biodiversity, is argued to bring forth benefits to people, resulting in a 'growing imperative to enable nature and society to thrive together' (Xie & Bulkeley, 2020, p. 82). A novel approach which includes these NCP in assessing biodiversity, is the approach of Xie & Bulkeley (2020). They analysed whether NbS projects in European cities were conserving nature, restoring nature or were thriving with nature. Whereas conservation is mainly focused on halting degradation, the concept of restoration attempts to reverse such degradation (Xie & Bulkeley, 2020). Conservation entails measures such as maintenance, preservation and sustainable use (Xie & Bulkeley, 2020). Measures focused on restoration include activities such as species monitoring programs, habitat improvement and planting, community engagement and the facilitation of connectivity between different areas (Xie & Bulkeley, 2020). Additionally, besides these more traditional goals of biodiversity, NCP forms an additional central goal for biodiversity governance (Xie & Bulkeley, 2020). By including thriving with nature in this analysis, this research guarantees that the multiple ways in which biodiversity action of TCI are undertaken are included, similar to Xie & Bulkeley (2020).

Accordingly, Xie & Bulkeley (2020) analysed conservation and restoration by studying whether the NbS projects included genetic-based, species-based or ecosystem-based biodiversity goals. In order to study 'thriving', they derived nature's contribution to people in terms of cultural benefits, social benefits, economic benefits, benefits for addressing climate challenges and benefits for environmental quality (Table 3.1). Xie & Bulkeley (2020) found that variation existed in the ways which NbS contributed to biodiversity goals, and that these were mainly ecosystem focused. In turn, it would be interesting to analyse how TCI aim to contribute to these biodiversity goals. Therefore, this study analyses the extent these TCI make explicit whether they aim to conserve nature, restore nature and mobilize the ability to thrive with nature (Xie & Bulkeley, 2020). Moreover, these biodiversity goals can

be studied at a deeper level, as they entail underlying values in conserving, restoring or thriving with nature, which will be discussed in the next section.

Table 3.1: Biodiversity goals (derived from Xie & Bulkeley, 2020, p. 81)

Category	Type of goals
Conservation	Genetic-based; species-based; ecosystem-based
Restoration	Genetic-based; species-based; ecosystem-based
Thriving with nature	Social; cultural; economic; climate; environmental contribution

3.2 Broadening the scope: systems of values

A governmentality approach highlights that biodiversity becomes governable through the production of certain 'truths' about how humans relate to nature (McGregor et al., 2015). Biodiversity is argued to be a specific lens within the overarching concept of 'nature' (Waage & Benediktsson, 2010). It is an artificial construct as it 'does not exist in an absolute sense' (Escobar, 1998, p. 55). Moreover, biodiversity is a rather normative and political construct, because it is 'purposefully designed to highlight the conflict between the destruction and the preservation of nature' (Waage & Benediktsson, 2010, p. 2). Biodiversity can be regarded as a discourse which expresses a renewed relation between society and nature (Escobar, 1998). In fact, the root causes of the loss of biodiversity 'lie in the ways human beings relate to nature' (Ring, et al., 2010, p. 15). Therefore, this section will shed light on this debate on values and its consequences.

An important point of debate is whether the preservation and conservation of biodiversity is worth itself (intrinsic value) or that biodiversity has value dependent on people's use or perception of it (instrumental value). Many conservationists argue that nonhuman nature is good for its own sake, referring to the intrinsic value of nonhuman nature (Batavia & Nelson, 2017). Intrinsic values refer to 'the value inherent in an object' or in other words, the worth of nature itself, also often represented as moral duties (Chan et al., 2016, p. 1462). These values are represented within concepts such as living-well in harmony and balance with 'Mother Earth', stressing intrinsic values of nature (Borie & Hulme, 2015). This idea, that biodiversity has value independently of people's perception or use of it is in contrast to instrumental values (Borie & Hulme, 2015). Instrumental values refer to 'the value of the object for a person', or what nature does for people, often measured in monetary terms (Chan et al., 2016, p. 1462; Arias-Arévelo et al., 2017). These values are also reflected in concepts of anthropocentrism and non-anthropocentrism, which are often used to express 'different ideas about what entities have intrinsic value and thus can be considered ethically relevant' (Karlsson et al., 2020, p. 3). Anthropocentrism is a human-centered system of values, in which entities are argued to be valuable when it serves human beings and their purposes (Arias-Arévelo et al., 2017). Non-anthropocentrism extends this value to 'nonhuman organisms or other biological entities, such as species' (Karlsson et al., 2020, p. 3).

These systems of values are reflected in biodiversity concepts that emerged over the years, such as the Ecosystem Services (ESS) concept. The concept of ESS emerged in the 1970s, and according to Bekessy et al. (2018) has become widespread in biodiversity governance. The ESS concept is prominent within the biodiversity conservation discourse, and is a frequently used technique to promote biodiversity conservation (Kusmanoff et al., 2017; Bekessy et al., 2018). While the ESS concept has been successful in the integration of conservation in economics and the engagement of scholars with ESS, the concept is extensively criticized (Bekessy et al., 2018). First of all, Bekessy et al. (2018) argue that the concept has failed to achieve effective conservation of biodiversity. Moreover, Payments for Ecosystem Services (PES) – where resource managers are economically rewarded for

providing ecosystem services - raises scepticism in terms of social equity as a result of the narrow focus on economic efficiency (Pascual et al., 2014). In this concept, the rationale is that ecosystem services are externalities which should be internalized within economic choices, which in turn could halt the degradation of ecosystem services (Kosoy & Corbera, 2010). This 'commodification' of ecosystem services is frequently critiqued, for instance by stressing the incommensurability of certain aspects of nature, or the notion that marginal changes in ecosystem functions will not alter ecosystem's resilience (Kosoy & Corbera, 2010). Furthermore, Kosoy & Corbera (2010) argue that this PES concept represents a reductionist approach which summarizes our perspective on human-nature relationships, in which solely a monetary value is assigned to an ecosystem service. Accordingly, Leibenath (2017) argues that ''nature is made visible as an economic asset, or at least as something which is highly relevant to the economy, by relating it to 'ecosystem services'' (p. 313). In fact, Bekessy et al. (2018) argue that the ESS concept 'reinforces the market-driven view that nature is important only to the extent that it provides goods and services of (economic) value to humans' and that this 'ignores any intrinsic values people may have for nature' (p. 72). This aligns with Randrup et al. (2020), who criticizes that ESS as a concept mainly focuses on instrumental values - the benefits that people obtain from nature – or in other words, 'nature's gift to us' (Randrup et al., 2020, p. 920).

More recently, the concept of NCP was introduced. Pascual et al. (2017) refer to NCP as 'all the positive contributions or benefits, and occasionally negative contributions, losses or detriments, that people obtain from nature' (p. 9). NCP goes beyond the ESS concept as it aims to embed a wider set of worldviews on human-nature relations, interests and values (Pascual et al., 2017; Díaz et al., 2018). However, Pascual et al. (2017) argue that this wide spectrum of values is rarely acknowledged, and that the multiple values associated with NCP need to be recognized. They argue that most of discourse of NCP 'relies on either a unidimensional value lens (value-monism) that derives from a utilitarian economic perspective or an environmental ethics stance of nature–human relationships, strengthening the instrumental vs. intrinsic dichotomy' (p. 9). Accordingly, Pascual et al. (2017) argue that there is a need to embrace more pluralistic valuation approaches. Therefore, they propose a framework (Figure 3.1), in which the grading of colours illustrates that both instrumental and relational values could be assigned to the value of NCP.

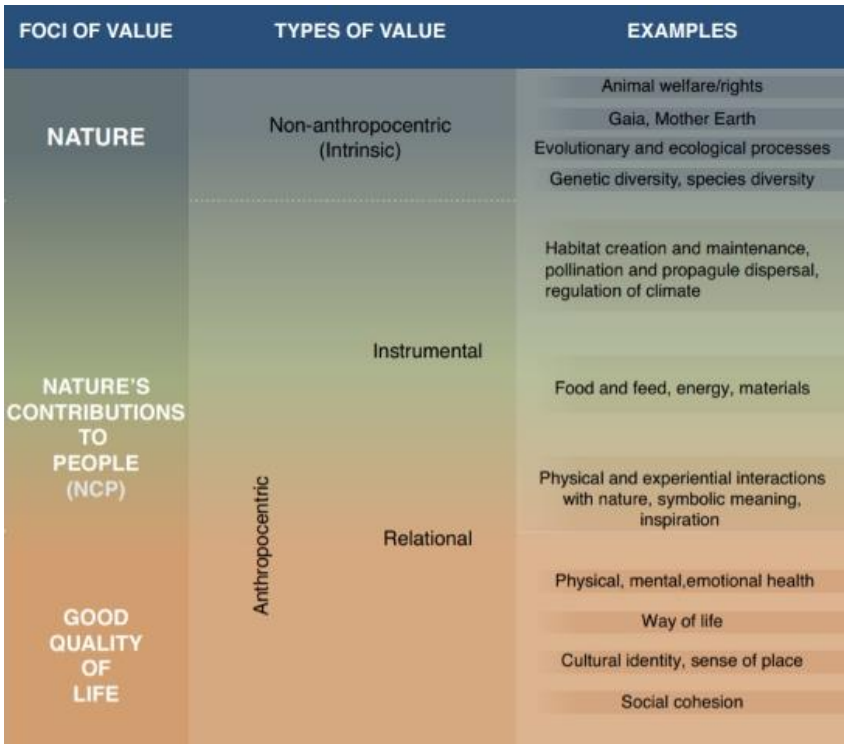


Figure 3.1: Values related to nature, values related to nature's contributions to people (NCP) and values related to a good quality of life (Pascual et al., 2017)

Furthermore, the Nature-based Solutions (NbS) and Natural Climate Solutions (NCS) concepts were initiated (Seddon et al., 2021). Natural Climate Solutions (NCS) or Nature-based Climate Solutions (NbCS) refer to 'conservation, restoration, and improved land management actions that increase carbon storage and/or avoid greenhouse gas emissions across global forests, wetlands, grasslands, and agricultural lands' (Griscom et al., 2017, p. 11645). In turn, NbS is argued to be an 'umbrella term' which includes concepts that incorporate working with nature for multiple objectives instead of solely climate change. The International Union for Conservation and Nature (IUCN) (2021) refers to NbS as 'actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits'. Whereas IUCN stresses the benefits which result from working with nature in terms of human wellbeing and biodiversity, the European Commission (EC) (2015) in turn emphasizes innovation and economic cost-effectiveness as they argue that NbS 'harness the power and sophistication of nature to turn environmental, social and economic challenges into innovation opportunities' (p. 4), through for instance biomimicry and urban green infrastructure (Seddon et al., 2021). With the rising global interest in these practices, the conceptualization of NbS has developed over the years, especially with the introduction of a standard for NbS by the International Union for the Conservation of Nature (IUCN, 2021; Seddon et al., 2021). This Global Standard operationalizes best-practice principles of NbS and consists of eight criteria, accompanied by indicators (IUCN, 2021). However, Seddon et al. (2021) argue that there is still confusion about what can be counted as NbS. For instance, NbS such as tree planting for carbon sequestration are increasingly used as an excuse for the ongoing consumption of fossil fuels, and could draw the attention away from limiting the use of fossil fuels (Seddon et al., 2021). Moreover, tree planting is framed as a 'silver bullet' solution to mitigate climate change, while planting trees does not mean that a healthy, biodiverse ecosystem is created. In fact, NbS interventions may negatively affect biodiversity. For instance, carbon storage projects, types of agriculture or forestry could negatively affect the habitats of species (Seddon et al., 2021). Furthermore, Seddon et al. (2021) stress that especially in communities where the rights are

badly represented, NbS implementation without community consent could potentially have negative social consequences.

Furthermore, while developing and implementing ESS, NbS and NCP could counter environmental, economic and social challenges, these concepts are still rather focused on instrumental values (Randrup et al., 2020). The NbS narrative has a performative effect on our thinking and directs our attention away from contributions of nature that are not argued to be a service or solution (Randrup et al. 2020). On the other hand, it could be argued that formulating nature as 'services' or 'solutions' could contribute to an increase in valuing the intrinsic value of biodiversity (Goldman & Tallis, 2009; Bekessy et al., 2018). However, Bekessy et al. (2018) and Kusmanoff (2017) argue that the concept of ESS can actually undermine intrinsic values as motivational crowding-out could occur in which 'intrinsic altruistic motivations for behaviour are replaced by extrinsic self-interested motivations when an external (generally monetary) reward is offered for the behaviour' (p. 72). As a result, Bekessy et al. (2018) argue that this crowding-out of intrinsic value of nature could result in that people 'come to care less (or not to care) for those places in nature that do not offer sufficiently valuable (in dollar terms) services' (p. 73).

Interestingly, this line of inquiry could be applicable to the NbS discourse as well, where communicating aspects of biodiversity in terms of solutions for climate change could crowd-out intrinsic motivations for conserving biodiversity (Bekessy et al., 2018). Furthermore, Bekessy et al. (2018) argue that framing nature in terms for ecosystem services could be 'a dangerous strategy that can actively undermine positive action for species conservation' (p. 73). Framing nature in terms of ecosystem services can increase egoistic values, which could undermine commitment with biodiversity in the long run (Bekessy et al., 2018). Moreover, this focus on services creates a 'false sense of security because it evokes the perception that 'nature will find its way' and will continue to provide services even if some component species are lost' (Bekessy et al., 2018, p. 73; Christmas, 2013). This line of inquiry could be applicable to the current biodiversity discourses as well which stress the 'solutions' that lie within nature to solve particular climate challenges, which in turn may increase egoistic values and may result in a false sense of security.

Consequently, Randrup et al. (2020) argue that nature-culture dualism remains dominant in our thinking and is reflected in the concepts used and solutions proposed which primarily focus on instrumental values: 'what good can it do for me and to us' (p. 921). As a result, lately there has been a call for integrating plural values of biodiversity to overcome this duality (Arias-Arévelo et al., 2017). Scholars are increasingly pointing towards 'value pluralism' – 'the recognition of different and often conflicting value domains that are neither reducible to each other nor to some ultimate value' (Arias-Arévelo et al., 2017, p. 2). For instance, Randrup et al. (2020) argue that in order to halt the instrumentalisation of nature, science and policy, there is a need to install more integrative approaches, including 'more-than-human' approaches (Whatmore, 2006), 'post-humanist approaches', 'biocultural diversity' (Elands et al., 2015) and a different set of values: 'relational values' (Chan et al., 2016). This concept of relational values refers to relationships between nature and people, in which the relationship itself matters (Chan et al., 2018). Relational values can be defined as the 'preferences, principles, and virtues associated with relationships, both interpersonal and as articulated by policies and social norms' (Chan et al., 2016, p. 1462). Relational values are derived from relationships and responsibilities, such as eudaimonic values, which refers to values associated with the good life in relation to parts of nature (Chan et al., 2016). Moreover, Randrup et al. (2020) introduced the concept of 'Nature-Based Thinking' (NBT) as a substitute for NbS which entails 'the perspective of nature *with* people, rather than just nature *for* people' (p. 925). According to these more

integrative approaches, there is a need to balance anthropocentric and ecocentric values, as well as relational values (Randrup et al., 2020).

To conclude, these systems of values, whether more instrumental, intrinsic or relational, lie within concepts, tools, standards and other technologies of the government and render the issue of biodiversity governable. For instance, the use of the IUCN Global Standard for NbS by TCI could function as standard-setting technique which renders the rationalities governable. Accordingly, the ES, NCP and NbS concepts show a pattern of 'our relationship with nature as well as the proposed solutions increasingly focused on instrumental values of nature' (Randrup et al., 2020, p. 921). This is problematic following the reasoning that assumptions about nature and human-nature relationships will 'define the way conservation practices are envisioned and produced' (Beumer & Martens, 2013, p. 3106). The framing of biodiversity as a solution for climate change will result in certain biodiversity aspects to be overlooked or downplayed (Uggla, 2018). Therefore, the use of these concepts by TCI will affect the solutions which will be practiced (Elliott, 2020). In fact, Randrup et al. (2020) argue that 'the increased emphasis on economic and instrumental values as well as technocratic solutions has not hindered the rapid decline of natural areas and biodiversity' (p. 920). Therefore, there is a need to study these concepts and underlying values used by TCI, as they express a rationality how biodiversity should be governed.

3.3 Governmentality with a 'green' twist: biodiversity rationalities and techniques explored

Foucault's ideas inspired many scholars to study socio-ecological relationships (e.g. Agrawal, 2005a; Fletcher, 2010; Goldman, 2001). Scholars applied Foucault's approach to the government of nonhuman processes, such as the number of species or forests (McGregor et al., 2015; Lovell, 2013*).* Governmentality has attained a 'green twist' over the years – resulting in concepts such as green governmentality, environmentality or eco-governmentality (Bäckstrand & Lövbrand, 2006; Wang, 2015; Death, 2013). The concept 'environmentality' can be defined as 'the knowledges, politics, institutions, and subjectivities that come to be linked together with the emergence of the environment as a domain that requires regulation and protection' (Agrawal, 2005a, p. 226). Similar to the concept of environmentality, is the concept of 'green governmentality' which in turn 'assumes that governmentality itself creates the environment as a thinkable and governable space' (Methmann, 2013, p. 74). Assessing 'green governmentality' implies the study of 'how nature is rendered governable, thereby shedding new light on the complexity of environmental issues' (Wang, 2015, p. 322).

Accordingly, one can question how biodiversity is rendered governable (Methmann, 2013; Death, 2013). Global environmental threats such as climate change and biodiversity led to a renewed set of 'eco-knowledges' which expand government control to the whole Earth (Luke, 1999, p. 104; Bäckstrand & Lövbrand, 2006). Similar to climate change, rendering biodiversity governable is an example of global governmentality, as it is framed as a 'planetary problem space': biodiversity loss impairs the long-term viability of the world's ecosystems (Beumer & Martens, 2013; Methmann, 2013, p. 71). Lövbrand et al. (2009) refer to the concept of the Anthropocene, as 'a new geological époque dominated by human activity' (p. 10). They argue that 'Earth System Science is involved in the making of a new kind of population, namely humankind for the first time understood as a major geological force' (p. 8). Additionally, Fletcher (2010) argues that efforts to conserve biodiversity, can be seen as 'an exercise of biopower' in which efforts are 'commonly justified in terms of their role in nurturing and sustaining life' (Fletcher, 2010, p. 175). In fact, biodiversity becomes governable ''as it is constituted as an object of governance through the production of particular 'truths' about the nature of human-climate interactions, and the amenability of social and climatic systems to management,

manipulation, and 'government'' (McGregor et al., 2015, p. 141). In turn, analyzing the framing of biodiversity by TCI entails the study of the body of knowledge which makes the issue of biodiversity governable. In environmental politics, competing rationalities concerning the kind of nature-society relationships exist and can be examined.

Several authors (e.g. Bäckstrand & Lövbrand, 2006; Clapp & Dauvergne, 2011; Fletcher, 2010; Goldman, 2001; Lövbrand et al., 2009) identified various rationalities within the environmental domain. First of all, Lövbrand et al. (2009) point towards a range of political rationalities for sustainability in the Anthropocene. They distinguish two extreme ends: 'management first' versus 'ethics first'. In this management first approach, there is an optimistic perspective regarding human-control and self-determination, resulting in a focus on technological fixes such as geoengineering (Lövbrand et al., 2009). In contrast, in the ethics first approach, they stress the complexity and vulnerability of the Earth system, and direct towards the development of a new ethical framework for Earth Stewardship (Lövbrand et al., 2009). Lövbrand et al. (2009) here refer to Litfin (2005) who discusses notions of 'Gaian democracies', in which 'hierarchical structures of domination would give way to participatory networks, and symbiosis would displace competition as the defining modality in economic exchange' (p. 514).

Additionally, Bäckstrand & Lövbrand (2006) identify three discourses of global environmental governance: ecological modernization, green governmentality and civic environmentalism. Firstly, the ecological modernization approach is characterized by the compatibility of environmental conservation and economic growth. As ecological degradation is decoupled from economic growth, it allows to transform current capitalism models into more environmentally friendly systems (Hajer, 1995). Secondly, Bäckstrand & Lövbrand (2006) interpret the discourse of green governmentality as 'administration of life itself' which incorporates 'a global form of power tied to the modern administrative state, mega-science and big business' (p. 54). They take a rather technocratic approach on green governmentality as an 'elitist and totalizing discourse that effectively marginalizes alternative understanding of the natural world' (p. 55). In this green governmentality, new eco-knowledges emerge which 'organize and legitimize common understandings of the environmental reality and enforce 'the right disposition of things' between humans and nature' (Bäckstrand & Lövbrand, 2006, p. 54). Lastly, Bäckstrand & Lövbrand (2006) argue that within civic environmentalism, discourse participation and 'stake-holding' are central features. They argue that within negotiations on land use change and forestry projects, discourses of green governmentality and ecological modernization are dominant.

A different perspective is presented by Fletcher (2010), who developed five rationalities based on the work of Foucault (2008). Fletcher (2010) argues that governmentality embodies a disciplinary, sovereign, neoliberal and 'according to truth' form of power (Foucault, 2008). Fletcher (2010) intermingles these forms of power with rationalities and argues that several – sometimes overlapping - governmental rationalities exist in the conservation of biodiversity. Since the introduction of the framework of Fletcher (2010), many scholars applied the rationalities in multiple venues in the biodiversity domain (Fletcher & Breitling, 2012; Hjort, 2020; McGregor et al., 2015; Wynne-Jones, 2012). Interestingly, one key insight from these studies is that rationalities are often mixed within the biodiversity conservation debate (Fletcher, 2010).

Firstly, Fletcher (2010) discusses the market-based 'neoliberal rationality'. Within this rationality, market mechanisms and economic incentives are seen as the primary means to manage the population (Fletcher, 2010). Cost-benefit analysis, PES, ecotourism, financial incentives and economic growth form the basis for the technologies and rationales (McGregor et al., 2015). Secondly, Fletcher (2010) explores the 'disciplinary rationality', which entails the study of practices of the

government which aim to internalize pro-environment values and norms (Agrawal, 2005a). Environmental education through diverse decentralised institutions would be an example of this rationality in action (Fletcher, 2010). Thirdly, the 'fortress conservation' rationality relies on sovereign power, and entails the conservation of biodiversity through a 'fences and fines' strategy, in which protected nature areas are created and guarded (Fletcher, 2010, p. 177). In this command-and-control governance, surveillance technologies and forest guards can be seen as examples of techniques of government (McGregor et al., 2015; Fletcher, 2017). Fourthly, Fletcher (2010) discusses the 'truth rationality' which is based on claims regarding the interconnection of humans with nature (Fletcher, 2010). In this truth rationality, indigenous groups and traditional ecological knowledge are used as techniques (Fletcher, 2010). Accordingly, 'local human–forest relations and claims to authority may be legitimised through reference to traditional knowledge and practices, and customary claims of forest users' (McGregor et al., 2015, p. 141). Fifthly, the emergence of the 'liberation rationality' is 'more concerned with social and environmental justice than biodiversity preservation' (Fletcher, 2010, p. 178). Fletcher (2010) argues that this social justice rationality is about championing a 'democratic, egalitarian, and non-hierarchical forms of natural resource management in which local people enjoy a genuinely participatory (if not self-mobilizing) role' (p. 178). According to Fletcher (2017), this rationality aligns with the critique towards conceptions of rationality which tend to overlook more autonomous and local forms of environmental governance. Claims to authority are legitimized by referring to principles of social and environmental justice (McGregor et al., 2015).

However, these five rationalities of Fletcher (2010) can be critiqued. Firstly, while this approach fulfils the quest to explore various rationalities, Fletcher (2010) takes a particular stance in which he identifies governmentality as almost synonymous with neoliberalism. Fletcher (2010) argues that biodiversity conservation has been 'infused with a neoliberal economic philosophy' (p. 172). He seeks to analyse 'neoliberalism not merely as a capitalist economic process but rather, following Foucault, as a far more general strategy of governing human action in a variety of realms' (p. 171). As argued above, this 'liberal bias' can be critiqued and accordingly, this study explores a more plural account of governance (Walters, 2012, p. 72). Furthermore, the equation of rationalities and forms of power can be critiqued, as all forms of power - whether sovereign or disciplinary - are present at the varied rationalities. For instance, a fortress rationality goes often hand in hand with neoliberal market incentives. Moreover, Fletcher (2010) has a distinct conceptualization of governmentality compared to the approach of Rose et al. (2006) taken in this research. Rather than seeing governmentality in its broadest sense – 'the conduct of conduct' - Fletcher (2010) identifies governmentality as a rationality, instead of the particular power which is underpinning it. In fact, TCI rely on governmentality as mode of power compared to forms of power discussed by Fletcher (2010) (e.g. sovereign power), limiting the relevance to apply this framework in this study.

However, Clapp & Dauvergne (2011) provide archetypes which *do* enable the study of governmentality as a mode of power enacted by TCI. They formulated four archetypes on global environmental change and its relationship with the global political economy: the market liberals, institutionalist, bio-environmentalists and social greens. First of all, in the market liberal archetype, they argue that there is an optimistic belief in the capacity of science and technology to halt environmental degradation. Market liberals have faith that scientific achievements and technology will help to reverse environmental problems (Clapp & Dauvergne, 2011). Second, Clapp & Dauvergne (2011) argue that institutionalists focus on stronger global institutions and the need for sufficient state capacity in directing the global political economy. Whereas market liberals belief in economic growth, trade and technology, institutionalists share these beliefs as well (Clapp & Dauvergne, 2011). However, whereas market liberals emphasize the advantages of solutions derived from free markets and technology, institutionalists stress the need for institutions, norms and sufficient institutional capacity

to govern the global political economy. Additionally, both market liberals and institutionalists do not refuse the organization of the current political economy. Institutionalists argue that biodiversity issues can be overcome by building stronger global, national and local institutions which in turn contribute to collective biodiversity goals (Clapp & Dauvergne, 2011). Third, Clapp & Dauvergne (2011) suggest that bio-environmentalists stress the biological limits of the Earth. Bio-environmentalists frame the Earth as a living being, as a holistic organism - the so-called 'Gaia Hypothesis' formulated by James Lovelock. Lastly, the social green approach focuses on the need to approach environmental degradation from the perspective of social relations, as these generate this degradation and create uneven exposure to the consequences (Clapp & Dauvergne, 2011). Social greens refuse the current global economy, and stress the need for major reforms. For instance, many social greens emphasize the need to restore local community autonomy to reverse environmental problems. This is translated in an emphasis on local indigenous knowledge (Clapp & Dauvergne, 2011). Interestingly, Bulkeley et al. (2014) applied these worldviews and argue that the market liberal and institutional archetype are the most common in their database of TCI. In fact, Bulkeley et al. (2014) argue that these initiatives often have a 'neo-liberal heritage', which in turn can explain the focus of TCI on market development and the underlying rationalities that support TCI activity.

All in all, these different rationalities in environmental politics inform the study on framing and governing of biodiversity by TCI. Based on these different approaches, an overarching set of rationalities can be identified. Similar to the findings of Lövbrand et al. (2009), two large strands of rationalities can be distinguished among the different approaches: a more technocratic, management 'first' approach versus an approach which puts ethics 'first' and identifies social relations as fundamental prerequisite for biodiversity conservation. However, Clapp & Dauvergne (2011) give more detail in what kind of nature-society relationship TCI adopt, especially in drawing attention to *how* one seeks to govern biodiversity, whether it is through markets, institutions, by applying a nature-centric point of view or 'radical change in the economic system' (Bulkeley et al., 2014, p. 149). As this study aims to analyse how TCI seek to govern biodiversity, this research will use these four archetypes as a starting point. Accordingly, the derived techniques are a hybrid combination of the varied discussed approaches (Table 3.2).

Table 3.2: Biodiversity archetypes and examples of techniques

Lövbrand et al. (2009)	**Clapp & Dauvergne (2011)**	**Techniques**
Management first *optimistic perspective regarding human-control and self-determination*	Market liberals *Through markets* ***Market first***	Financial incentives to reward pro-conservation behaviour; Market-based mechanisms such Payments for Ecosystem Services (PES) and ecotourism; commodification of natural resources; biodiversity offsetting; financial incentives and economic growth form the basis for the technologies and rationales
	Institutionalist *Through institutions* ***Institutions first***	Protected areas; fences and fines' strategy; forest guards; need for stronger global institutions and global cooperation; need for sufficient state capacity in directing the global political economy
Ethics first *complexity and vulnerability of the Earth system*	Bio-environmentalists *Through a nature-centric point of view* ***Nature first***	'limits to growth' perspective; the Earth as a living being; notions of 'Gaia Hypothesis'; Earth as life-support system
	Social greens	Traditional indigenous knowledge; indigenous groups; participatory networks; principles of social and environmental

	Through radical change in the economic system ***Social relations first***	justice; discourse participation and 'stake-holding'; common property regimes (CPR)[3]

However, applying these archetypes could give the impression that these are rigid and fixed, a frequently mentioned critique on governmentality, which suggests that the approach is 'guilty of homeostasis' in which 'rigid models of government' are produced (Rose et al., 2006, p. 98; Walters, 2012). Rather, Rose et al. (2006) argue that the practice of rationalization is never finished and that rationalities will 'constantly undergo modification in the face of some newly identified problem or solution, while retaining certain styles of thought and technological preferences' (p. 98). In other words, these archetypes form a broad family of ways of thinking, which informs the study of biodiversity governance by TCI, rather than prescribing it (Rose et al., 2006).

3.4 Thinking through different lenses: an analytical framework

As discussed earlier, this study explores the multiple means through which governing is accomplished by taking a governmentality approach. This study will explore the governmental archetypes, the accompanied governmental technologies, the addressed values and how TCI aim to contribute to biodiversity as a starting point (Table 3.3). Besides these examples of governmental techniques, this study will look into the broad range of developed techniques, devices, expertise, tools, instruments and materials that render rationalities governable. By applying this framework, this study sheds light on the framing and governing of biodiversity by TCI and how novel forms of authority are generated which enables them to exert their influence. Additionally, concepts such as NbS and NCP can function as an indicator for the kind of rationality TCI employ. For instance, NbS can be referred to by focusing on cost-efficiency, indicating a market liberal point of view, whereas in other cases it could stress social justice dimensions, revealing a social greens perspective. However, it should be stressed that this research will combine the derived insights formulated in Table 3.3 with additional rationales and techniques which are inductively derived from the data itself.

Table 3.3: Analytical framework in studying the governing and framing of TCI

Governmental archetypes	**Examples of governmental techniques**	**Values**	**Biodiversity goals**
Market liberals	Financial incentives to reward pro-conservation behaviour; Market-based mechanisms such Payments for Ecosystem Services (PES) and ecotourism; commodification of natural resources; biodiversity offsetting; financial incentives and economic growth form the basis for the technologies and rationales; Focus on instrumental values	Instrumental Intrinsic Relational	Conservation Restoration Thriving with nature
Institutionalists	Protected areas; fences and fines' strategy; forest guards; need for stronger global institutions and global cooperation; need for sufficient state capacity in directing the global political economy	Instrumental Intrinsic Relational	Conservation Restoration Thriving with nature
Bio-environmentalists	'Limits to growth' perspective; the Earth as a living being; notions of 'Gaia Hypothesis'	Instrumental Intrinsic Relational	Conservation Restoration Thriving with nature

[3]CPRs refer to situations in which actors collectively manage common pool resources. Scholars of CPR draw attention to greater participation and democracy in resource management, as they demonstrate that individuals are capable to self-organize under certain conditions, such as thrust and information (Ostrom et al., 1999).

Social greens	Traditional indigenous knowledge; indigenous groups; participatory networks; principles of social and environmental justice; discourse participation and 'stake-holding'; CPR	Instrumental Intrinsic Relational	Conservation Restoration Thriving with nature

Lastly, questions related to whether TCI are contributing to limiting biodiversity loss can be discussed. A governmentality lens approaches these kinds of questions differently than the conventional ways of assessing 'effectiveness' or the 'problem solving capacity' of a governance system (Bäckstrand, 2006, p. 292). Especially the insight from Discipline and Punish (Foucault, 1977) explored by Bulkeley et al. (2014) enriches this line of inquiry. According to Bulkeley et al. (2014), Foucault (1977) argues that:

'the effectiveness of the prison system that emerged from the early 19th century was to be found less in whether or not it reduced the incidence of crime but more in the novel sorts of disciplinary governance that it produced, and how the prison system sustained its legitimacy even in the face of increases in incidence of crime' (p. 59).

Consequently, this analysis is more concerned with the effectiveness of producing and sustaining forms of governance in terms of rationalities and practices: TCI may be effective in producing particular rationalities and practices, whether or not it limits biodiversity loss (Bulkeley et al., 2014).

Chapter 4 – Methodology

In this section, insight will be given in the employed methodology: its research strategy, case selection, employed variables, operationalisation, research methods, data collection and data processing.

4.1 Research strategy

This research has taken a qualitative interpretivist perspective, in which the aim was to derive a meaning-based analysis rather than a testing-hypotheses analysis. This research has an explorative character as little knowledge about the framing of biodiversity by actors outside the biodiversity arena, notably TCI, exists. This study has followed a comparative, multiple-case study design strategy, which was performed in a two-level analysis (Table 4.1). By performing this comparative analysis, similarities and differences between the cases emerge (Verschuren & Doorewaard, 2010). First, a broader sample of 20 TCI was studied in order to examine the general framing and governing of biodiversity by TCI. This explorative study did not seek to generate a comprehensive overview of the rationales and techniques employed per TCI, but aimed to map the overarching rationales and techniques. Second, an in-depth case study of six initiatives was performed to study the rationalities and techniques in-depth. This comparative case study was performed in a hierarchical method (Verschuren & Doorewaard, 2010). In the first stage cases were separately analysed, which was followed by the second stage in which a comparative analysis between the cases was performed.

Table 4.1: Research strategy

Research strategy phases	
Phase 1	Explorative case study of 20 TCI
Phase 2	In-depth case study of six TCI

4.2 Case selection

4.2.1 Explorative content analysis of twenty initiatives

This study has been performed in collaboration with PBL Netherlands Environmental Assessment Agency. They not only assisted in this study by sharing their knowledge based on their experience in the field of transnational biodiversity governance, but they also assisted by sharing their database. The sample employed in this study was made available from a database of Negacz et al. (2020) within the BioSTAR project. The BioSTAR project is a collaboration between PBL Netherlands Environmental Assessment Agency and the Institute for Environmental Studies (IVM). The database was collected by the integration of the databases from BioSTAR and CONNECT-project and focuses on five sectors within biodiversity: climate change, agriculture, energy, fisheries and forestry. This list was derived based on an analysis on keywords related to biodiversity, resulting in a database of 331 initiatives (see Negacz et al., 2020 for further information).

This larger sample of 331 initiatives of Negacz et al. (2020) has some key features. Firstly, Negacz et al. (2020) argue that in their database the largest group of initiatives are public (33%), followed by private initiatives (28%) and hybrid initiatives (21%). Interestingly, they found that mostly hybrid initiatives included climate change in relation to biodiversity. Moreover, Negacz et al. (2020) argue that the initiatives in their database mainly operate in the domains of agriculture, oceans and forests. Additionally, they argue that most of the initiatives are located in European and African countries. Furthermore, Negacz et al. (2020) argue that most of the headquarters of the initiatives are located in US and European cities. They argue that this geographical clustering might be the result of larger international organisations who attempt to host secretariats of initiatives (Negacz et al., 2020).

In terms of biodiversity, they argue that the initiatives have primarily an indirect influence on biodiversity by governance functions such as networking or the distribution of knowledge, rather than on-the-ground activities. Furthermore, Negacz et al. (2020) analysed the presence of the goals defined by the CBD (2020), and found that most initiatives focused on sustainable use (73%), followed by conservation (66%) and access and benefit sharing (30%). Moreover, they argue that these initiatives often combine these goals.

This list of Negacz et al. (2020) included initiatives that qualify as transnational governance based on a similar definition of Andonova et al. (2009), which is the case 'when networks operating in the transnational sphere authoritatively steer constituents towards public goals' (Andonova et al., 2009, p. 56). The database of Negacz et al. (2020) include initiatives which intentionally steer the constituents of the network towards a common governance goal, which accordingly is accomplished by several governance functions (Widerberg et al., 2016). The sample employed in this study was derived based on applying criteria on the database of Negacz et al. (2020). Firstly, Negacz et al. (2020) selected a list of initiatives based on the criteria of its operations within Sustainable Development Goal (SDG) 13 'Climate action'. This SDG emphasizes the need to take action to combat climate change and its consequences (United Nations (UN), 2020). This has resulted in a sample of 39 initiatives which include both climate change and biodiversity in their practices. In other words, this list included initiatives which seek to govern a constituency towards the public goals of climate action and biodiversity loss. However, differences occurred among the initiatives, in which several initiatives had biodiversity as principal aim and others address climate change as their overarching objective. Therefore, this research applied their own criteria in order to answer the questions this research is interested in.

In order to be included in the sample, an initiative had to fulfil several criteria. Firstly, initiatives needed to address climate change as their overarching objective rather than biodiversity as their principal aim. The rationale to select initiatives which have climate change as their overarching goal was based on the assumption that these climate initiatives acquired recognition for being proactive in climate change and therefore derived 'legitimacy to act' (Okereke et al., 2009). Therefore, from a governmentality perspective, it is interesting to analyse how they seek to govern biodiversity, and how they relate the rationale of limiting climate change to biodiversity. For instance, discussions regarding the concept of NbS could give insight in whether they focus on biodiversity as a solution for climate change, or whether these initiatives instead emphasize the intrinsic value of biodiversity. As climate change is a multidimensional phenomenon, the initiatives included in the list focus on different activities, from financing activities to a focus on indigenous rights, from deforestation to practices of agriculture, and so on. An initiative fulfilled the criteria, when the initiative predominantly frames these activities as effort to limit climate change instead of an effort to halt biodiversity loss. Initiatives which addressed biodiversity as their principal objective, were excluded from the list. For instance, an initiative such as 'The Forest Ecosystem Restoration Initiative' has biodiversity as an overarching goal and was therefore excluded. Another example is the International Work Group for Indigenous Affairs initiative, which was excluded from the sample as its overarching goal is protecting the human rights of these local communities, rather than mitigating and adapting to climate change. Furthermore, the Climate Alliance of European Cities with Indigenous Rainforest Peoples combines indigenous rights with climate change, and was therefore included in the list of initiatives. To determine whether an initiative fulfils these criteria, this study mainly relied on mission or purpose statements on their websites. As a result, the list of 39 initiatives was limited to 24 TCI.

Furthermore, these initiatives focus on a variety of activities in distinct domains. This study expects that the domain in which the initiatives operate will make a difference in how they seek to govern

biodiversity. For instance, it is expected that an initiative operating in indigenous rights (Indigenous Climate Action) versus an initiative focusing on carbon markets (Gold Standard) will seek to govern biodiversity in alternative ways. Therefore, a selection of TCI was made based on the domain they operate in. TCI were distinguished according the following dimensions: Carbon sequestration & Forests, Carbon markets & Finance, Regions, Cities & Local communities, Agriculture & Food and Development & Energy (Bulkeley et al., 2014). Accordingly, the IPBES (2019) argues that land-use change is the largest driver of biodiversity loss. Especially agriculture, urbanization and forestry are argued to be the main drivers of land-use change (IPBES, 2019). Furthermore, most of world's biodiversity can be found in traditionally owned areas, managed by local communities, stressing the necessity to limit biodiversity loss in these areas (IPBES, 2019). Subsequently, this research chose to focus on initiatives which operate in the following domains: Carbon sequestration & Forests, Carbon markets & Finance, Agriculture & Food and Regions, Cities & Local communities. This means that the Development & Energy sector was deleted from the list, which interestingly also contained the least number of initiatives (together 3). As a result, the Roundtable of Sustainable Biofuels, Supporting Entrepreneurs for Sustainable Development (SEED) and UN Global Compact Caring for Climate were deleted from the sample, resulting in a sample of 21 TCI (Table 4.2). However, in a later stage the initiative 'the African Climate-Smart Agriculture Alliance' was found to be non-active, which led to the exclusion of this initiative from the list. The resultant sample of 20 TCI were studied based on their framing and governing of biodiversity (Figure 4.1 & 4.2; Table 4.2).

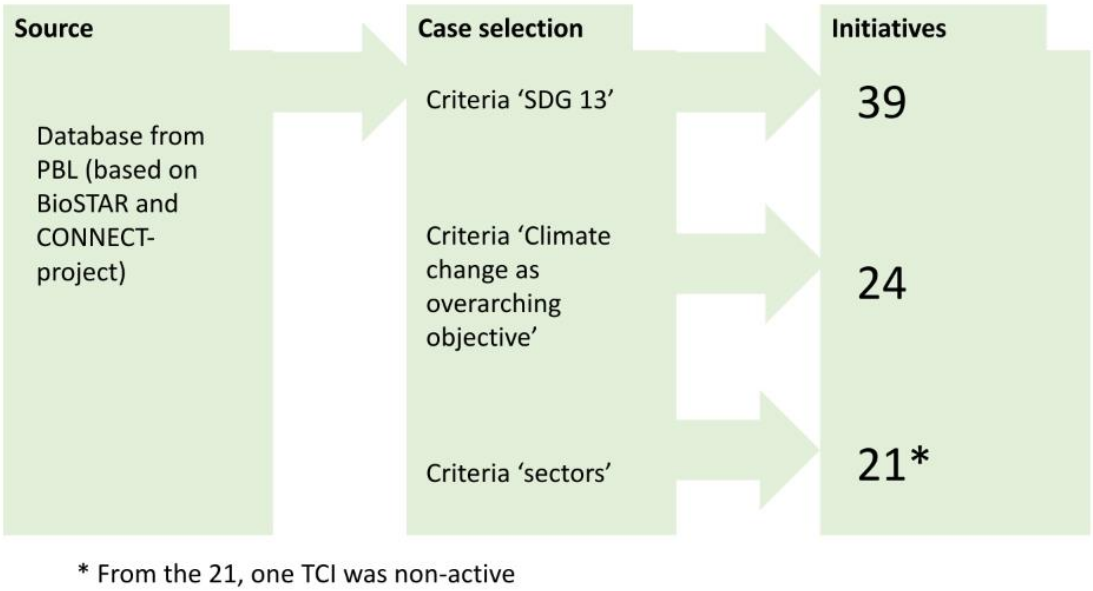


Figure 4.1: Case selection procedure

Table 4.2: Sample

Sample	Sector[4]
4 Pour 1000 (4P1000)	Carbon sequestration & Forests
Blue Carbon Initiative (BCI)	Carbon sequestration & Forests
Cool Earth (CE)	Carbon sequestration & Forests
Nature 4 Climate (N4C)	Carbon sequestration & Forests
Climate and Land Use Alliance (CLUA)	Carbon sequestration & Forests
Rainforest Alliance (RA)	Carbon sequestration & Forests
Cities Climate Finance Leadership Alliance (CCFLA)	Carbon markets & Finance
International Development Finance Club (IDFC)	Carbon markets & Finance
The Gold Standard (GS)	Carbon markets & Finance
UNEP Finance Initiative (UNEP-FI)	Carbon markets & Finance
WEF Sustainable Development Investment Partnership (SDIP)	Carbon markets & Finance
Social Carbon (SC)	Carbon markets & Finance
Climate Alliance of European Cities with Indigenous Rainforest Peoples (CA)	Regions, cities & local communities
Global Covenant of Mayors of Climate & Energy (GCMCE)	Regions, cities & local communities
Governors' Climate and Forest Task Force (GCFTF)	Regions, cities & local communities
Indigenous Climate Action (ICA)	Regions, cities & local communities
Plan Bleu (PB)	Regions, cities & local communities
We Are Still In (WASI)	Regions, cities & local communities
Interreg MED (IMED)	Regions, cities & local communities
The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)	Agriculture & Food

[4] The initiatives were coded based on the primary domain they operate in. It should be stressed that the thematic division does not imply that the initiatives do not operate within the other categories. Instead, the initiatives were ordered based on their primary activities. For instance, the initiative Cool Earth focuses on carbon sequestration & forests in local communities. Their principal goal is carbon sequestration, and the way they realize this aim is by working with local communities.

Figure 4.2: Sample of TCI

4.2.2 In-depth content analysis of six initiatives

Based on this sample of twenty initiatives, six of them were studied in depth. These initiatives were selected based on the primary domain they operate in. This study argues that TCI operating in the 'Carbon sequestration & Forestry' domain are especially interesting from a biodiversity perspective. In this domain, activities such as tree planting and restoring ecosystems for carbon sequestration could draw the attention away from protecting these biodiverse, native ecosystems. Even more, these practices could even negatively affect biodiversity in these ecosystems (Seddon et al., 2021). Based on the severe implications this can have for biodiversity, this study chose to focus on the Carbon sequestration & Forestry sector. These six TCI were studied in depth to examine the rationalities and accordingly the techniques through which these rationales are rendered governable (Table 4.3).

Table 4.3: Selected TCI for the in-depth content analysis

TCI	Sector
4 Pour 1000	Carbon sequestration & Forests
Blue Carbon Initiative	Carbon sequestration & Forests
Cool Earth	Carbon sequestration & Forests
Nature 4 Climate	Carbon sequestration & Forests
Climate and Land Use Alliance	Carbon sequestration & Forests
Rainforest Alliance	Carbon sequestration & Forests

4.3 Mapping the variation of TCI: variables

This study collected descriptive data for the 20 initiatives based on the targeted sector, arrangement type, target participants, number of members, membership, year of initiation, geographical coverage and finance. In Table 4.4, the types of variables are shown (see Appendix IV for further information). These variables assist in analysing 'what types of initiatives do what and where' (Kok et al., 2019, p. 18). Overall, data was derived based on self-reported information of initiatives on their websites. When the provided information here was limited, third-party websites or press articles were employed. It should be noted that in some cases, information was not made available by TCI, especially regarding the finance of TCI and formality of membership, which limited the analysis.

Table 4.4: Causal variables

Variables	Classification
Targeted sector	Carbon sequestration & Forests, Carbon markets & Finance, Regions, Cities & Local communities, Agriculture & Food
Arrangement type	Public, private or hybrid
Target Participants	Local governments (e.g. municipalities, provinces) governments/sub-national governmental units (e.g. ministries), business, NGOs and individual consumers
Number of members	Number
Formality of membership	Formal membership structures (membership fees, register of members and form of legal designation/arrangement) and informal membership structures (voluntary affiliation)
Year of initiation	Year
Geographical coverage of the initiatives' actions	Country, region or continent
Location of headquarters	City
Finance	Type of organization (private, public, philanthropic) Forms of finance (gift, loan, grant, investment) List of actors/amount of funding

4.4 Operationalisation

For the analysis, codes were derived based on the literature review in combination with additional codes which were inductively derived from the data itself. Examples of codes are shown below (Table 4.5, 4.6 & 4.7)

Table 4.5: Coding Archetypes

Archetypes	Sub-codes
Market liberals *Market first*	Financial incentives to reward pro-conservation behaviour; Market-based mechanisms such Payments for Ecosystem Services (PES) and ecotourism; commodification of natural resources; biodiversity offsetting; financial incentives and economic growth form the basis for the technologies and rationales
Institutionalist *Institutions first*	Protected areas; fences and fines' strategy; surveillance technologies; forest guards; stronger global institutions and global cooperation; need for sufficient state capacity in directing the global political economy
Bio-environmentalists *Nature first*	'Limits to growth' perspective; the Earth as a living being; notions of 'Gaia Hypothesis'
Social greens *Social relations first*	Traditional indigenous knowledge; indigenous groups; participatory networks; principles of social and environmental justice; discourse participation and 'stake-holding'; CPR

Table 4.6: Coding biodiversity goals (derived from Xie & Bulkeley, 2020, p. 81)

Category	Sub-codes
Conservation	Genetic-based; species-based; ecosystem-based
Restoration	Genetic-based; species-based; ecosystem-based
Thriving with nature	Social Cultural Economic Climate Environmental

Table 4.7: Coding values of nature (derived from Pascual et al., 2017)

Values	Sub-codes
Instrumental values	Regulation of climate, habitat creation and maintenance, pollination, food, feed, energy, materials
Intrinsic values	Animal rights, Gaia, Mother Earth, Genetic diversity, species diversity, evolutionary and ecological processes
Relational values	Good quality of life, Way of life, health, cultural identity, social cohesion

4.5 Research methods

This research took a constructionist approach by performing a discourse analysis (Sharp & Richardson, 2001). Discourse analysis stems from Goffman (1974) who discussed how humans use frames to understand the world around them and respond to events (Van Den Burg & Bogaardt, 2014). According to Hajer (1995), discourses can be defined as 'a specific ensemble of idea, concepts, and categorisations that are produced, reproduced and transformed in a particular set of practices through which meaning is given to physical and social realities' (p. 44). Through these discourses, actors exercise power 'through trying to impose a particular frame or discourse onto a discussion' (Hajer & Versteeg, 2005, p. 177).

Discourses can be identified inductively, deductively or abductively (Sharp & Richardson, 2001). The quest for interpretation in this study is found within sensitizing concepts or 'abduction'. In abduction, which is neither inductive or deductive, researchers build from existing theory in which sensitizing concepts are used. Bowen (2006) argues that sensitizing concepts function as interpretive device. Abduction can be defined as 'an iterative interplay between (existing and newly developed) theoretical concepts and the data in a search for those concepts that render the data most intelligible' (Dewulf & Bouwen, 2012, p. 175). In the end, the survival of the sensitizing concepts depends on the data, as concepts derived from the data could supplement or displace these sensitizing concepts (Bowen, 2006). Concepts which were translated in to codes were created based on the literature, and in turn these were supplemented by concepts which emerged from the data.

4.6 Research materials, data collection and data processing

This study has performed a qualitative content analysis. In this qualitative content analysis, data was generated from documents (Verschuren & Doorewaard, 2010). 'Data' according to Foucault is text, or what he called the 'archive' (Walters, 2012). The analysis was based on secondary sources, such as websites and reports (see Appendix V & VI). A hierarchy of documents was installed to enhance the consistency of the research. First, the self-reported governance statements on the websites of TCI were studied (e.g. 'About', 'Strategy', 'Objectives', 'What we do', 'Mission/vision', 'Background', 'History', 'Activities' and 'Guiding Principles'). Second, project reports, newsletters, annual reports and press coverage were examined. Furthermore, an equal time frame was reserved for the study of each initiative to enhance this research's consistency. For the explorative case study, half of a day was reserved to collect the data from the initiatives. In gathering the data, key search terms were occasionally used, which were derived from Negacz et al. (2020). They distinguish between strong and weak keywords (Table 4.8). This study focused mainly on strong keywords such as 'nature-based solutions', 'diversity', 'biodivers*', 'conserv*' and 'restoration'. For the in-depth case study, social media was an extra source of data. Additional data from three social media platforms (Twitter, Facebook and LinkedIn) over the last six months (January-June 2021) was collected for these six TCI. However, the Blue Carbon Initiative was non-active on social media, and for this TCI extra data could not be gathered. Additionally, some of the TCI were not active on all of the three social media platforms. For instance, the Climate and Land Use Alliance was only active on Twitter.

Furthermore, as discourse analysis is an iterative process of decontextualization and recontextualization, the researcher will iterate between data and concepts (Starks & Trinidad, 2007). In the decontextualization phase, the researcher separates the data from the original contexts and assigns codes to the text. In the phase of recontextualization, the researcher analyses the codes to identify patterns, and refines the initial leads that will arise from the data into themes (Starks & Trinidad, 2007). The coding of documents and interview transcripts was performed in an open and inductive way. For the analysis, NVIVO was used to facilitate the coding. Examples of codes were 'nature-based solutions', 'ecosystem services' or 'natural climate solutions'. These codes assisted in identifying patterns in the data.

Table 4.8: Key terms employed by Negacz et al. (2020)

Direct biodiversity link	**Biodivers***
Strong Keywords	Conservation of biodiversity, biological diversity, protected area, Aichi, conserv*, restoration, forest*, ecosystem, genetic diversity, habitat, species, nature based, flora, fauna, invasive
Weak keywords	Ecosystem service, biological resources, stewardship, ecological, sustainable use, ecotourism, REDD, seed, mangrove, earth, planet

*To search for multiple forms of the word

Chapter 5 - Results

In this section the results of the qualitative content analysis of TCI will be shown. First, the results from the exploratory content analysis of the twenty initiatives will be shown. Second, the results from the in-depth content analysis of the six TCI will be discussed.

5.1 Variation in TCI governing biodiversity

Among the sample of twenty TCI, variation exists. Firstly, the database reveals that private actors are the most prominent (8 out of 20), which points to the substantial role of non-state actors. This is followed by public arrangements (7 out of 20) and hybrid arrangements (5 out of 20) (Figure 5.1). In the database of Negacz et al. (2020), public actors were the largest group (33%), followed by private initiatives (28%) and hybrid initiatives (21%). Interestingly, they argue that mostly hybrid initiatives included climate change in relation to biodiversity, while this is the smallest group in this sample.

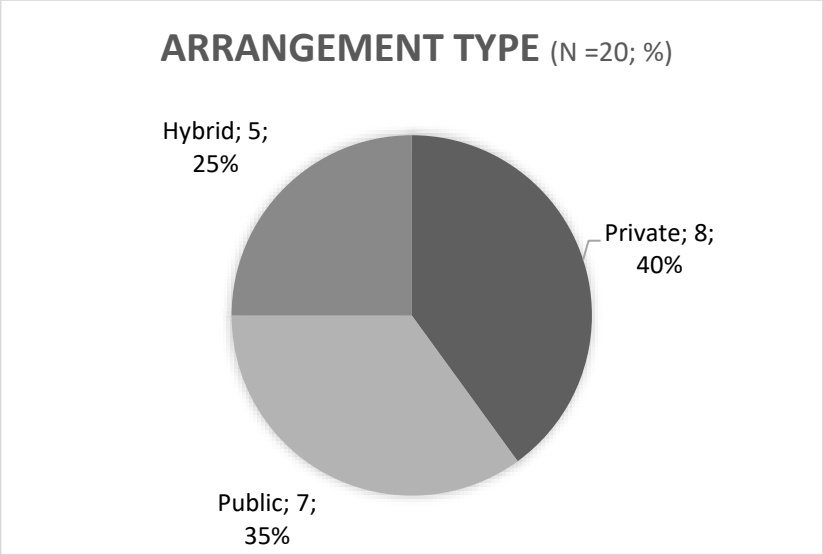


Figure 5.1: Arrangement type of TCI

Additionally, most of the TCI started their operations after 2000 (15 out of 20) (Figure 5.2). Furthermore, similar to the study of Negacz et al. (2020), most of the headquarters of the TCI are located in US and European cities. In terms of geographical coverage, most TCI take a 'global' approach, and several TCI specify their actions towards a specific continent (e.g. Latin Europe, Western Europe, Asia and North America). In addition, these TCI target a range of different actors (Figure 5.3). Moreover, Negacz et al. (2020) argue that these initiatives often combine sustainable use, conservation and access and benefit sharing goals. This research analysed conservation, restoration and thriving with nature and also finds that these goals are often combined, with conserving as most common biodiversity goal.

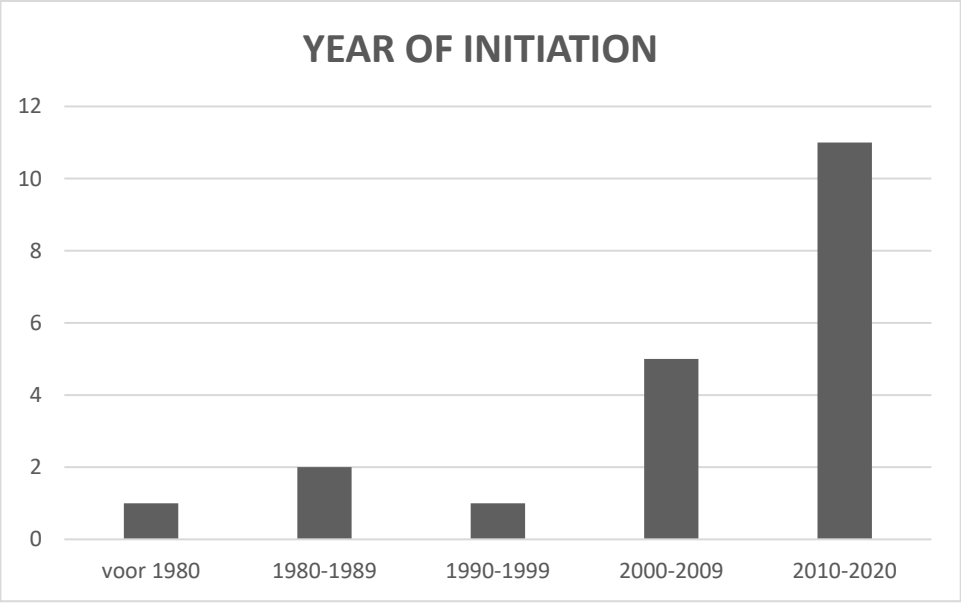
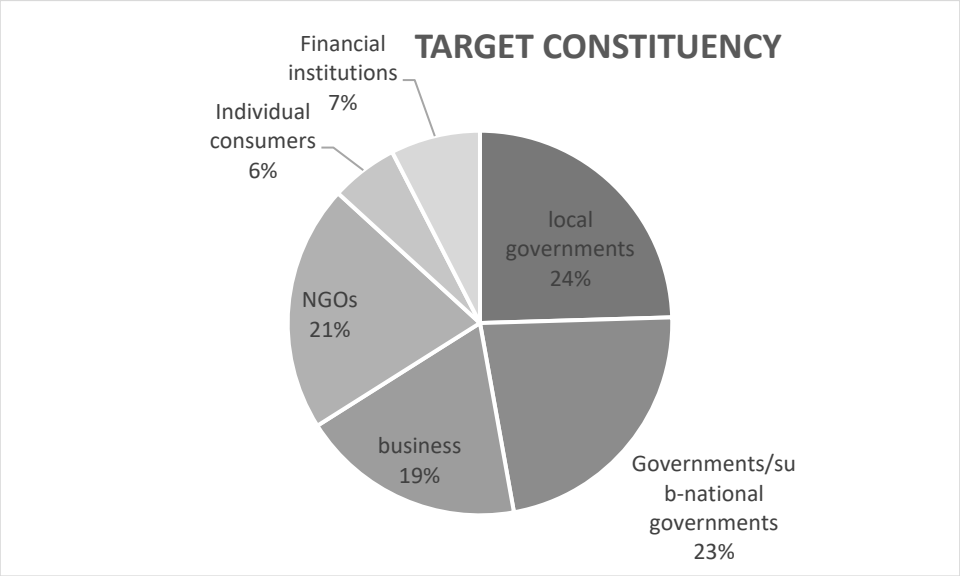


Figure 5.2: Year of initiation TCI



5.3: Target constituency TCI

5.2 Phase 1: Constructing the issue of Biodiversity

Based on the explorative content analysis, this research reveals two overarching rationalities with several distinct discursive elements in the governing of biodiversity by TCI. These rationales include the distribution of tasks and actions between actors, principles or values of how the government should be directed and the nature of objects through which biodiversity is governed (Rose & Miller, 1992). Firstly, TCI seek to govern biodiversity by expressing nature or biodiversity as a means to act on climate change. Secondly, TCI seek to govern the loss of biodiversity by portraying it as a potential risk or 'threat' and therefore the need to intervene and 'manage' biodiversity. These two overarching rationalities are portrayed in varied ways, and are rendered governable through several techniques which will be discussed in this section. Interestingly, this research reveals that TCI draw in different directions and are interchangeably using distinct elements of the rationales. This implies that no dominant rationality could be derived per TCI, and it points to incoherence in the rationales among the TCI. Additionally, one can question whether the archetypes of Clapp & Dauvergne (2011) could be attributed to the different TCI. Instead, these archetypes are found to be more fluid in this study, the employed rationalities draw to families of archetypes. On the one hand, the two overarching rationales

include dimensions of an economic rationale stressing the need for cost-effectiveness and financial incentives to limit biodiversity loss, such as ecotourism. On the other hand, they combine this with a need for local, national and global institutions such as protected areas and constructing international agreements and summits, such as the Post-2020 Global Biodiversity Framework, as the platform to act on biodiversity loss. In addition, these rationales include characteristics from a social greens and bio-environmentalist perspective, which is illustrated by the 'stewardship' element which draws across both rationales. Overall, the marketisation and institutionalisation of biodiversity across the TCI are found to be predominant. To conclude, the two overarching rationales are portrayed in distinct ways and reveal a predominant family of archetypes which will be discussed in this section (Figure 5.4).

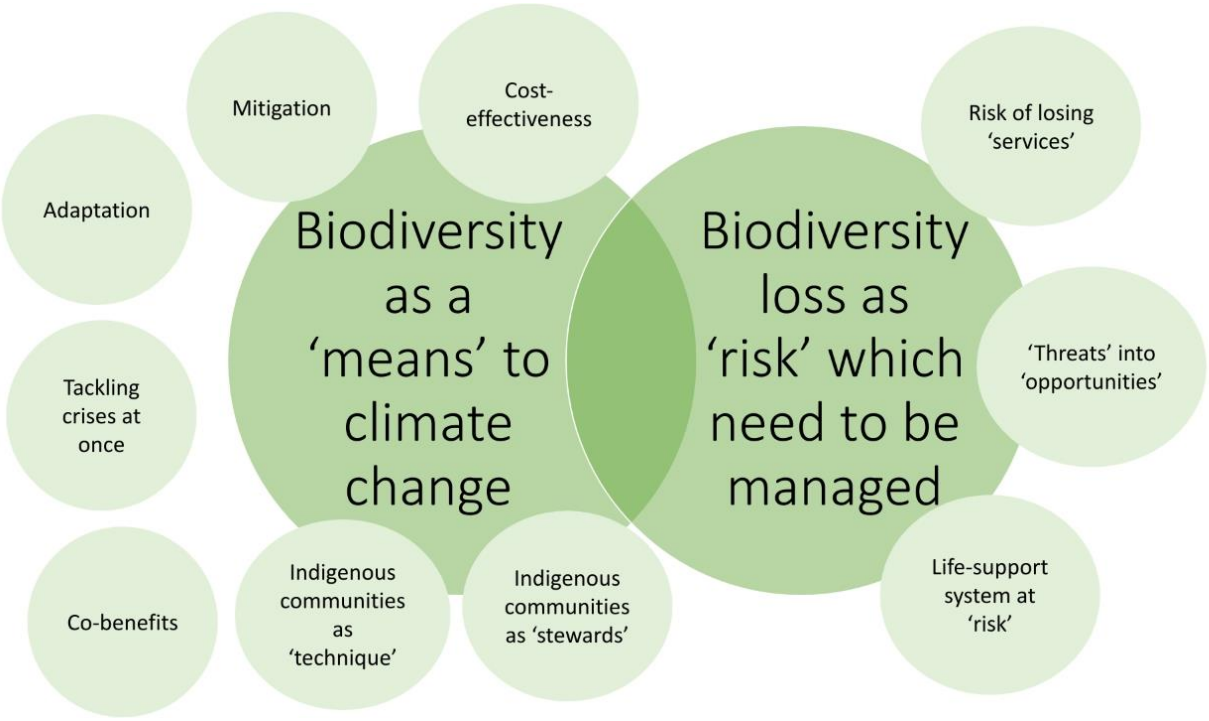


Figure 5.4: Rationales in governing biodiversity by TCI

5.2.1 Biodiversity as means for the adaptation and mitigation of climate change

In this first overarching rationale, TCI aim to govern biodiversity or nature as a 'means' to act on climate change. This rationale directs the distribution of tasks and actions in biodiversity towards actors who are historically combatting climate change.

Mitigating to climate change: ecosystems as carbon storehouses

Firstly, the rationale that biodiversity is a means to mitigate climate change is portrayed by TCI. An illustrative example of this narrative is the installing of trees or ecosystems for carbon sequestration. Interestingly, attention is drawn to trees as solution to mitigate climate change. Here, trees are referred to in terms of their 'carbon capturing' capacity (Cool Earth (CE), 2021d) and as the 'best carbon-capture technology there is' (Rainforest Alliance (RA), 2019b). In turn, these ecosystems as 'storehouses' of 'vast amounts of carbon' (Climate and Land Use Alliance (CLUA), 2016b, p. 51), storehouses of 'blue' carbon (Blue Carbon Initiative (BCI), 2021a) or carbon sinks (Global Covenant of Mayors of Climate & Energy (GCMCE), 2019) are framed as in need for restoration and conservation in order to ensure their carbon capturing capacity (Figure 5.5).

Figure 5.5: Forests as carbon-capturing storehouse (Carbon Removal, 2021; referred to by CLUA, 2021f)

Adapting to climate change: increasing climate resilience

Secondly, biodiversity is argued to be a means to adapt to climate change as it increases climate resilience. For instance, Plan Bleu (PB) (2020) argues that:

'Healthy ecosystems and biodiversity tend to increase the resilience of production systems and livelihoods to shocks and stresses, including climate change…..Encouraging diversification – e.g. by using multiple species, integrating the use of crop, livestock, forest and aquatic resources, and conserving habitat diversity at landscape or seascape scale, and protecting wild genetic resources –also strongly promotes resilience, improves livelihoods and supports food security and nutrition' (p. 10)

Likewise, WEF Sustainable Development Investment Partnership (SDIP) (2021a) argues that 'better protecting nature can help us adapt to climate change and prevent disasters'. Another example of how biodiversity could be a means for climate adaptation is given by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)(2021) who refers to the adoption of community-led seed banks due to the 'benefits of adopting climate-resilient seeds' – stressing the need for genetic diversity for climate resilience.

Overall, these TCI refer to the increased 'momentum' to combine the challenges to adapt and mitigate to climate change, such as PB (2018a) who argues that 'the critical role of biodiversity, ecosystems and natural infrastructure in mitigating climate change and reducing its impacts is increasingly being recognized'. Interestingly, this rationale of biodiversity as a 'means' to climate change is often portrayed through concepts such as Nature-Based Solutions (NbS), Natural Climate Solutions (NCS) and Ecosystem Services (ESS). These concepts have in common that they all have an underlying rationale of rendering nature or biodiversity into a 'service' or 'solution'. Subsequently, rendering nature or biodiversity as a 'climate regulator' reveals a pre-dominance of instrumental values. For instance, the Gold Standard (GS) (2020) states that for their strategy towards 2025 'we're expanding our work in nature-based solutions to increase the supply of carbon removals that many companies are seeking' (p. 3-4). However, besides this pre-dominance of instrumental values, relational and intrinsic values are also mentioned. TCI refer to these kinds of values, by highlighting the generation of additional economic and social benefits, such as the wellbeing of local communities. The CCAFS (2019) illustrates this finding with the following statement:

'Nature-based solutions harness nature's capacity to reduce emissions and enhance resilience, offering a crucial response to climate change at the scale and pace that is needed to keep global temperatures within a 1.5 degrees rise. In addition, nature-based solutions also support efforts to achieve sustainable development in areas such as food security, poverty reduction and rural livelihoods'

Likewise, whereas PB (2020) does refer to relational values (quality of life), there is a predominance of instrumental values: 'NbS could involve preserving these ecosystems so that they can continue to deliver services' and 'where valuable ecosystems have suffered degradation that prevents them from providing services, it may well be worth restoring them to recover their original functionalities for climate change or other purposes' (p. 3).

Tackling the crises at once

Additionally, it is often argued by TCI that climate change and biodiversity are interlinked crises – or 'two sides of the same coin' (International Development Finance Club (IDFC), 2020, p. 1; Nature4Climate (N4C), 2021o) legitimizing an approach which combines both crises: governing biodiversity and climate change. It is argued that climate change could enlarge the biodiversity crisis, stressing the need to tackle their primary objective of combatting climate change in order to conserve and preserve biodiversity (Table 5.1).

Table 5.1: Tackling both crises at once

TCI	Illustrative quotes
RA	'We continue to use the Earth's resources faster than the planet can regenerate them. The climate crisis is not slowing but accelerating—threatening to undermine all other efforts to conserve biodiversity' (2020c).
Social Carbon (SC)	'We believe that the adoption of a strategy that links carbon sequestration to the environmental restoration measures needed to prevent the collapse of biodiversity represents a very significant step forward, uniting current global efforts associated with two major issues: biodiversity conservation and the attenuation of climate change' (2003, p. 133)
IDFC	'Noting that climate change and biodiversity loss are two sides of the same coin, and that nature-based solutions contribute to climate change mitigation and adaptation and to achieve the goals of the Paris Agreement, complementing stringent emission reductions, and avoiding negative impacts on biodiversity and food security' (2020, p. 1)
UNEP-Finance (UNEP-FI)	'biodiversity loss is inherently linked to climate change and achieving global goals for addressing one cannot go without achieving those for the other' 'too little action aiming to tackle both the interlinked biodiversity and climate crises' (2020, p. 5).

Co-benefits

Additionally, another discursive element of this rationale is constructing biodiversity as a co-benefit – as an additional benefit of protecting ecosystems besides climate mitigation and adaptation (Table 5.2). Tackling multiple challenges at once, could in turn result in a 'myriad' of benefits (N4C, 2021u).

Table 5.2: Co-benefits

TCI	Illustrative quotes
CE	'Alongside carbon storage, forests also provide many ecosystem services ranging from local livelihoods to food, water, health and the maintenance of biological diversity' (2021d).
GS	'This nature-based climate solution [Forestry] not only absorbs CO2 from the atmosphere, it creates local jobs in forest management and conserves vital ecosystems - protecting local biodiversity at a time when a million species are in threat of extinction' (2021a)
Cities Climate Finance Leadership Alliance (CCFLA)	'benefits beyond tackling climate change impacts and climate resilience such as positive impacts on ecosystems, biodiversity, health, noise pollution, air quality, safety, and job creation should also be defined' (2019, p. 12)

Likewise, PB (2020) argues that encouraging biodiversity could increase climate resilience, and due to its co-benefits, such as biodiversity protection, it is argued to be a 'no-regret solution'. The director Elen Lemaitre Curri of PB (2020) argues that:

'*Nature-based Solutions take into account the long term; they are often no-regret solutions that give ecosystems time to adapt. They offer a rich range of co-benefits. In both their Mid-Term Strategy and the MSSD, Mediterranean countries have identified Nature-based Solutions and their integration into national CC adaptation policies as a priority' (p. 7).*

Cost-effectiveness

Furthermore, another discursive element is the focus on nature as cost-effective carbon mitigation and adaptation solution, underpinning a market liberal archetype (Table 5.3).

Table 5.3: Cost-effectiveness

TCI	Illustrative quotes
BCI	'Investment in these forms of "blue infrastructure," such as living coastlines, provides other essential ecosystem services such as food security, local livelihoods (small-scale fisheries) and biodiversity, and is often more cost-effective than "grey infrastructure," such as seawalls and breakwaters' (2021b, p. 7)
We Are Still In (WASI)	'Restoring our forest's ability to store carbon on a global scale is a critical and cost-effective climate mitigation solution' (2021)
N4C	'Natural climate solutions can provide around one-third of the cost-effective climate mitigation needed between now and 2030 to achieve the 1.5ºC target of the UN Climate Paris agreement' (2021a).

Additionally, another discursive element is constructing NbS as a cost-effective solution to climate change because it has a myriad of co-benefits. For instance, PB (2020) argues:

'Keeping ecosystems and biodiversity alive and healthy can be deemed a "no-regret" option, since it is useful, even if it has no immediate effects on climate change. Without seriously considering NbS, Mediterranean countries, however, would be missing out on cost-effective, highly resilient solutions to many of their challenges and an opportunity to move closer to a circular, zero waste and low emissions economy' (p. 16)

Likewise, the SDIP (2021a) is stressing the role of nature in climate adaptation (e.g. through urban green walls and urban parks) as cost-effective solution due to its co-benefits: 'while engineered solutions can be costly and require long-term maintenance, the costs of nature-based solutions are offset by multiple benefits'.

Indigenous communities

Interestingly, almost all TCI refer to governing biodiversity through community-led conservation, shifting the distribution of tasks and actions towards local communities. Especially indigenous communities and native tribes are frequently referred to as ways to conserve and protect ecosystems. Here, governing at a distance takes on indigenous forms in which indigenous peoples are turned into subjects in biodiversity conservation. This rationale involves the assumption that the distribution of tasks and action in biodiversity should be directed towards actors who have a history of conserving ecosystems – indigenous communities. However, a clear distinction in the framing of indigenous communities exists: a rationale where indigenous communities are part of the techniques through which the issue is rendered governable, and secondly a 'stewardship' rationale where indigenous communities need to be 'empowered' in order to conserve ecosystems and therefore contribute to climate adaptation and mitigation.

Firstly, while a focus on indigenous communities could be a 'social green' expression, the assumption that ecosystems should be governed through community-led conservation due to its (cost) effectiveness underpins a more market liberal point of view (Table 5.4).

Table 5.4: Indigenous communities as 'technique'

TCI	Illustrative quotes
CLUA	'Increasing recognition of indigenous and community forest and land rights as an effective and cost-efficient climate change solution' (2018b, p. 5)
RA	'Research shows that Indigenous peoples achieve conservation results at least equal to those of government-run protected areas—with a fraction of the budget' (2019a).
Interreg MED (IMED)	'the involvement of local communities and users of natural resources (species and spaces) and the acceptance of co-responsibility to increase resilience and protection is seen as fundamental for filling the gaps towards an effective ecosystem-based approach to biodiversity protection and sustainable resource management' (2019, p. 23).

Secondly, a stewardship rationale emphasizes the need to ensure the rights of indigenous people (Table 5.5).

Table 5.5: Indigenous communities as 'stewards'

TCI	Illustrative quotes
Climate Alliance of European Cities with Indigenous Rainforest Peoples (CA)	'the existence of the indigenous peoples and their cultures goes hand in hand with a healthy environment. To preserve the rainforests of the Amazon Basin, indigenous land rights must be recognised….Recognition of indigenous land titles and with it, the conservation of the rainforests, is therefore a direct contribution to the global climate action' (2017, p. 2)
CLUA	'to reduce greenhouse gas emissions associated with land use management in ways that protect the livelihoods and rights of indigenous peoples and poor rural communities and slow the loss of ecosystem services and biodiversity' (2016a, p. 2).

Interestingly, a counter voice is given by Indigenous Climate Action (ICA). They take a social green approach and refuse the current NbS rationale employed by the other TCI. Whereas the earlier narrative has a pre-dominance of instrumental values, ICA mainly directs towards intrinsic and relational values. Interestingly, ICA formulates a counter voice against the NbS narrative employed by the other TCI (Table 5.6):

Table 5.6: Counter voice from ICA

TCI	Illustrative quotes
ICA	'despite Indigenous Peoples successful leadership in protecting the lands and waters, power and funding is rarely turned over to Indigenous Peoples for conservation and other environmental projects' (2021, p. 48)
ICA	'financial impacts of regressive carbon taxes on Indigenous families to the ways that Nature-based Solutions can lead to new forms of land grabbing and violations of Indigenous rights' (2021, p. 51)
ICA	'State governments in the south see market and nature based solutions as a lucrative revenue stream for their economies and are resistant to any mention of human rights or Indigenous Peoples safeguards that may detract from this. Indigenous Peoples from the south have raised alarm that market and nature-based solutions are already being proposed by colonial governments regardless of their protest or concerns over Indigenous rights abuses' (2019)

5.2.1.1 Rendering rationales governable through techniques

In turn, this rationale that nature or biodiversity provides 'services' or offers 'solutions' to mitigate and adapt to climate change are translated into techniques which render these services measurable, legible, visible, commensurable and accordingly, governable. This analysis reveals five dominant techniques, which will be explored in this section.

Firstly, in order to govern the 'population' – biodiversity - the aspiration to 'know' biodiversity translates in a dominant role of expertise. This overarching emphasis on biodiversity science and knowledge points to its crucial role in 'shepherding' the ecosystem population (Lovell, 2013). For instance, CE (2012) refers to research on the interconnections between biodiversity and carbon by global forest experts and accordingly argues that 'biodiversity and carbon closely linked'. Subsequently, they refer to biodiversity as a 'key determinant of a forests' ability to provide ecosystem services, particularly carbon sequestration and resilience in the face of climate change' (CE, 2012). Through referring to this knowledge, they render the rationale governable.

Secondly, the aspiration to 'know' these subjects translates in a need to collect data to understand these species and their ecosystems, pointing towards the need for MRV. For instance, the SDIP (2021a) addresses the pitfalls of NbS by referring to research which reveals that 'carbon storage strategies often involve monoculture planting of non-native tree species, for example, which have little-to-no benefit for biodiversity'. They seek to address this by rendering it measurable and visible: 'only through evidence-based project design, sound governance, and greater awareness can we use nature to cost-effectively tackle both climate change and the biodiversity crisis' (SDIP, 2021a). Additionally, as shown in Figure 5.6, PB (2020) portrays human well-being and biodiversity benefits as 'matching puzzle pieces' for climate change adaptation, accompanied with the remark: 'it's usual to measure the benefits' - pointing towards the need to make the issue measurable (p. 14). Besides pointing towards making these benefits measurable, they also point to making these 'communicable' (Figure 5.7). In fact, these figures - together with the other figures in this section - also function as techniques in rendering biodiversity visible and therefore governable.

Figure 5.6: Human well-being and biodiversity benefits portrayed as 'matching puzzle pieces' to adapt to climate change. Description at the right-corner: 'It's usual to measure the benefits' (PB, 2020, p. 14)

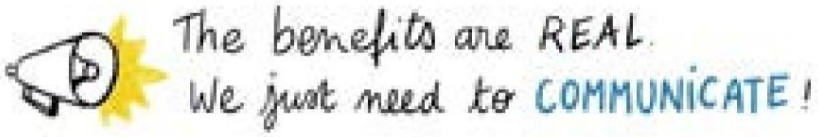


Figure 5.7: 'The Benefits [of NbS] are real we just need to communicate' (PB, 2020)

Thirdly, standards, tools and guidelines are employed to translate knowledge and expertise into MRV. For instance, multiple TCI (BCI, N4C, PB and GS) refer to the IUCN standard of NbS. Likewise, the GS Certification measures biodiversity in terms of the protection of 'existing patches of forest that are within the project area, endangered species, representative sample areas of native ecosystems and native species' (GE, 2019). Through these standards, they are constructing uniformities where ideas are left out which do not fit (Lovell, 2013). An additional standard-setting tool which renders the rationale 'biodiversity as co-benefit' governable, is the SC standard. SC (2013a) argues that their standard was 'developed to strengthen co-benefits of carbon offset projects', and include biodiversity as co-benefit (p. 3). While they refer to both genetic, species and ecosystems diversity in their definition of 'Biodiversity Resources', the operationalization into indicators expresses a less comprehensive view on biodiversity (2013a, p. 8). For instance, for REDD+ and Sustainable Forest Management (SFM) Projects (2013b) they measure biodiversity in terms of non-timber forest products, biodiversity monitoring and impact on remaining fauna in REDD+ projects (Table 5.7).

Table 5.7: Biodiversity indicators of SC (2013b, p. 14)

Biodiversity Resources Indicators	Description
Non-timber forest products (NTFPs)	'the sustainable use of natural resources by communities in the project area for income generation'
Biodiversity monitoring	'Evaluates whether the company has actions to identify and monitor the local fauna and flora'
Impact on remaining flora	'Evaluates the company actions to monitor the impact on the remaining flora'

Subsequently, projects meet two out of the three biodiversity criteria when they have high levels of monitoring. Likewise, another REDD+ project indicator report of SC (2020) also evaluates biodiversity in terms of non-timber forest products and biodiversity monitoring, but replaces 'impact on remaining flora' with 'biodiversity conservation' which is measured in terms of 'the existence of biodiversity conservation activities in the project area' (p. 12). Interestingly, biodiversity conservation performs well according to SC when there is community involvement, initiatives are undertaken to protect threatened fauna and flora, and when there is a partnership with a public OR nongovernmental organization for biodiversity conservation – expressing techniques to govern biodiversity (2020, p. 13). In fact, SC (2013) argues that whereas the impacts on 'biodiversity cannot be measured in a direct way this resource is replaced by the Technological Resource which evaluates the conditions of access to technological assets, including the innovation of equipment and processes focusing on their contribution to economic, social and environmental development' (p. 8). This option to exclude biodiversity when it is not measurable, points towards the dominance of MRV in the governance of biodiversity by SC. Additionally, it illustrates how these standards, tools and guidelines are shaping the 'conduct of conduct' as they are constructing uniformities through 'the generation of agreed upon rules' and leaving out ideas which do not fit (Timmermans & Epstein, 2010, p. 71; Lovell, 2013). Through the indicators and standards developed by TCI, information is abstracted and reduced

(Espeland & Stevens, 1998). Overall, biodiversity as 'replaceable criterion' expresses a rationale of biodiversity as co-benefit, which is translated into MRV techniques.

Fourthly, in the indigenous communities as a 'technique' rationale the dominance of 'evidence-based' and hence the need to monitor and measure is coming forward as well. For instance, the Governors' Climate and Forest Task Force (GCFTF) (2021) argues that indigenous territories have the 'highest rates of forest conservation in the world' and that this is 'the *proven* most effective method for reducing deforestation is combining community management with strong legal recognition and collaborative government protection' (GCFTF, 2019). They render this rationale governable by pointing towards this 'proof': 'in the Brazilian Amazon, for example, deforestation inside legally-recognized and protected community-managed forests is 11 times lower than in surrounding forests' (GCFTF, 2019). Interestingly, the emphasis on 'knowing' biodiversity and the translation into MRV techniques could reveal legacy of the REDD+ narrative.

Fifthly, the technique of protected areas is used as a means to govern biodiversity for climate mitigation and adaptation, underpinning an institutionalist perspective. For instance, CCFLA (2021) point to the need for 'identification of protected areas and establishment of migration corridors to maintain or increase climate resilience of ecosystems' (p. 38). Furthermore, the frequently used technique of PES is illustrating the economic valuation of ecosystem services, pointing towards a market liberal perspective. For instance, PES could assist in conserving 'blue carbon' ecosystems (BCI, 2021a), could strengthen soil conservation which in turn could preserve 'carbon-rich soils' (4Pour1000 (4P1000), 2021a) and could provide financial incentives to facilitate the uptake of NbS (PB, 2020).

Overall, a common feature of these techniques is that they seek to govern biodiversity as a service or solution for climate adaptation or mitigation or form a so-called 'co-benefit'. Through these calculative practices, biodiversity becomes an object of government, which enables these TCI to implement tools, standards, programmes and to set targets, which accordingly enables particular forms of expertise and power and disenables others (Agrawal, 2005a). These tools are rendering the issue visible and measurable, and therefore governable. Additionally, through these indicators and the use of common metrics, the technique of commensuration ('making things the same') is practiced. These standards work by simplification in which the experiences and reasoning are simplified in terms of abstract numbers (Espeland & Stevens, 1998; Bulkeley, 2015). Additionally, the illumination of 'biodiversity' by SC due to its misfitting into the 'measurability' approach reveals a form of incommensurability and draws attention to how biodiversity is contested and comes 'to be undone' (Bulkeley, 2015).

5.2.2 Biodiversity loss as 'risk' which need to be 'managed'

The second overarching rationale frames biodiversity loss as a 'threat' or 'risk' which requires intervention in order to diminish the threat. This rationale contains three distinct strands. Firstly, biodiversity loss is portrayed as a risk of losing the 'services' it provides and on which business rely, and therefore requires management in order to sustain these services. Secondly, biodiversity loss as a risk is expressed in terms of new opportunities for the economy. In both strands, the underlying assumption is that the distribution of tasks in limiting biodiversity loss are the (financial) actors who can reduce the threat or even turn it into an opportunity. Lastly, biodiversity loss is portrayed as a risk for our life-support system. Here, the underlying assumption is that the distribution of tasks in limiting the risk of biodiversity loss are the 'stewards' of nature who can diminish the risk. Accordingly, these rationales are translated in manageable programmes, such as protected areas or installing certain market mechanisms.

Risk of losing 'services'

Firstly, in this rationale, biodiversity loss is framed as a 'risk' for the global economy, shifting the distribution of tasks and actions in the biodiversity arena towards financial institutions. Biodiversity is a 'service', underpinning all business practices, and in turn the removal of these services poses a 'risk' (Table 5.8).

Table 5.8: Risk of losing 'services'

TCI	Illustrative quotes
GCFTF	'That's right—in the coming decade, biodiversity loss represents a greater threat to the global economy than the spread of pandemic diseases, nuclear warfare, collapse of subprime mortgages, or trade wars' (2020)
UNEP-FI	'Biodiversity underpins all economic activities through the provision of a range of ecosystem services, and it is experiencing dangerous and unprecedented declines due to the current model of economic development' (2020, p. 2) Biodiversity is a 'systematic risk of yet unknown magnitude' (2020, p. 5).
IDFC	'Noting that biodiversity and ecosystem loss is part of the five top global risks based on impact and likelihood of occurring (as shown in the World Economic Forum's most recent Global Risks Report), and that the costs of the ecosystem services loss is estimated to range between USD 4,3 and 20,2 trillion per year according to OECD' (2020, p. 1)

In turn, UNEP-FI (2020) argues that this creates material risks and opportunities for banks, asset owners and asset managers, as they invest in and lend to companies facing increasing physical, market, regulatory and reputational threats associated with biodiversity loss (Figure 5.8). As they suggest themselves - 'although the finance sector has limited direct dependencies and impacts on biodiversity, it is exposed to them indirectly through loans, investments and underwriting activities' - they face the indirect threat of biodiversity loss (2020, p. 7). Additionally, TCI refer to the 'biodiversity financing gap'. For instance, IDFC (2020) argues that 'the current biodiversity financing gap is estimated at an average of US$ 700 billion per year and IDFC is determined to participate in closing it' (p. 2). By portraying biodiversity as a problem in terms of financing, they construct the financial institutions as legitimate actors in limiting biodiversity loss. As illustration, IDFC (2021) argues that 'IDFC members can play an influential role by offering a renewed approach in conducting their business, mainstreaming biodiversity in their funded operations and supporting biodiversity positive investments'.

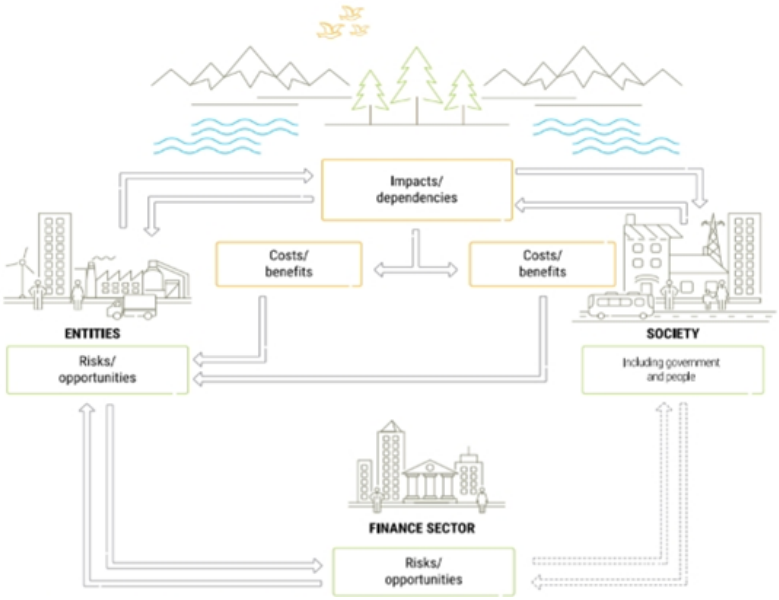


Figure 5.8: Model to 'describe how business and the markets they operate in, impact and depend on biodiversity and natural capital' (UNEP-FI, 2020)

From 'risks' to 'opportunities'

Furthermore, biodiversity loss as a 'risk' is constructed as an 'opportunity' (Table 5.9). Likewise, TCI argue that there are opportunities to create a 'biodiversity-finance nexus' (UNEP-FI, 2020, p. 10): 'Building Back Better with a Biodiversity-Positive Economy' (IDFC, 2021) and 'Investing in Nature as the true engine of our economy' (SDIP, 2020). By portraying these 'risks' as 'opportunities', these TCI enable financial actors to govern biodiversity.

Table 5.9: From 'risks' to opportunities

TCI	Illustrative quotes
GCFTF	'just as biodiversity loss presents an economic threat, biodiversity conservation presents a pathway to sustainable economic development' (2020)
UNEP-FI	'replenishing and rebuilding biodiversity is an urgent global priority and those financial institutions which show market leadership by being early movers may have a considerable competitive advantage' (Eric Usher, Head of the UNEP-FI, 2021a)

Life-support system under 'threat'

Additionally, the 'biodiversity loss as risk' rationale is constructed from a bio-environmentalist, stewardship point of view in which ecosystems are framed as our 'life-support system' which are under threat and therefore need to be 'managed' (Table 5.10). By framing biodiversity as 'threatened' life-support systems, interventions to diminish these 'risks' are legitimized.

Table 5.10: Life-support system under 'threat'

TCI	Illustrative quotes
CE	'Nature is not 'nice to have' – it's our life support system' (2019)
4P1000	'recognize that soils are vital for life on Earth and that living soils preserve biodiversity' (2021a)
RA	'forests are critical to the survival of every living thing on Earth' (2021o)

5.2.2.1 Rendering rationales governable through techniques

This rationale 'biodiversity loss as risk which needs to be diminished' is rendered commensurable, legible, fungible and therefore, governable. This analysis reveals four dominant techniques, which will be explored.

Firstly, they render the rationale biodiversity loss as risk to lose its 'services' governable by referring to expertise which points to the interconnections between biodiversity and financial risks. For instance, UNEP-FI (2021a) stresses that:

'financial institutions face escalating risks from nature loss. US$44 trillion of economic value generation, over 50% of global GDP, is moderately or highly dependent on nature and its services, but the world's ecosystems have declined by 47% globally on average compared to their earliest estimated states, with 1 million species at risk of extinction'

Through referring to this quantitative knowledge, they render the issue governable. The aspiration to 'shepherd' the ecosystem population through 'knowing' these 'risks' is hence translated in the need to collect data how biodiversity loss could negatively affect their business operations (Lovell, 2013). For instance, UNEP-FI (2020) argues that 'the first step towards setting biodiversity-related targets within the finance sector is for institutions to gain an understanding of where the highest risks and largest impacts lie within their current activities' (p. 11). As a result, an important technique UNEP-FI (2020) employs is mapping the 'high priority sectors', which include high priority sub-industries which have 'high potential dependencies and impacts on biodiversity' (p. 3). Providing loans, investments or insurance to these sectors could 'expose financial institutions to biodiversity-related risk' (2020, p. 21). Through these 'priority sectors', they render the rationale biodiversity loss as risk to lose its 'services', governable.

Secondly, standards, tools and guidelines translate biodiversity knowledge and expertise into MRV. For instance, the ENCORE tool operationalizes these 'high priority sectors' and illustrates how MRV techniques are rendering the rationale 'biodiversity as financial risk which needs to be diminished' governable. This tool was produced by the UNEP-FI and other partners and was recently renewed (26 May 2021). They argue that the tool 'enables banks and investors to analyse the potential impact of their financing and investment activities in agriculture and mining on biodiversity loss, in particular species extinction and the loss of ecological integrity' (UNEP-FI, 2021a). Additionally, steps are provided to create a biodiversity target for financial institutions (Figure 5.9). Interestingly, UNEP-FI (2020) argues that the presented ecosystem services in Figure 5.10, are all 'are underpinned by biodiversity' (p. 29). As a result, this tool is 'breaking down' biodiversity into discrete units, rendering the rationale biodiversity loss as risk to lose its 'services' visible, commensurable and measurable; and therefore governable (Turnhout et al., 2014).

Figure 5.9: Steps 'to create a biodiversity target for a financial institution using the list of high priority sub-industries' (UNEP-FI, 2020)

Figure: 5.10: Categories of ecosystem services addressed in the materiality component of the ENCORE methodology. All these ecosystem services are argued to be 'underpinned by biodiversity' (UNEP-FI, 2020, p. 29)

Accordingly, the IDFC (2021) formulated guidelines for development bankers and argue that these bankers should firstly 'ensure that their operations/investments do not harm ecosystems and biodiversity'. They render this governable by stressing the need to measure and manage the 'impacts and risks for biodiversity and ecosystems of projects', which in turn 'surely help mitigating global systemic risks'. Secondly, they argue that development bankers should increase biodiversity positive investments and thirdly, should disinvest from harmful sectors (IDFC, 2021). Through these principles or 'how to' guidelines the translation of science knowledge occurs. The generation of these agreed-upon rules, constructs 'uniformities' (Timmermans & Epstein, 2010). Overall, this 'how to' guide and the ENCORE tool illustrate how biodiversity loss as risk to lose its 'services' is made measurable and commensurable, rendering the issue governable. The use of these common metrics reveals the

technique of commensuration, in which through the process of simplification, the issue of biodiversity is reduced to abstract numbers.

Additionally, the overarching emphasis on techniques is illustrated by what SDIP (2021a) refers to as the 'Fourth Industrial Revolution'. Interestingly, such a concept points to the occurrence of 'Smart' Earth techniques which in turn are shaping what is thinkable about how biodiversity resources can and should be governed (Bakker & Ritts, 2018). SDIP (2021a) argues that 'technology can be a powerful means to improve the ways that we manage natural resources'. Accordingly, they argue: 'It will only be by maintaining safeguards through effective regulation, innovative monitoring, remote sensing, and citizen science that we will be able to realize the opportunities presented by the Fourth Industrial Revolution - and to respect nature's limits' (SDIP, 2021a).

Thirdly, the rationale from 'risks' to 'opportunities' is rendered governable not only by tools such as the ENCORE tool, but also through market-based mechanisms such as eco-tourism, which points to the economic potential of biodiversity. Ecotourism could provide funding for protected areas (IMED, 2019), could provide new income opportunities (PB, 2020), or could provide incentives to conserve biodiversity (CLUA, 2016b). For instance, GCFTF (2016) organized an international 'Biodiversity, Ecotourism & Creative Economy' conference, with the purpose to 'to celebrate the biodiversity of Papua and to collectively plan sustainable development pathways that protect and enhance this biodiversity by emphasizing ecotourism and creative economic development options, including the sustainable production of coffee, chocolate, and honey'. Overall, by pointing towards eco-tourism, TCI render a market liberal rationale that tackling biodiversity loss could be an (economic) opportunity, governable.

Fourthly, the rationale risking the loss of 'services' is rendered governable by establishing legally protected areas, underpinning an institutionalist point of view. Interestingly, most initiatives refer to protected areas or high conservation value areas as a way to govern biodiversity. For instance, IMED (2019) argues that 'we need protected areas to sustain the ecological coherence and capability of natural ecosystems to deliver services and to ensure resilience to climate change and other impacts on biodiversity' (p. 16). Moreover, the scientific and therefore indisputable basis of protected areas is illustrated by IMED (2019) who argues that 'protected areas have proven to be one of the most effective tools to preserve biodiversity' (p. 16). They, as partners of the MED Biodiversity Protection Community, fund the PANACeA project which aims to:

'to build management capacities and streamline networks of protected areas in order to adapt and improve protection measures aimed at preserving the biodiversity of protected marine and coastal ecosystems and to better take into account protected areas in regional development strategies (information sharing, strategies, regulations, etc.)' (PB, 2018b, p. 17)

Accordingly, PB, which is also part of this community, stresses that 'existing Protected Areas are potentially a powerful tool for effective biodiversity conservation and natural resource management if properly designed, managed, funded and enforced' (PB, 2018a, p. 1). They address the need to monitor these protected areas (Figure 5.11), which points to the presence of MRV techniques. Interestingly, protected areas are combined with the technique of public-private partnerships could make the protected area financially viable (PB, 2018b). On the other hand, some TCI stress the need to go beyond protected areas and the need for more transformative change: going 'beyond protected areas, and therefore that mainstreaming biodiversity in every economic sector is key to conserve ecosystem services, and a condition to achieve Sustainable Development Goals' (IDFC, 2020, p. 1). In addition, UNEP-FI (2021b) states 'expanding protected areas and managing them effectively is critical, but new research launched at the Summit stressed that nature-related investments need to go far

further in order to tackle biodiversity loss'. Interestingly, a distinction can be made between actors who have the capacity to develop these protected areas, such as IMED and PB, and TCI which do not have this capacity but still refer to protected areas, such as the GS (2019) and SC (2020), who include protected areas in their standards. While these capacities vary among the TCI, they share the rationale that institutions such as protected areas are a way to govern biodiversity.

Figure 5.11: Protected Marine Areas which face 'emerging' challenges as climate change, in need for sustainable use and monitoring (PB, 2020)

'Keep moving'

Overall, this research finds that biodiversity goals are often framed in terms of conserving, restoring and thriving with nature in order to adapt and mitigate to climate change. Additionally, TCI often target biological diversity at the level of the ecosystem, which is followed by diversity at the level of species and lastly at the level of genetics. In terms of species diversity, especially endangered, threatened and protected species are a focal point of attention of TCI. Furthermore, ensuring genetic diversity was occasionally mentioned by TCI. For instance, the CCAFS (2021) focuses on installing community seed banks in order to ensure genetic diversity. However, this also illustrates the dominance of conserving, restoring and thriving with nature for climate adaptation and mitigation, as these seedbanks were installed to enhance climate resilience. In addition, the analysis illustrates how the varied elements of the rationales are employed interchangeably by TCI, pointing towards the incoherence in the construction of biodiversity as an issue which needs to be managed through programmes. Similar to the finding that the archetypes of Clapp & Dauvergne (2011) are more fluid, these findings stress the need to 'keep moving' in thinking about categorizing systems of values. Reflecting on the first research question, TCI seek to govern biodiversity by expressing nature or biodiversity as a means to act on climate change or as 'risk' which needs to be managed, which in turn is rendered governable through myriad techniques. In turn, this has consequences for biodiversity governance, which will be returned to in the discussion. Reflecting on the second research question, this evidence points to the variation of framing among the TCI. Accordingly, the next section will reveal further in-depth insights in these questions regarding the governing of biodiversity by TCI.

5.3 Phase 2: Constructing Governable Biodiversity Spaces

In this section, the results from the in-depth content analysis of the six TCI operating in the Carbon Sequestration & Forestry sector will be discussed.

5.3.1 Nature 4 Climate

Nature4Climate (N4C) was launched in 2017 in order to 'raise the profile of these [NCS] solutions, and drive increased action and investment in natural climate solutions' (N4C, 2021a). N4C is an initiative of the UN-REDD, UNEP, the CBD, IUCN, United Nations Development Programme, Conservation International, The Environmental Defense Fund, The Nature Conservancy, Wildlife Conservation Society, Woods Hole Research Center, World Business Council for Sustainable Development, World Resources Institute, World Wide Fund for nature, We Mean Business, The Food and Land Use Coalition and Youth4Nature (N4C, 2021a). As a central message, N4C (2021b) argues that 'in the next decade, nature can provide a third of the solution to climate change' and 'we need #NatureNow, 30% of the solution, 3% of funding, 10% of the conversation'. They recall the #GenerationRestoration of the UN Decade on Ecosystem Restoration (N4C, 2021p). This UN program seeks to 'prevent, halt and reverse the degradation of ecosystems on every continent and in every ocean' (UN, 2021).

N4C mainly portrays a 'biodiversity as a means to mitigate and adapt to climate change' rationale. They argue that 'as a climate solution, nature should be a no-brainer' (N4C, 2021i). They point towards the cost-effectiveness of working on NCS for climate mitigation and adaptation: 'Natural climate solutions can provide around one-third of the cost-effective climate mitigation needed between now and 2030 to achieve the 1.5ºC target of the UN Climate Paris agreement' (N4C, 2021a). Additionally, similar to IDFC, N4C (2021o) frames biodiversity loss and climate change as 'two sides of the same coin'. They render this rationale 'knowledgeable' by referring to the new IPBES-IPCC Biodiversity Climate Science report which 'reaffirms what we already know': 'we cannot save the climate without saving biodiversity and vice versa' (2021o). According to N4C, NbS provide a way to tackle both crises together: 'IIED research shows how #NatureBasedSolutions can tackle the biodiversity and climate crises together, and we are getting this evidence recognised in national and international policy forums' (N4C, 2021h). They argue that 'diversity' is key in NbS, and refer to a study which 'shows that mangrove forests store more carbon in the soil and have higher biomass production when they're more diverse' (N4C, 2021j).

Additionally, biodiversity is argued to be one of the 'myriad benefits of NCS': 'conserving, restoring and rethinking the way we manage our lands and coasts will have multiple payoffs not only for climate, but also for the plants, animals and people that call Earth home' (N4C, 2021u). Furthermore, N4C (2021m) is also emphasizing the rationale that investing in nature could be an economic opportunity. This is reflected in the frequently quoted hashtag by N4C - #FundNature, fund the future. They argue that 'the ambitious goals of the Biodiversity Strategy are in jeopardy because of a lack of funding for nature. #RecoveryFund, called the 'opportunity of the century', is a missed opportunity for biodiversity' (N4C, 2021r).

To render this rationale measurable, visible and commensurable, they firstly point to indigenous people and protected areas as technique: 'forests managed by indigenous peoples and local communities often boast deforestation rates 2-3 times lower than similar lands' (N4C, 2021t) and 'we protect under 7% of the world's land surface area. More needs to be done to protect nature and allow everyone to conserve our vital natural ecosystems' (N4C, 2021k). The environment is made visible through a process of quantification which in turn enables its measurability, which in turn enables 'the conduct of conduct'. Moreover, it can be argued that N4C governs an extended REDD+ rationale by employing mostly MRV techniques (Lovell, 2013). For instance, N4C (2021d) argues that

‘data and measurement are critical to unlocking our understanding of #biodiversity. Better data create better solutions for nature’. Accordingly, they refer to Kat Bruce (Founder & Technical Director NatureMetrics) who argues that ‘biodiversity is incredibly complex so data and measurement is critical to unlocking its value’ (Figure 5.12)(N4C, 2021d). In turn, commensuration is practiced through these measurement techniques, in which context is ‘stripped away and relationships become more abstractly represented by numbers’, enabling the ‘conduct of conduct’ (Espeland & Stevens, 1988, p. 317).

Figure 5.12: Necessity of measurement and data for biodiversity (N4C, 2021d)

Moreover, N4C developed the ‘Natural Climate Solutions World Atlas’ tool, which renders their ‘we need nature to help meet our climate goals’ assumption governable (N4C, 2021s) (Figure 5.13). They render this rationale visible with their NCS World Atlas which ‘shows how every nation can harness the power of #nature to reduce its carbon emissions’ (2021s) and:

‘demonstrates opportunities for countries around the world to view how natural climate solutions (NCS) alongside emission reduction strategies, can help them reduce their net greenhouse gas emissions’ as well as ‘the maximum mitigation potential for each pathway as well as the cost-effective potential (at $100 USD/ton CO2e)’ (N4C, 2021v)

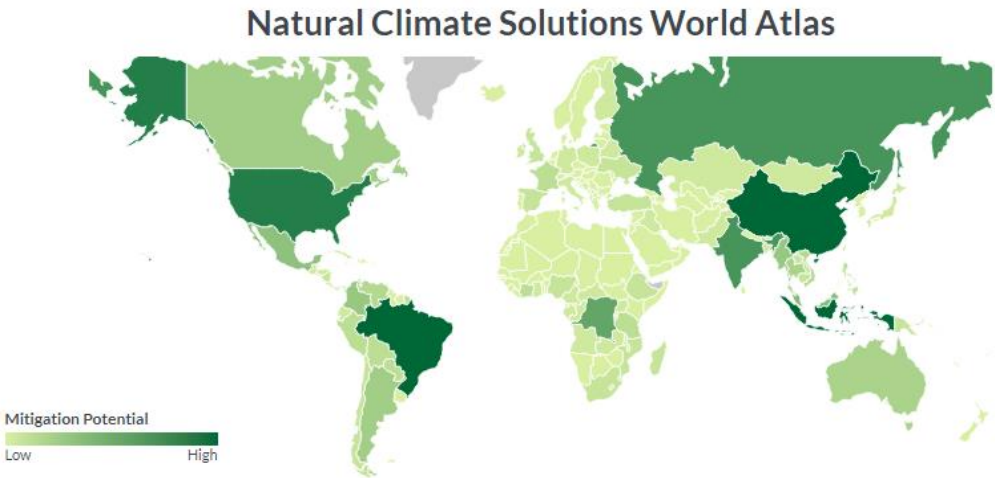


Figure 5.13: Natural Climate Solutions World Atlas (NC4, 2021f)

As a result, this tool is rendering the issue visible and measurable, and therefore governable. Furthermore, they refer to the IUCN standard of NbS (N4C, 2021w). Additionally, they render the issue governable by referring to ‘success stories’ of NCS in their case studies (N4C, 2021a). Through referring

to this standard and success stories of NCS, the rationale to use nature or biodiversity as a means to adapt and climate change, is rendered governable.

Additionally, N4C is rendering their rationale measurable, visible and commensurable and thereby governable by focusing on 'Nature Tech' to 'scale up NbS'. N4C (2021n) argues that 'nature and technology can work together to help solve the climate and biodiversity crisis, and achieve natural carbon capture goals'. Accordingly, N4C (2021l) argues that:

'NbS can be greatly aided by innovative technology. Many see nature and technology as polar opposites, and by extension believe that "natural" and "technological" solutions to global crises exist in conflict. We believe the opposite, and so this year we will be turning our attention to 'Nature Tech' – technology that can accelerate the deployment of NbS at scale'

They refer to 'Nature Tech' as:

'high-tech applications that enable, accelerate and scale-up NbS' in the following areas: technology to deploy NbS (e.g. drone technology), to monitor, verify and report on NbS (e.g. satellite monitoring), to improve transparency around NbS and to connect people and projects involved in NbS (N4C, 2021l).

In other words, N4C obtains an optimistic belief that one can 'know' nature and translate it into technological programmes through a process of measuring, monitoring and quantifying (Lövbrand & Stripple, 2010; Lovell, 2013). Technology is seen 'as an enabler for unlocking nature's value and scaling up nature-based solutions', which was presented by N4C at the CogXFestival (2021e)(Figure 5.14). This festival, included sessions which discussed 'economics of biodiversity, explore the future of food, and dive into how 'nature tech' can help scale up Nature-based Solutions' (N4C, 2021c). Subsequently, they argue that 'Tech is a tool; it's up to us how we use it**.** Nature now needs tech support too' (N4C, 2021l). By portraying nature as in 'need' of technology, the issue of nature as 'solution' to climate change is rendered measurable and accordingly, governable. These techniques point towards the presence of 'Smart' Earth techniques which are shaping what is thinkable about how biodiversity resources can and should be governed in the first place (Bakker & Ritts, 2018). Moreover, biodiversity is literally made visible through these techniques of drone technology, which renders the issue governable (Avron, 2017).

Figure 5.14: NatureTech: working to restore the natural world (N4C, 2021e)

Interestingly, based on this dominance of MRV techniques it can be argued that N4C governs an extended REDD+ rationale. The N4C is initiated - among others – by UN-REDD, which could explain the linkages with REDD+ across the initiative. For instance, N4C retweeted the UN-REDD Programme multiple times: 'We cannot turn back time. But we can grow #trees and restore our planet. We are the generation that can make peace with #nature' (N4C, 2021q) and '#Naturebasedsolutions are a major part of the #climate solution, as they are the most effective, long-term, cost-efficient and globally scalable approach to reducing greenhouse gas emissions' (N4C, 2021g) (Figure 5.15).

Figure 5.15: N4C referring to UN-REDD, revealing a cost-effectiveness 'biodiversity as means to mitigate climate change' rationale (N4C, 2021g)

5.3.2 Climate and Land Use Alliance

The Climate and Land Use Alliance (CLUA) started in 2010 and aims to 'realize the potential of forests and land use to mitigate climate change, benefit people, and protect the environment' (2021a). The Alliance is supported by the following Foundations: ClimateWorks, Ford, Gordon and Betty Moore and David and Lucile Packard. These four Foundations agreed 'to coordinate a portion of their grantmaking under the [CLUA] umbrella to reduce greenhouse gas emissions associated with land use management in ways that protect the livelihoods and rights of indigenous peoples and poor rural communities and slow the loss of ecosystem services and biodiversity' (2016a, p. 2).

CLUA focuses on a stewardship rationale in which indigenous communities are argued to be 'stewards' of nature which need to be 'empowered' in order to contribute to adapting and mitigating climate change. For instance, they argue that 'collaborating hand in hand with indigenous and tribal peoples is an effective solution for many of the challenges on the table right now' (2021c). Likewise, they retweeted Conference of the Parties (COP) 26: '#IndigenousPeoples are stewards of the majority of the world's biodiversity and are leaders in nature-based solutions to #ClimateChange. That is why the #COP26 Presidency is committed to working with Indigenous Peoples to ensure a successful summit' (2021d). Accordingly, they refer to 'proof': 'experiences in Mexico and Central America prove that promoting the rights of indigenous peoples and rural communities to manage their forests is a powerful way to protect forests while mitigating climate change, conserving biodiversity, and improving local livelihoods' (2018a, p. 2). Interestingly, they retweeted Climate Works Foundation: 'let's value human diversity as much as we do biodiversity. Let's think about the world we want to live

in, and how we can build it, together' (CLUA, 2021e). At the same time, they portray a 'cost-effectiveness' rationale by arguing that 'increasing recognition of indigenous and community forest and land rights [is] an effective and cost-efficient climate change solution' (CLUA, 2018a, p. 5)

CLUA renders this rationale governable by making it 'protectable' and measurable. A project on the Cerrado in Brazil illustrates how biodiversity is framed as 'needing' protection, and therefore the need to manage the biodiversity 'population' as 'protectable governance space'. CLUA (2016b) stresses the need to ´intervene' in the Cerrado in Brazil as 'it is the most biodiverse tropical savanna in the world and is a storehouse of vast amounts of carbon' (p. 51). For instance, for the Cerrado they refer to protected areas and argue that 'protected areas that are devoted to conservation and biodiversity need to be expanded and require better long-term funding and management' (CLUA, 2016b, p. 6). They argue that interventions 'depend upon secure land rights for indigenous and traditional communities, resolution of land disputes, effective land management, and follow through on commitments to no-deforestation and low-carbon agricultural practices' (CLUA, 2016c). In turn, CLUA (2016b) argues that there are gaps in knowledge about the Cerrado in terms of biodiversity. Efforts such as an ecosystem assessment which maps the key biodiversity areas and conservation corridors, collecting information of forest species diversity and a ComCerrado project which establishes protocols for monitoring of biodiversity are tackling this 'need' (CLUA, 2016b). There is an optimistic belief that one can 'know' biodiversity and translate it into programmes through a process of measuring, monitoring and quantifying (Lövbrand & Stripple, 2010; Lovell, 2013). This overarching emphasis on the role of measurement and science in governing biodiversity is further illustrated by CLUA (2016b) who argues that: 'efforts such as these to perform new research, develop repositories of existing data and information, and map resources for the Cerrado biome are critically important' (p. 49).

5.3.3 Rainforest Alliance

Rainforest Alliance (RA) is a non-profit organization which started in 1986 with a central vision of 'creating a more sustainable world by using social and market forces to protect nature and improve the lives of farmers and forest communities' (RA, 2021a). In 2018 they merged with UTZ, which is a Dutch program and label for sustainable farming worldwide. Similar to N4C, they are partner of UNEP' and FAO's UN Decade on Ecosystem Restoration, under the motto #GenerationRestoration (RA, 2021e) (Figure 5.16).

Figure 5.16: RA partnering with UN Decade on Ecosystem Restoration (RA, 2021e)

Alongside the other TCI in the Carbon Sequestration & Forestry sector, RA portrays biodiversity as means to adapt and mitigate climate change. They argue that 'the #ClimateCrisis and #biodiversity crisis are happening in parallel. And we can't solve one without also solving the other' (RA, 2021b). RA especially aims to govern tropical forests, as they 'absorb even more carbon dioxide' (RA, 2019a). They argue that 'thankfully, nature has already invented the best carbon-capture technology there is: trees' (RA, 2019b). RA (2019a) stresses the cost-effectiveness of NCS 'what's more, natural climate solutions are extremely cost effective and do not require inventing and scaling up new technology'. Likewise, they render this rationale knowledgeable by referring to research that 'scientists agree that #NaturalClimateSolutions can help us achieve 37 percent of the emissions reductions needed to avoid a climate catastrophe' (RA, 2021k). They stress the need for 'a seismic shift towards nature-positive, net-zero land use' by 'investing in #Natural Climate Solutions' (RA, 2021c). As an illustration, RA (2021d) argues that mangrove forests are 'the most efficient 'sponges' for carbon on the planet'. Another illustration is the LEANproject in Ghana which aims to conserve biodiversity, which according to RA (2021f) in turn could build climate resilience, which in turn can reduce emissions from land-use changes 'and all while helping local farmers to improve their livelihoods'. Interestingly, RA (2021j) renders the issue governable by referring to the Nature Tech article from N4C with the statement that these technologies have 'a vital role to play in accelerating the deployment of nature-based solutions, at a time when speed is of the essence'.

Additionally, they argue that 'indigenous leadership is another crucial natural climate solution' (2019a)**.** They employ a rationale that indigenous communities could diminish biodiversity loss as a means to adapt and mitigate climate change. For instance, RA retweeted DW Global Ideas & Environment 'as protectors of 80% of the world's #Biodiversity, indigenous people are crucial to the fight against #ClimateChange' (RA, 2021g). Furthermore, RA aims to govern biodiversity through practices of agroforestry and regenerative agriculture as 'biodiversity-boosting measures', in which the latter is 'inspired by indigenous wisdom' (RA, 2020a; RA, 2021i). They argue that 'diverse #agroforestry systems based around tropical food trees bring "myriad benefits" to farmers' livelihoods, human nutrition, and the environment' (RA, 2021l). Additionally, they argue that regenerative agriculture:

'helps fight #ClimateChange, since healthy soil—a clear benefit of regenerative practices—can act as both a carbon pool (reservoir) and carbon sink (a mechanism that removes greenhouse gases from the atmosphere). By redesigning farm systems to enhance #biodiversity and reduce pesticide use, we're able to enrich land and achieve regeneration—one of the final steps to bring about a world that puts people and nature at the center' (RA, 2021m).

Accordingly, they argue that 'the conservation of existing natural ecosystems in agricultural landscapes has been demonstrated to be a critical means of protecting biodiversity: agricultural landscapes containing natural ecosystems have higher species richness and diversity than those without them, and act as refugia for many rare and endangered species' (RA, 2018, p. 43). They render this rationale knowledgeable by referring to research that 'disproves the longstanding belief that enhancing biodiversity on farms compromises yields. In fact, in our work we have found that yields actually improve' (RA, 2021n). They render the issue governable with their RA certification program. Through this RA certification program, RA is rendering their rationale measurable, visible and commensurable. They argue that their certification program 'strongly emphasizes the conservation of natural ecosystems because of the multiple values they provide to humans and wildlife' (RA, 2018, p. 43). RA provides 'evidence' and argues that since Aquiares Coffee Estate in Costa Rica began to work with RA certification, 103 species were traced 'which hadn't been seen before' (2021h). Accordingly, they argue the following about their updated 2020 Sustainable Agriculture standard:

'The conservation of existing natural ecosystems areas is key to this mission. Besides not allowing for conversion of any natural ecosystems since 2014, we have also put an additional safeguard on High Conservation Value (HCV) areas in the new standard' (RA, 2020a)

RA (2020b) argues that they include criteria in their standard to 'maximize the positive impact and minimize the negative impact of production on biodiversity' (p. 1)(Table 5.11). Through these criteria, biodiversity is rendered commensurable as context is 'stripped away and relationships become more abstractly represented by numbers' (Espeland & Stevens, 1988, p. 317).

Table 5.11: Criteria RA (RA, 2020b, p. 1)

Criteria RA
'Maintaining and increasing the diversity of native vegetation through practices like agroforestry (a practice of nurturing existing trees and planting new ones side by side with crops) and establishing wildlife corridors'
'Taking steps to diversify the type of crops and vegetation grown on the farm and support functional biodiversity (i.e. pollinators and natural predators of pests) through an Integrated Pest Management strategy'
'Supporting the protection of endangered species and other native flora and fauna by prohibiting hunting, minimizing the spread of invasive species, and taking steps to minimize human-wildlife conflict'
'Minimizing negative impacts from farming by improving soil health through mechanisms like erosion control and increasing soil organic matter'

Interestingly, RA illustrates their optimistic belief that one can 'know' biodiversity and translate it into programmes through measurement by arguing that they 'will harness the power of data to strengthen assurance on these criteria—satellite imagery will help us check for deforestation, data collected by producers will enable us to evaluate native vegetation cover' (RA, 2020b, p. 1; Lövbrand & Stripple, 2010; Lovell, 2013). Again, biodiversity is literally made visible through satellite imagery, which renders the issue governable (Avron, 2017).

5.3.4 4 Pour 1000

4Pour1000 (4P1000) started in 2015 with the aim to 'demonstrate that agriculture, and in particular agricultural soils can play a crucial role where food security and climate change are concerned' (4P1000, 2021a). They aim to achieve soil carbon storage through agriculture and forestry, with a special focus on practices which enhance soil carbon storage, such as agroforestry and regenerative agriculture, similar to RA. The name of 4P1000 is derived from their target rate of increased soil carbon sequestration of 4/1000 per year (4P1000, 2021a).

Arguably, 4P1000 underpins mainly a 'biodiversity as means to mitigate and adapt to climate change' rationale. They refer to soil biodiversity as a way to enhance soil carbon storage, stressing the 'diverse community of living organisms that keep the soil healthy and fertile' (4P1000, 2021j)(Figure 5.17).

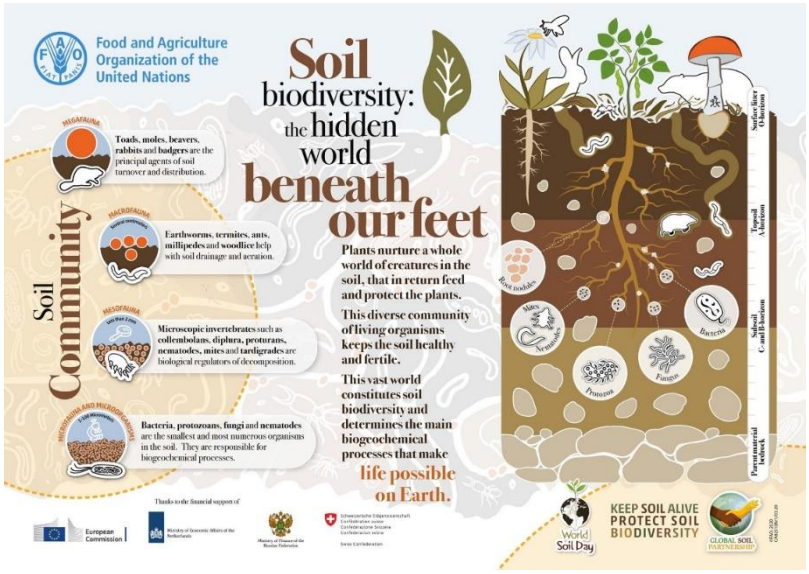


Figure 5.17: Keep Soils Alive, Protect Soil Biodiversity (4P1000, 2021j; retweeted from Global Soil Partnership)

In order to govern soil biodiversity as a means to climate change, they partner with similar Soil organisations (e.g. Soil Health Institute, Régénération International/Canada) and they support and align with intergovernmental organisations. For instance, 4P1000 is an official supporting partner of the UN Decade on Ecosystem Restoration 2021-2030 (4P1000, 2021c; 2021d)(Figure 5.18). Additionally, they joined the EU Green Week 2021 and organized a fair on 'Soils for Food Security and Climate' (Figure 5.19) (4P1000, 2021b). Additionally, 4P1000 is part of the Global Agenda for Action and partner of the Global Soil Partnership (which is hosted by the FAO).

Figure 5.18: 4P1000 joins #GenerationRestoration (4P1000, 2021c)

Figure 5.19: 4P1000 organizing a virtual fair on 'Reducing air pollution and greenhouse gases by improving soil health' at the EU Green week (4P1000, 2021b)

Additionally, in order to govern the 'population' – soil biodiversity - the aspiration to 'know' soil biodiversity is translated into a need to collect data. For instance, they argue that there is a need for more research 'about importance of soil health, and of our "ecosystems engineers" (earth worms)' (4P1000, 2021e). Likewise, they argue that: 'research is an important part of the challenge to change the game about agriculture in favour of soil health and soil carbon sequestration' (4P1000, 2021f). 4P1000 addresses the need to make soil biodiversity measurable and illustrates an optimistic belief that one can 'know' biodiversity and translate it into programmes through a process of measuring, monitoring and quantifying (Lövbrand & Stripple, 2010; Lovell, 2013). For instance, they retweeted the Global Soil Partnership: 'soils: if you cannot measure it, you cannot manage it!' (2021h). Additionally, 4P1000 (2021g) stresses the need to translate expertise into indicators:

'A good proposal to start "measuring" what is a "regenerative agriculture". We need a clear definition of what is a "regenerative agriculture" but at least with that kind of "indicators" we can image if we are on the good track or not'

Furthermore, they operationalize biodiversity in their standard as 'indirect' criteria (4P1000, 2021k). Accordingly, 4P1000 (2021k) refers to the following dimensions which 'need to be covered': landscape beta diversity, plant functional diversity, protected, patrimonial and endangered species and crop and animal genetic diversity. These are accordingly measured by the Shannon diversity indices, which covers the conservation of protected/endangered/patrimonial species habitats (4P1000, 2021k)**.** The use of these common metrics reveals the technique of commensuration, in which the issue of biodiversity is reduced to abstract numbers. Overall, this standard illustrates how biodiversity is made measurable and commensurable, and in turn is rendered governable.

Interestingly, whereas N4C and RA promote 'Nature Tech', 4P1000 takes a different point of view on technology. They reacted the following in response to Elon Musk who promises $100M for the best carbon capture technology:

'Technologies can be great! But why should we have to look for technologies while nature-based solutions are lower hanging fruits close to our hands? Could you give us some means Mr. Musk to work on Nature based solutions that will also feed the world?' (4P1000, 2021l)

In addition, they point to the technique of indigenous communities. They retweeted Régénération Canada who points towards a new study about the positive impact of indigenous people's management in B.C.'s ancient forest ecosystems: 'forests managed by Indigenous peoples in the past now provide diverse resources and habitat for animals and other pollinators and are more rich than naturally forested ecosystems' (2021i). Lastly, 4P1000 addresses biodiversity as 'risk' and therefore the need to provide support as 'soils are vital for life on Earth and that living soils preserve biodiversity' (2021a).

5.3.5 Blue Carbon Initiative

The Blue Carbon Initiative (BCI) was started in 2011, and is coordinated by the IUCN, Conservation International and the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific, and Cultural Organisation. The BCI is a global program who aims to 'mitigate climate change through the restoration and sustainable use of coastal and marine ecosystems' (BCI, 2021a). They seek to realize this aim by bringing together research institutes, non-governmental organisations, governments and communities (BCI, 2021a).

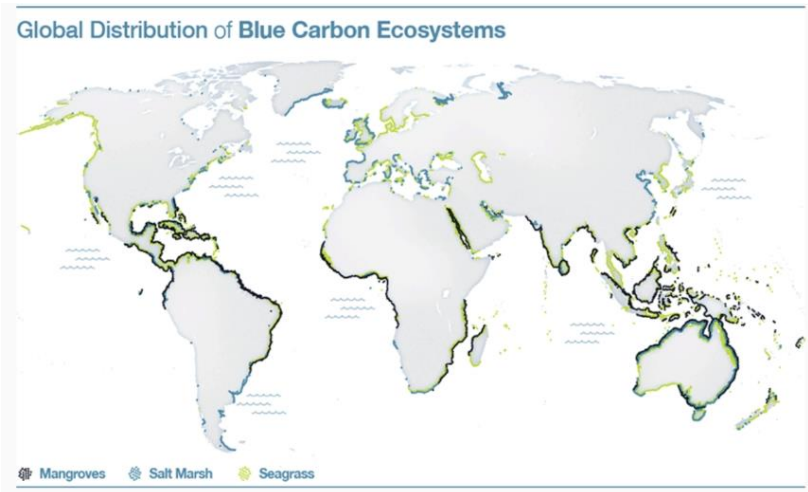


Figure 5.20: 'Blue Carbon' Ecosystems (BCI, 2021d)

BCI focuses on 'Blue Carbon' Ecosystems, which include three coastal wetland types in particular - seagrasses, tidal marshes and mangroves (BCI, 2021a). These coastal wetland types are argued to 'provide a full spectrum of mitigation, adaptation, and resilience benefits' (BCI, 2021a). These ecosystems are valued for their 'blue carbon value', and accordingly projects are initiated 'at sites globally to protect and restore coastal ecosystems for their "blue" carbon value' (Figure 5.20; BCI, 2021d). Accordingly, BCI is mainly portraying a 'biodiversity as a means to mitigate and adapt to climate change' rationale. For instance, they stress the need to 'increase ambition and improve resiliency by enhancing the role of nature, including blue carbon, as a climate solution for mitigation and adaptation' (BCI, 2021b, p. 5). They refer to NCS as 'including protection, conservation and restoration of blue carbon ecosystems, are integral to the achievement of reaching the 1.5-degree Celsius pathway laid out by the Paris Agreement' (p. 5). In turn, BCI (2021a) argues that the degradation of coastal ecosystems results in 'the large stores of blue carbon in the soils are exposed and released as CO2 into the atmosphere and/or ocean. Current rates of loss of these ecosystems may result in 0.15–1.02 billion tons of CO2 released annually'. Interestingly, they turn to remote sensing techniques 'to monitor the health of mangrove ecosystems. These techniques contribute to support sustainability based decision making with direct societal benefits' (2021c). Through these remote sensing techniques, they render ecosystems which provide crucial 'solutions', visible and governable (2021c).

Additionally, biodiversity is framed as co-benefit, which will be ensured by protecting and restoring 'blue carbon' ecosystems. For instance, they argue that 'the benefits of protecting, restoring and sustainably managing coastal ecosystems also ensure that other essential ecosystem services like food security, local livelihoods from small-scale fisheries or tourism, and biodiversity are protected' (BCI, 2021b, p. 15). They refer to coastal wetlands which are argued to:

'provide services essential for climate change adaptation, including protection from storm surges, flooding, sea-level rise, and coastal erosion. Investment in these forms of "blue infrastructure," such as living coastlines, provides other essential ecosystem services such as food security, local livelihoods (small-scale

fisheries) and biodiversity, and is often more cost-effective than "grey infrastructure," such as seawalls and breakwaters' (BCI, 2021b, p. 7)

Accordingly, they translate this knowledge into 'Guidelines for Blue Carbon and Nationally Determined Contributions (NDCs)' which can be used by countries to 'take instrumental steps across levels toward including coastal wetlands in their NDCs' (BCI, 2021b). What is interesting in terms of biodiversity, is that they argue that 'the guidance should also be applied in collaboration with other national priorities' – such as biodiversity conservation (BCI, 2021b, p. 9). Additionally, they argue that these guidelines could 'support actions contributing to commitments to other international agreements', such as the CBD (BCI, 2021b, p. 9). In this way, this guideline is rendering the rationale 'biodiversity as co-benefit' governable.

5.3.6 Cool Earth

Cool Earth (CE) was established in 2013 and is a charity which aims to 'work alongside rainforest communities to halt deforestation and its impact on climate change' (CE, 2021a). Alongside the previous TCI, they mainly employ the rationale 'biodiversity as a means to mitigate and adapt to climate change' by constructing (rain) forests as 'carbon store' (CE, 2021d) with their 'carbon-absorbing superpowers' (CE, 2021c). CE (2021d) argues that 'research shows that 8% of all global emissions are from tropical deforestation alone, but that these same forests can provide 23% of the cost-effective climate mitigation needed before 2030'. Additionally, similar to the other TCI, biodiversity is portrayed as one of the 'co-benefits of rainforest protection': 'alongside carbon storage, forests also provide many ecosystem services ranging from local livelihoods to food, water, health and the maintenance of biological diversity' (CE, 2021d). Moreover, they portray a 'biodiversity loss as risk as it supports our life-support system' rationale by stressing that 'without biodiversity, there's no future for humanity' (CE, 2018a) and 'it's difficult to imagine Earth without the millions of species that make up our ecosystems, but mass extinction of wildlife is a very real threat' (CE, 2018a).

The aspiration to 'know' whether and how biodiversity could be a means to mitigate and adapt to climate change, is translated into research on the interlinkages on biodiversity and carbon. As discussed earlier, CE (2012) refers to research on the interconnections between biodiversity and carbon by global forest experts and accordingly argues that 'biodiversity and carbon are closely linked'. They argue that a group of global forest experts analysed the link 'between Biodiversity and Carbon in terms of REDD+' in order to provide guidance to policy makers who are 'designing REDD+ management programs' (CE, 2012). Subsequently, they refer to biodiversity as a 'key determinant of a forests' ability to provide ecosystem services, particularly carbon sequestration and resilience in the face of climate change' (CE, 2012). Besides the given that this points towards the legacy of the REDD+ rationale, through referring to this knowledge, they render the issue governable.

Additionally, they employ a stewardship rationale in which indigenous communities are turned into subjects which play a crucial role in conserving nature for the adaptation and mitigation of climate change (Figure 5.21). Indigenous people are referred to as 'effective biodiversity and conservation managers' and the 'primary custodians of most of the world's remaining tropical forests and biodiversity hotspots' (CE, 2021d). Likewise, they argue that 'indigenous peoples and local communities manage at least 24 percent (54,546 MtC) of the total carbon stored above ground in the world's tropical forests, a sum greater than 250 times the amount of carbon dioxide emitted by global air travel in 2015' (CE, 2021d). As illustration, they refer to an indigenous community member who argues in a personal endorsement story that 'we guard the forest so that it regulates the climate for the planet' (CE, 2021f). Furthermore, they argue that 'cash' will have 'double the impact when put in the hand of rainforest communities' (CE, 2021g). Additionally, they argue that 'rainforest communities,

the true climate experts, prove we can have a symbiotic relationship with the world we live in. And right now, nature needs people just as much as people need nature' (CE, 2021h).

Figure 5.21: Rationale biodiversity as a means to mitigate and adapt to climate change 'realized' through local communities (CE, 2021b)

Interestingly, CE seeks to govern nature by combining technology with indigenous traditions. For instance, they argue that they combine 'the latest technology with indigenous Asháninka traditions' (CE, 2021e). Furthermore, they render the issue of biodiversity visible by applying satellites technology in order to govern biodiversity: 'biodiversity can also be mapped to a high-level using satellite data. Using technology that shows biodiversity in colour, the spectacularly varied image of Cool Earth's Asháninka partnership looks markedly different to the muted tones of a monoculture palm plantation' (CE, 2018b). They operationalize their rationale of governing ecosystems through indigenous communities into principles, which - among others - stresses the need to monitor, review and report (Table 5.12):

Table 5.12: MRV techniques (CE, 2021b)

Principles	
Monitor	'Cool Earth is developing robust and consistent monitoring and evaluating frameworks across all of our partnerships to make sure we can adapt to new issues that arise from time to time, and to take steps with our partners to come up with new approaches'
Review	'Using a combination of outcome monitoring, satellite analysis, and reviews of programme delivery costs, we can evaluate the long-term effectiveness of each partnership and the most successful approaches to achieve positive impacts for rainforest protection'
Report	'To progress and remain accountable to our donors and, most importantly, our beneficiaries, Cool Earth regularly reports on partnership challenges and successes'

In other words, they combine indigenous communities as technique with the technique of monitoring to evaluate the effectiveness of partnerships by CE. These MRV techniques are rendering the rationale visible and measurable, and in turn governable. However, it also points to inconsistencies in the narrative. Whereas on the one hand CE points towards the distribution of tasks and actions by deliberative community-led approaches, on the other hand CE point towards an expert-driven, control and management approach in which MRV techniques are in place to evaluate its effectiveness. Furthermore, this overarching emphasis on MRV techniques also points to the legacy of REDD+

narrative in creating biodiversity governance spaces which accordingly 'shape the realm of the possible' (Lövbrand & Stripple, 2010, p. 21).

5.4 Attaining authority in biodiversity governance

In order to study how TCI generate forms of authority, the three distinct modalities of authorisation – as consent, consensus, and concord – derived by Bulkeley (2012), can assist. As this study employs a governmentality lens, this study focuses mainly on the study of concord. However, as the different modes of authority do not operate in isolation, authority as consent and consensus will also be discussed.

Firstly, the first mode of authority involves the 'consent' to be governed. In this study, authority as consent ranges from TCI which have the 'consent' of indigenous communities that they are the 'subject' to govern biodiversity and climate change, to authority as consent operating through tools and standards – such as the SC and GS standards. These kinds of arrangements are generating authority based on recognition, which rests on constituents accepting these criteria and indicators as 'new rules' provided by these standards (Bulkeley, 2012). For instance, constituents of SC are accepting the criteria that biodiversity is 'replaceable' when it is not measurable. In turn, organisations are excluded when these do not meet the employed criteria. Accordingly, this mode of authority is spatially mediated through practices of connection with their constituents, such as the arrangements with indigenous communities. Through the use of protocols and measures by CE in governing ecosystems through indigenous communities, arrangements become part of the activities of these constituents (Allen & Cochrane, 2010; Bulkeley, 2012). These constituents are in turn brought close by personal endorsement stories of indigenous people and case studies representing the achievements these communities realized.

Secondly, authority as consensus is established through the capability of TCI to generate rationales and techniques to attain mutual recognition. For instance, with the hashtag #GenerationRestoration TCI seek to practice authority by 'forging consensus' on the idea that this generation will collaboratively work on restoring its ecosystems. Another example can be found in the motto 'nature now needs tech support too' by N4C, in which N4C aims to practice authority by 'forging consensus' that addressing NbS needs technology (2021l). Furthermore, through the standards, tools and guidelines TCI employ, they attempt to produce a consensus of what includes governing biodiversity in a 'correct' or 'good' way, which is constantly mediated through compromise. Additionally, authority as consensus is established through establishing practices of proximity, in which constituents are drawn close to rationalities and techniques, such as conferences and fairs they organize (Bulkeley, 2012). For instance, the need for technology is communicated through social media by N4C, but is also drawn to constituents through the 'Nature Tech' conference. Through these practices of proximity, TCI gain legitimacy and become 'recognized' for their practices in biodiversity loss.

Thirdly, authorisation as concord results from the normalisation of particular biodiversity discourses, from the artefacts TCI organize and the practices through which these TCI operate (Bulkeley, 2012). TCI are shaping their constituents through the 'taken-for granted and habitual nature' of the rationales found in this study. Overall, the analysis reveals an 'taken-for granted' overarching optimistic belief that one can 'know' biodiversity and translate it into programmes through a process of measuring, monitoring and quantifying (Lövbrand & Stripple, 2010; Lovell, 2013). Accordingly, these cases illustrate the habitual nature of the REDD+ rationale. Additionally, the analysis reveals that TCI, whereas operating in forestry, coastal ecosystems or agriculture, practice authority as concord in normalizing a 'measure and manage' approach (Table 5.13). In other words, these six TCI illustrate the commonality of the employed rationales and techniques. These underlying technology-nature

assumptions, for instance that technology is 'required', enter the process of normalization through the take up of Nature Tech by others (for instance by RA, 2021l).

Table 5.13: 'Measure and Manage'

TCI	Illustrative quotes
N4C	'but it is also clear that, like most things, NbS can be greatly aided by innovative technology' (2021l) 'Many see nature and technology as polar opposites, and by extension believe that "natural" and "technological" solutions to global crises exist in conflict. We believe the opposite' (2021l).
CLUA	'efforts such as these to perform new research, develop repositories of existing data and information, and map resources for the Cerrado biome are critically important' (2016b, p. 49)
RA	Nature Tech is argued to have 'a vital role to play in accelerating the deployment of nature-based solutions, at a time when speed is of the essence' (2021j).
4P1000	'soils: if you cannot measure it, you cannot manage it!' (2021h).
BCI	remote sensing techniques 'to monitor the health of mangrove ecosystems' (2021c)
CE	'Biodiversity can also be mapped to a high-level using satellite data' (2018b).

Additionally, the practice of concord also involves the organization of materials or artefacts, such as particular tools and targets within biodiversity governance through which the 'bringing into agreement' of actors and discourses is attained (Bulkeley, 2012). For instance, authority as concord is attained through portraying a range of figures through which interventions are 'normalized'. For instance, PB shares a figure with the central message 'it's usual to measure the benefits', which highlights the taken-for-granted assumption that there is a need for systematic measurement. Moreover, the Natural Climate Solutions World Atlas tool of N4C is normalizing the rationale that nature provides solutions to climate change. In turn, these tools reveal a taken-for-granted and habitual predominance of instrumental values. Through these 'taken for granted' standards, tools and guidelines, the rationale is 'normalized'. The normalization of interventions targeting biodiversity as a means to adapt and mitigate climate change is a means of enacting power. Accomplishing these kinds of authority entails the practices through which the presence of TCI is felt, even if these govern 'at distance' (Bulkeley, 2012). Interestingly, TCI are gaining 'presence' by partnering or referring to intergovernmental organisations. For instance, RA, N4C and 4P1000 are partnering with the UN Decade on Ecosystem Restoration 2021-2030. Additionally, TCI are organizing conferences and events as a critical means to establish their presence. For instance, while a NatureTech conference is deriving authority as consensus by attaining proximity, it is also a way to attain authority as concord in which they engage with several actors and are establishing their presence. Through their operations, the rationale that nature provides services or solutions which in turn 'need technology' enters a process of 'normalization'. This can be seen with RA, who refers to Nature Tech by N4C and accordingly assigns it as 'vital role' in accelerating NbS. However, contestation also occurs through the competing standards and tools which are generated by TCI, such as SC and the GS which in a way compete to become the 'authoritative' standard. Moreover, contestation can also be observed in the refusal of the dominant rationale on NbS and the accompanied techniques by ICA. Consequently, reflecting on the research question regarding authority, this analysis reveals that TCI generate 'novel' forms of authority in biodiversity governance in terms of consent, consensus and concord through these normalized and taken-for granted rationalities and myriad of techniques they employ.

Chapter 6 - Discussion

This research assessed the framing and governing of biodiversity by TCI. The results and its implications for biodiversity governance can be discussed.

First, a Foucauldian lens shows that this assemblage of TCI incorporating biodiversity practices is in itself a shift in biodiversity governance (Bulkeley et al., 2014). Examining this shift in the 'art of governing at a distance' revealed several rationales and techniques through which TCI exert relational and topological power in biodiversity governance. The two overarching rationales of biodiversity as a means to climate change and biodiversity loss as 'risk' are rendered governable through a myriad of techniques through which they attempt 'to shape one another's conduct' (Walters, 2012, p. 30). Through these rationales and practices these TCI employ, they exercise forms of 'biopower' in order to sustain the biodiversity population (Fletcher, 2010, p. 178). The study of authority reveals that these rationales and techniques have become the 'rightful exercise of power', as these rationales are taken-for-granted and normalized (Bulkeley et al., 2014, p. 142).

Second, this study reveals how the varied elements of the rationales are employed interchangeably by TCI, pointing towards the incoherence in the construction of biodiversity as 'governable space'. This incoherence not only reflects the 'newness' of the biodiversity-climate change nexus rationale, but also illustrates the 'creative articulation of very diverse elements' (Stephan et al., 2013, p**.** 73). The emergence of these incoherent biodiversity-climate change rationales is the result from 'ongoing coalition building forming a coherent discourse' (Stephan et al., 2013, p. 68). Additionally, the finding that TCI are interchangeably employing discursive elements and that the Clapp & Dauvergne (2011) archetypes are found to be more fluid illustrates the dangers of 'homeostasis' and the 'harmonization trap' – but also points to the possibilities to overcome these 'rigid models of government' (Rose et al., 2006, p. 98; Stephan et al., 2013). Moreover, it should be stressed that these rationales and techniques are found within a specific space and time - mainly within the Forestry & Carbon sequestration domain. Therefore, this study stresses that these rationalities and techniques can by no means be 'rolled out to govern at a distance, smoothing space and negating difference and contestation' (Bulkeley & Stripple, 2013, p. 248). One should not miss one of the key lessons of Foucault: 'to keep moving' (Walters, 2012, p. 8). This 'keep moving' argument implicates that the set of discussed rationalities and techniques are anything but set in this study, rather, it is a loose set of analytical tools which informs the study of biodiversity governance, rather than prescribes it (Rose et al., 2006).

Third, in terms of techniques, TCI shape the 'conduct of conduct' through the expertise they develop and address. The overarching emphasis on biodiversity science and knowledge among the TCI points to its crucial role in 'shepherding' the ecosystem population. There is an optimistic belief that one can 'know' biodiversity and translate it into programmes through a process of measuring, monitoring and quantifying (Lövbrand & Stripple, 2010; Lovell, 2013). In fact, in new policy arenas such as the biodiversity-climate change domain, knowledge is argued to be even more important as it is an ongoing challenge to keep up with new scientific and technological developments, which is illustrated with the recent (March, 2021) introduction of 'Nature Tech' by N4C. However, the danger is whether these TCI know biodiversity 'well enough to 'shepherd' the ecosystems 'population' (Lovell, 2013, p. 193). In fact, 'two of the greatest unknowns in science are how many species exist on Earth and at what rate they are going extinct' (Costello, 2015, p. 368). As a result, biodiversity science as a rather uncertain field of knowledge points to this accurate 'danger'.

In light of this uncertainty, the rise of technologies (e.g. 'Nature Tech') which can monitor, verify and report has appeal. Interestingly, techniques such as remote sensing, drone technology and

concepts such as 'Fourth Industrial Revolution' refer to the occurrence of 'Smart' Earth techniques (Bakker & Ritts, 2018). However, this shift towards 'automated' biodiversity governance is raising equity issues as these techniques support 'security objectives rather than equitable access' (Bakker & Ritts, 2018, p. 208). Moreover, these techniques are shaping what is 'thinkable' about how biodiversity resources can and should be governed in the first place. In turn, they express the need for reliable, standardized and transparent information and reflect the central principles of efficiency and effectiveness in biodiversity conservation (Turnhout et al., 2014). However, this 'measurementality' is not without consequences, as 'measuring can never be a completely neutral activity. It involves the exercise of power in the sense that rendering an object of interest measurable or legible involves critical choices about what to measure and how' (Turnhout et al, 2014, p. 583). Turnhout et al. (2014) point to the dangers of this practice as 'seemingly neutral tasks of measuring and counting in order to achieve transparency actually provide the bases for centralized control, coordination, and exchange' (p. 583). Furthermore, there is a danger that this area of expertise – 'what is measurable' - becomes to dominate the field, which is illustrated by the option of SC to exclude biodiversity when it is not measurable (Lovell, 2013). In fact, biodiversity is hard to measure and accordingly can never be measured in one single measure (Purvis & Hector, 2000; Boiral et al., 2018). For instance, genetic diversity is hard to measure and is therefore underrepresented in standardized measures (Mathews, 2016). In turn, measurable expertise risks to become dominant which could be at the expense of 'less' measurable knowledge, such as genetic diversity, pointing towards practices of incommensurability. In other words, if 'only what is counted counts...[this could result] in an impoverished understanding of biodiversity itself' (Turnhout et al., 2014, p. 594). While it is important to understand how and at which rate biodiversity is lost, one should caution an approach in which 'only what can be counted counts'.

Fourth, this analysis illustrates the legacy of REDD+, where similar to forest carbon, biodiversity is framed as 'unquantified' which requires ordering and a need to be controlled through systematic measurement (Lovell, 2013; Lövbrand & Stripple, 2010). This dominant 'Measure and Manage' perspective in the REDD+ narrative, is underpinning the rationales in this study as well. Whereas Lövbrand & Stripple (2010) argue that these practices are facilitating the climate as 'administrative domain', biodiversity governance can be seen as extended 'administrative domain' of the REDD+ rationale through which TCI 'shape the realm of the possible' (Lövbrand & Stripple, 2010, p. 21). Framing biodiversity as cost effective climate change solution and the accompanied measurement techniques 'articulate a field of visibility' in which biodiversity is reduced to their function or service they have for combatting climate change. In turn, this obscures other values and meaning of biodiversity (Stephan et al., 2013). Furthermore, there is a danger that the area of biodiversity expertise which adds to the 'bringing into agreement' of climate change and biodiversity becomes dominant, which could be at the expense of biodiversity expertise which is less 'climate-proof'.

Fifth, this research reveals that governing biodiversity 'at a distance' takes on indigenous forms as they have the 'best' knowledge and experience to protect the environment and are therefore argued to be the most 'effective' way to conserve biodiversity (Wang, 2015). Through the construction of indigenous people as 'ecological natives' (Ulloa, 2013**,** p. 1) and 'knowledgeable subjects' (Bryant, 2002, p. 284) indigenous people are contributing to biodiversity conservation through self-disciplining (Wang, 2015). This illustrates the 'selective valorisation of those aspects of indigenous governance that produced administratively desired effects – that is, those which 'are functioning better' in achieving the goals of liberal government' is practiced' (O'Malley, 1996, p. 317). Paradoxically, 'the very moment that such empowerment is attained is also the occasion when a significant loss of 'freedom' from surveillance and control seems to happen. Empowerment is thus apparently bought at a price' (Bryant, 2002, p. 286-287). Especially the combination of indigenous forms of biodiversity conservation with

‘Smart’ Earth technologies is illustrating this paradox, which may have severe equity implications. In a way, it is what Havemann (1988) (as cited in O’Malley, 1996) calls the ‘indigenization of social control’ (p. 314). Moreover, this emphasis on empowerment of indigenous communities ‘can amount to a reaffirmation of the otherness of indigenous peoples and, relatedly, the colonial thinking and idioms that lurk in the background’ (Wang 2015, p. 327; Wilder, 1997). Additionally, the focus on protected areas by TCI as ‘incontestable’ technique to conserve biodiversity is interesting in light of the Post-2020 Global Biodiversity Framework and an indigenous rights perspective. The recently released goal to protect 30% of the world on land and sea has received significant amounts of critique, mostly from an indigenous rights perspective. This is not surprising, as protected areas have a history in which the primary goal is nature conservation, and cultural values are argued to be a secondary goal only when ‘these are ‘associated’ with nature’ (Lee, 2016, p. 356). Certainly as most TCI primarily legitimize their indigenously focused approach based on the reasoning that it is the most ‘effective’ measure to achieve conservation goals, the use of protected areas as ‘incontestable’ technique by TCI could have equity implications as well.

Finally, this analysis reveals the intermingled use of concepts of nature, ecosystems and biodiversity by TCI. Here, nature could be argued to be an overarching term, in which biodiversity is a specific lens and ecosystems as the arena where conservation will be achieved. The study of these biodiversity rationales shows the normative and political dimensions of the construct, the conflict between destructing and conserving nature, and the underlying motivation to do so: as a climate regulator (instrumental), ensuring good quality of life for local communities (relational) or because it is its right to be conserved (intrinsic) (Waage & Benediktsson, 2010). Biodiversity as a specific lens could imply ‘a non-anthropocentric and objective evaluation, where the intrinsic values of nature are at the forefront’ (Waage & Benediktsson, 2010, p. 18). However, the ‘normalized’ focus on the ‘services’ biodiversity provides in this study ‘represents a postmodern form of capitalization of nature and is thus not really about intrinsic values’ (Waage & Benediktsson, 2010, p. 2). These rationales express a relation between society and nature – which reflects an anthropocentrism system of values, where entities are argued to be valuable when it serves human beings and their purposes (Arias-Arévelo et al., 2017; Escobar, 1998). It represents a reductionist approach in which nature is reduced to its ‘solutions’ or ‘services’. As the root causes of the loss of biodiversity ‘lie in the ways human beings relate to nature’, this focus on the instrumental role of nature is problematic (Ring et al., 2010, p. 15).

Overall, the framing of biodiversity as a solution for climate change by TCI will result in certain biodiversity aspects to be overlooked or downplayed. This in turn will have consequences for biodiversity governance as the framing of biodiversity determines the solutions which will be developed (Uggla, 2018; Elliott, 2020). In fact, by framing nature as a collection of ‘services’ or ‘solutions’, anthropocentric values could function as extrinsic motivation for conservation, which potentially could crowd-out intrinsic values of nature (Bekessy et al., 2018). Conceiving nature and biodiversity in relation to climate change, will result in solutions which are derived from this perspective. Therefore, this study aligns with Bekessy et al. (2018), Leibenath (2017), Randrup et al. (2020), Pascual et al. (2017), Seddon et al. (2021), Nesshöver et al. (2017), Kosoy & Corbera (2010) that the focus on instrumental values and ‘services’ of biodiversity is a dangerous strategy as it directs the attention away from contributions of biodiversity which are not argued to be an ecosystem ‘service’ or climate change solution. Consequently, this study aligns with Pascual et al. (2017) and Randrup et al. (2020) that there is a need to embrace more pluralistic valuation approaches, such as the introduced concept of ‘Nature-Based Thinking’ (NBT) developed by Randrup et al. (2020) which entails ‘the perspective of nature *with* people, rather than just nature *for* people’ (p. 925).

All in all, these results suggest that the marketisation and institutionalisation of biodiversity can be argued to be hegemonic, and that ICA can be regarded as a counter-hegemonic force portraying a social green rationale (Bulkeley et al., 2014). Interestingly, this hegemonic rationale is in line with the ecological modernisation discourse (Hajer, 1995; Bäckstrand & Lövbrand, 2006) in which ecological transformation is combined with market dynamics and biodiversity is argued to be a cost-effective climate mitigation and adaptation solution. Biodiversity conservation efforts are seen as worthwhile investments when they assist in the adaptation and mitigation of climate change. In turn, measurement is often representing an economic value; rather than the 'inherent value of life' (Avron, 2017, p. 376). It is what Leibenath (2017) calls the 'neoliberalisation of ecosystem services' in which nature is 'made visible as an economic asset, or at least as something which is highly relevant to the economy, by relating it to 'ecosystem services' (p. 313). However, as put forward by Rose et al. (2006), there is a need to watch out for a 'cookie-cutter typification' in which programs with neo-liberal components are classified as neoliberal, 'as if this subsumption of the particular under a more general category provides a sufficient account of its nature or explanation of its existence' (p. 98). Whereas this study does not argue that these rationales can be led back to neoliberalism, this finding does point towards a level of orthodoxy employed by TCI. And whereas on the one hand, it can be argued that this allows TCI to be taken more seriously by their constituency, on the other hand, as Bulkeley et al. (2014) points out: 'it is not entirely clear how effective arguably incremental changes arising from orthodox initiative can be, or what impact they will have on the equity concerns' (p. 155). As a result, it can be questioned whether this 'path of economic development' will safeguard biodiversity and result in ecologically restored ecosystems, or whether more radical approaches are needed (Leibenath, 2017, p. 314). Subsequently, a governmentality perspective will not tell us whether these TCI are making a difference in combatting biodiversity loss, neither it tells us the 'political rationality that is more desirable' (Lövbrand et al., 2009, p. 12). However, it does tell us that these TCI are 'effective' in producing particular rationalities and practices and keep the issue of biodiversity on the agenda, whether or not it is in the form of a 'service' for climate change, whether or not these limit biodiversity loss (Bulkeley et al., 2014).

Moreover, it should be stressed that this study is by no means providing a causal explanation for governing biodiversity by TCI or predicting the future of biodiversity governance in light of the Post-2020 Global Biodiversity Framework, as this is what governmentality 'never claimed to do' (Rose et al., 2006, p. 100). Neither does this study present these rationale as 'final' results as rationalities will 'constantly undergo modification in the face of some newly identified problem or solution, while retaining certain styles of thought and technological preferences' (Rose et al., 2006, p. 98). Rather, by focusing on how TCI are seeking to shape the 'conduct of conduct' it 'reminds us that seemingly natural ways of organising society and our selves are far from selfevident or necessary' (Lövbrand et al., 2009, p. 12). Rather, it increases the 'think-ability and criticize-ability' of governing biodiversity 'at a distance' by TCI (Walters, 2012, p. 2). Consequently:

'[criticism] consists in uncovering that thought and trying to change it: showing that things are not as obvious as people believe, making it so that what is taken for granted is no longer taken for granted. To do criticism is to make harder those acts which are now too easy' (Foucault, 2000b, p. 456)

6.1 Limitations of the study and future research

Limitations regarding scientific criteria of validity and reliability of this study occur. First and foremost, this research did not gather a representative sample of TCI. The sample of initiatives is not a representative sample of TCI, because the 'entire' population of TCI is unknown. Additionally, this study gathered a relatively small sample of TCI, further underpinning the statement that this study cannot generalize these findings towards the 'unknown' universe of TCI. Furthermore, by applying the criteria that climate change has to be the overarching objective, this study is likely to underrepresent initiatives which work on biodiversity but do not explicitly express this (Bulkeley et al., 2014). Moreover, Negacz et al. (2020) argue that the initiatives in their database are based on the presence of English websites, which may affect the included initiatives in the database, especially initiatives within African, Asian and South American countries. As this research is based on their database, this methodological limitation applies to this research as well. As a result, the external validity of this study is limited as generalizing from these cases is problematic (Verschuren & Doorewaard, 2010).

Additionally, some initiatives provided documents which were only available in other languages, such as French (4P1000) or Portuguese (SC). While these documents could not be studied, the main information could be derived from these initiatives. Moreover, the amount of information gathered varied amongst the TCI due to differences in data availability on biodiversity. For instance, BCI was non-active on social media which led to a smaller amount of data compared to the other TCI. Furthermore, a main limitation of this study was a lack of data availability in terms of the variables, which has resulted in a lack of robust data (Appendix III). Whereas the governing of biodiversity by TCI could be affected by their (type of) funding sources, this could not be analysed. This lack of data availability also points to the limitations of a text-based analysis, which could be overcome by future research which compares a larger group of TCI and includes other sources of data, such as interviews. Another limitation of this study is that there is only one assessor who is performing the discourse analysis, which could result in biases in terms of reliability. Nevertheless, this study has been performed in collaboration with PBL Netherlands Environmental Assessment, who in turn provided 'checks' on the analysis which in turn enhanced the reliability of this study. This collaboration has resulted in a Draft Policy Brief, which can be found in Appendix II.

Furthermore, Dewulf & Bouwen (2012) argue that discourse analysis can be criticized as it overemphasizes the inductive character. The assumption is that the researcher is an empty page, while instead, the researcher has certain personal and theoretical understandings which are needed in order to perform the analysis. According to Dewulf & Bouwen (2012), this researchers' partiality can partly be overcome by applying quality criteria developed by Wood & Kroger (2000). They apply trustworthiness and soundness as criteria to secure the quality of the discourse analysis. Trustworthiness can be understood as the 'systematic and thorough way in which claims are arrived' which is achieved by documenting the process in NVIVO (Dewulf & Bouwen, 2012, p. 176). Soundness is referred to as the 'solidity and credibility of the claims' which is realized in this study by demonstrating the steps involved and realizing coherence in the set of analytical claims (Dewulf & Bouwen, 2012, p. 176). These quality criteria enhanced the reliability of the study.

Moreover, the analysis is based on secondary data and focused on the 'declared intention' to contribute to biodiversity by TCI, but this does not say anything about the realization of these ambitions (Xie & Bulkeley, 2020). The step from commitments to implementation could not be examined. However, following a Foucauldian perspective, one can refer to the insight from Discipline and Punish (Foucault, 1977) - TCI may be effective in producing particular rationalities and practices, whether or not it limits biodiversity loss (Bulkeley et al., 2014).

Lastly, the analytical lens employed in this study could also be critiqued. Governmentality is, among others, critiqued for its 'harmonization trap' or its 'aspatiality' (see Chapter 2.2.1 for further drawbacks). However, additional approaches could limit these drawbacks (Stephan et al., 2013; Uitermark, 2005). For instance, Stephan et al. (2013) argue that several limitations of governmentality – for instance that it neglects processes of contestation and resistance - could be overcome by a discursive theory of hegemony. Future research could employ an 'analytical eclecticism' perspective which seeks to 'leverage and integrate conceptual and theoretical elements in multiple traditions' (Sil & Katzenstein, 2010, p. 412). While this is beyond the scope of this study, future research could employ such an approach to enrich these insights in governing biodiversity by TCI (Bulkeley et al., 2014; Sil & Katzenstein, 2010). For instance, future research could employ an Actor-Network Theory (ANT) and a Gramsci's notion of hegemony in studying how TCI outside the classic biodiversity arena are governing biodiversity. Moreover, future research could expand this biodiversity-governmentality research, for instance by examining a broader sample of TCI integrating practices of biodiversity. Lastly, research on governing actors operating outside this transnational governance domain could extend these insights in the biodiversity-climate change nexus arena, such as financing actors or regions and cities. All in all, due to the relatively small sample this study is by no means an attempt to generalize these findings towards the 'unknown' universe of TCI, but it does provide insight in a relatively new policy domain.

Chapter 7 - Conclusion

Accordingly, the research question *'How is biodiversity framed and governed by Transnational Climate Initiatives?'* and its sub-questions can be answered.

First, this research on biodiversity governance by TCI reveals how biodiversity is made to 'fit' within the complex world of climate change – mainly portrayed as a 'solution' or 'service' for climate change. Employing a governmentality lens, this research assessed how TCI portray the issue of biodiversity, and through which techniques they aim to tackle biodiversity loss. The two overarching rationales of biodiversity as a means to climate change and biodiversity loss as 'risk' are rendered governable through a myriad of techniques through which TCI attempt to shape the 'conduct of conduct'. Overall, the analysis reveals a 'taken-for granted' overarching optimistic belief that one can 'know' biodiversity and translate it into programmes through a process of measuring, monitoring and quantifying, with a specific focus on 'Smart' Earth techniques. This study illustrates the habitual nature of the REDD+ rationale and in turn reveals how biodiversity is becoming an 'extended administrative domain' of climate change – which in turn has multiple consequences as highlighted by the previous chapter.

Second, the analysis illustrates how the varied elements of the rationales are employed interchangeably by the TCI, pointing towards the variation in terms of rationalities and techniques. Moreover, it also illustrates the commonality of the employed rationales and techniques, such as the overarching 'Measure and Manage' approach and the presence of 'Smart' Earth techniques.

Third, through these normalized and 'taken for granted' rationales and techniques, TCI generate 'novel' forms of authority and attain the 'rightful exercise of power' (Bulkeley et al., 2014, p. 142). Authority in terms of consent, consensus and concord is practiced through these normalized and taken-for granted rationalities and techniques TCI employ.

Overall, this research has shown how insights from governmentality can advance the understanding of theorizing biodiversity governance by TCI, and how future research could further enrich these insights. A governmentality lens points to the dangers of constructing biodiversity as an 'extended administrative domain' of climate change in which biodiversity is reduced to their function or service they have for combatting climate change. To conclude, this study is by no means arguing that it is undesirable that these TCI intermingle in the biodiversity arena, rather it warns for the dangers within biodiversity governance. Therefore, whereas PB refers to NbS as a 'no-regret' solution, this study argues that framing and constructing biodiversity in terms of 'services' or 'solutions' could turn into a dangerous, 'regrettable solution'. It aligns with Foucault (1984) who argues that:

'my point is not that everything is bad, but that everything is dangerous, which is not exactly the same as bad. If everything is dangerous, then we always have something to do. So my position leads not to apathy but to a hyper- and pessimistic activism' (p. 343).

Chapter 8 - Literature

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Appendix

Appendix I – Acronyms

Acronym	Name of initiative
4P1000	4 Pour 1000
BCI	Blue Carbon Initiative
CE	Cool Earth
N4C	Nature 4 Climate
CLUA	Climate and Land Use Alliance
RA	Rainforest Alliance
CCFLA	Cities Climate Finance Leadership Alliance
IDFC	International Development Finance Club
GS	The Gold Standard
UNEP-FI	UNEP Finance Initiative
SDIP	WEF Sustainable Development Investment Partnership
SC	Social Carbon
CA	Climate Alliance of European Cities with Indigenous Rainforest Peoples
GCMCE	Global Covenant of Mayors of Climate & Energy
GCFTF	Governors' Climate and Forest Task Force
ICA	Indigenous Climate Action
PB	Plan Bleu
WASI	We Are Still In
IMED	Interreg MED
CCAFS	The CGIAR Research Program on Climate Change, Agriculture and Food Security

Appendix II – Draft Policy Brief PBL

Merging the agendas: a biodiversity-climate nexus?

Introduction

The loss of biodiversity is argued to be among the largest environmental problems today as it impairs the long-term viability of the world's ecosystems (Beumer & Martens, 2013). Since the Convention on Biological Diversity (CBD) in 1992, successive government-led attempts have been unable to halt the wicked and complex problem of biodiversity loss (Van den Burg & Bogaardt, 2014). As a result, there is a need to move away from this 'cockpit-ism' and include a broader range of actors (Hajer et al., 2015, p. 1652). This recognized potential of non-state actors sheds light on another challenge, in which there is increasingly attention drawn to nature by actors operating outside the biodiversity domain – notably in terms of Nature-Based Solutions (NbS). Attention is directed towards combining biodiversity with the mitigation and adaptation of climate change, increasing the relevance to study whether and how actors outside the classic biodiversity domain are approaching biodiversity. Therefore, this study examined Transnational Climate Initiatives (TCI), with a specific focus on TCI operating in the Forestry & Carbon Sequestration sector. This research draws on a governmentality lens of Michel Foucault which assists in assessing how TCI define the problem of biodiversity (so-called 'rationalities) and how these are governed through techniques. By employing a governmentality lens, this research points to several main messages regarding the 'bringing into agreement' of biodiversity and climate change. While these messages are derived from a specific focus area, the given that *how* biodiversity and climate change are brought together *matters* is an overall message for the biodiversity arena.

Key messages

- ***'Measure and Manage': the occurrence of 'Smart' Earth techniques in biodiversity governance***

  Biodiversity science is a rather unknown and uncertain field of knowledge. In light of this uncertainty, 'Smart' Earth techniques, such as remote sensing, drone technology and satellite monitoring, which can monitor, verify and report are increasingly employed (Bakker & Ritts, 2018). However, this shift towards 'automated' biodiversity governance is raising equity issues as these techniques support 'security objectives rather than equitable access' (Bakker & Ritts, 2018, p. 208). Moreover, the employed 'Measure and Manage' approach or 'measurementality' by TCI is not without consequences, as 'measuring can never be a completely neutral activity. It involves the exercise of power in the sense that rendering an object of interest measurable or legible involves critical choices about what to measure and how' (Turnhout et al, 2014, p. 583). In fact, there is a danger that this area of expertise – 'what is measurable' - becomes to dominate the field, which could be at the expense of knowledge which is 'less' measurable (Lovell, 2013). For instance, genetic diversity is hard to measure and therefore could be underrepresented in standardized measures (Mathews, 2016). In other words, if 'only what is counted counts...[this could result] in an impoverished understanding of biodiversity itself' (Turnhout et al., 2014, p. 594). Therefore, it is vital that the Post-2020 Global Biodiversity Framework acknowledges the inherent risks of a 'Smart' Nature approach. While it is important to understand how and at which rate biodiversity is lost, one should caution an approach in which *'only what can be counted counts'*. Further publications in the run-up to the Post-2020 Global Biodiversity Framework, such as the headline indicators, will show which approach is taken.

- ***Governing biodiversity takes on indigenous forms which raises equity concerns***

Biodiversity governance increasingly takes on indigenous forms as indigenous people are argued to be the most 'effective' way to conserve biodiversity and therefore need to be 'empowered'. Paradoxically, 'the very moment that such empowerment is attained is also the occasion when a significant loss of 'freedom' from surveillance and control seems to happen. Empowerment is thus apparently bought at a price' (Bryant, 2002, p. 286-287). Especially the combination of indigenous forms of biodiversity conservation with 'Smart' Earth technologies by TCI is illustrating this paradox, which could have severe equity implications. As the Post-2020 Global Biodiversity Framework focuses on the participation of indigenous people in the conservation of biodiversity, these equity implications need to be addressed.

- ***Protected areas as 'incontestable' technique in conserving biodiversity can be contested***

Protected areas are constructed as 'incontestable' technique by TCI to conserve biodiversity, which is interesting in light of the Post-2020 Global Biodiversity Framework and an indigenous rights perspective. The recently released goal to protect 30% of the world on land and sea has received significant amounts of critique, mostly from an indigenous rights perspective. This is not surprising, as protected areas have a history in which the primary goal is nature conservation, and cultural values are argued to be a secondary goal only when 'these are 'associated' with nature' (Lee, 2016, p. 356). Therefore, the use of protected areas as 'incontestable' technique could have equity implications as well, stressing the need to address these issues in light of the Post-2020 Global Biodiversity Framework.

- ***Constructing biodiversity in terms of their 'service' or 'solution' they have for climate change will result in certain biodiversity aspects to be overlooked***

The issue of biodiversity is brought together with climate change by TCI in particular ways. This study points to the overall framing of biodiversity as a solution for climate change by TCI, which will result in certain biodiversity aspects to be overlooked or downplayed. From a constructivist perspective, this in turn will have consequences for biodiversity governance as the framing of biodiversity determines the solutions which will be developed (Uggla, 2018; Elliott, 2020). It represents a reductionist approach in which nature is reduced to its 'solutions' or 'services', which in turn obscures other values of biodiversity (Stephan et al., 2013). In fact, anthropocentric values could function as extrinsic motivation for conservation, which potentially could crowd-out intrinsic values of nature (Bekessy et al., 2018). Conceiving nature and biodiversity in relation to climate change, will result in solutions which are derived from this perspective. A focus on instrumental values and 'services' of biodiversity is a dangerous strategy as it directs the attention away from contributions of biodiversity which are not argued to be an ecosystem 'service' or climate change solution, and should be avoided in light of the Post-2020 Global Biodiversity Framework.

- ***Avoid an 'one-size-fits-all' approach in merging the agendas of biodiversity and climate change***

The merging of the agendas of biodiversity and climate change has received increased momentum with the publication of the joint IPBES-IPCC report (2021), which reflects on the connections between climate and biodiversity, and attempts to find synergies and trade-offs between climate change and biodiversity. They argue that the 'functional separation creates a risk of incompletely identifying, understanding and dealing with the connections between the two. In the worst case it may lead to taking actions that inadvertently prevent the solution of one or the other, or both issues' (p. 4). While these risks can be acknowledged, this study argues that there are also risks in

focusing on mainly 'desirable biodiversity-climate interactions' (IPBES & IPCC, 2021, p. 22). Overly focusing on bringing biodiversity and climate change into agreement, could result in the dominance of biodiversity expertise which adds to these 'synergies and trade-offs', which in turn could be at the expense of biodiversity expertise which is less 'climate-proof'. Furthermore, the connection between biodiversity and climate change will differ across time, space and sectors. One should caution rolling out an 'one-size-fits-all' approach portrayed by IPBES-IPCC, which smooths space and ignores contestation. This message is also applicable to the Post-2020 Global Biodiversity Framework, which is argued to be the 'opportunity to address the interactions between climate change and biodiversity' (Arneth et al., 2020, p. 30882). Again, *how* biodiversity is combined with the agenda of climate change will *matter* and one should caution an approach in which biodiversity is reduced to their 'service' or 'solution' they have for combatting climate change, as this could turn into a dangerous, 'regrettable solution' for biodiversity.

To conclude, it aligns with Foucault (1984) who argues that:

'my point is not that everything is bad, but that everything is dangerous, which is not exactly the same as bad. If everything is dangerous, then we always have something to do. So my position leads not to apathy but to a hyper- and pessimistic activism' (p. 343).

Appendix III - Data availability

Variables	Arrangement type	Target constituency	Number of members	Formality of membership	Year of initiation	Geographical coverage
4P1000	X	X	X	X	X	X
BCI	X	X	X		X	X
CE	X	X	X		X	X
N4C	X	X	X		X	X
CLUA	X	X	X	X	X	X
RAC	X	X	X		X	X
CCFLA	X	X	X		X	X
IDFC	X	X	X		X	X
GS	X	X	X	X	X	X
UNEP-FI	X	X	X		X	X
SDIP	X	X	X		X	X
SC	X	X	X	X	X	X
CA	X	X	X		X	X
GCMCE	X	X	X		X	X
GCFTF	X	X	X		X	X
ICA	X	X	X		X	X
PB	X	X	X	X	X	X
WASI	X	X	X		X	X
IMED	X	X	X	X	X	X
CCAFS	X	X	X		X	X

Variables	Location of headquarters	Financing actors	Form of funding
4P1000	X	X	
BCI	X		
CE	X	X	X
N4C	X		
CLUA	X	X	X
RAC	X	X	X
CCFLA	X	X	
IDFC	X		
GS	X	X	X
UNEP-FI	X		
SDIP	X	X	X
SC	X		
CA	X	X	
GCMCE	X	X	
GCFTF	X		
ICA		X	X
PB	X	X	
WASI			
IMED	X	X	
CCAFS	X	X	

Appendix IV - Variables

Targeted sector

It is expected that the domain in which the initiatives operate will make a difference in how they seek to govern biodiversity. This study distinguishes between these four sectors: Carbon sequestration & Forests, Carbon markets & Finance, Regions, Cities & Local communities, Agriculture & Food. These sectors of the initiatives were identified based on information on their websites.

Arrangement type

This research distinguishes between public, hybrid and private transnational governance networks. By including these different actor types within transnational networks, differences across the different typologies in terms of framing and governing can be analysed. Moreover, by selecting a variety of actors this research will generate a relatively comprehensive understanding of how different kinds of initiatives frame and govern biodiversity. This research coded an initiative as 'public' when they are established and controlled by and for public actors. Public actors can range from units of intergovernmental organisations which work independently of national commitments, local and regional governments to sub-units of government (Andonova et al., 2009). In contrast, initiatives were coded as 'private' when they are initiated and managed by solely non-state actors. Lastly, initiatives were coded as 'hybrid' when both public and private transnational actors have leading roles in initiation and management of the initiative (Andonova et al., 2009). Relevant information was primarily derived from websites 'histories' and occasionally from other sources, such as the UN Climate Initiatives Platform from the UNEP (2021) and Hale & Roger (2014) which studied some of these initiatives as well.

'Target' Participants

There is a clear difference between the initiating actors of a TCI, and the actors these TCI target - whose behaviour they intend to steer. Frequently, those who initiate the TCI are not the same as the targeted actors. For instance, the Gold Standard was initiated by the WWF, a NGO, but is used by mainly market actors (Hale & Roger, 2014). Therefore, in order to determine the composition of the participant targeted by the TCI, different kinds of participants were distinguished based on the categorization of Hale & Roger (2014): Local governments (e.g. municipalities, provinces) governments/sub-national governmental units (e.g. ministries), business, NGOs and individual consumers. Unlike Hale & Roger (2014), this research did not distinguish carbon market actors as they point out themselves that categorizing these actors is a somewhat arbitrary activity. Often, TCI targeted different kinds of participants. Data was mainly derived from statements on initiatives' websites about the intended targets and the participants they aim to target. This was often found in participant registers or membership information (Hale & Roger, 2014).

Number of members

The number of members could give insight in the reach of these TCI. Information on their members were primarily derived from the initiatives' websites.

Formality of the membership

The formality of the membership was chosen as variable as it could shed light on what constituents have to do to join the network, and in turn how these TCI seek to bind their constituents, which in turn could give insights how they attain authority and legitimacy (Bulkeley et al., 2014). For instance, Bulkeley et al. (2014) argue that when membership fees are required, this could imply a more formal means through which the authority of an initiative is recognized, whereas more voluntary forms of

membership could derive authority based on deeper concord. In other words, Bulkeley et al. (2014) argue that 'more formal arrangements may simply indicate that such forms of authority are not present' (p. 143). Subsequently, Bulkeley et al. (2014) distinguish between formal membership structures, which include membership fees, register of members and form of legal designation/arrangement and more informal membership structures, which rely more on voluntary affiliation. This categorization is employed in this study. Information was mostly derived from initiatives' websites.

Year of initiation

In order to determine when the TCI started, this study looked at the reported dates of initiation on their websites and the reported dates of their first activity on the websites (Hale & Roger, 2014). Some starting dates were derived from Hale & Roger (2014). Conventionally, this was the date that the TCI was initiated. However, when such a self-reported date on the website could not be found, the date of the earliest activity was seen as starting date. In other words, the year of initiation refers to the year the initiative was initiated, and when this information was not available, when the TCI started its operations (Negacz et al., 2020; Hale & Roger, 2014).

Geographical coverage of the initiatives' actions

In order to examine the geographic coverage of the initiatives' actions, this study looked at the area (country, region, continent) which initiatives target (Negacz et al., 2020). Information was mostly derived from initiatives' websites.

Location of headquarters

The location of the headquarters of TCI refers to the city in which the headquarter of a TCI is located, which is often the location of the secretariat (Negacz et al., 2020). In some cases, TCI had a virtual office and no location could be derived. Information was mostly derived from initiatives' websites.

Finance

Accordingly, how TCI seek to govern biodiversity could be affected by their (type of) funding sources. For instance, techniques employed by TCI might be affected by funding actors. For instance, IMED is funded by the European Regional Development Fund, which might influence the techniques generated. Therefore, a list of financing actors was collected and a distinction was made between the type of financing organization (private, public, philanthropic). In addition, the level of influence these financing actors have depends on the type of finance which is provided. For instance, whereas a grant is conditional, a gift has no terms and in turn affects the techniques generated to a lesser extent. Subsequently, a distinction was made between different forms of finance (gift, loan, grant or investment). Lastly, additional information in terms of the amount of funding and the specific organisations which funded TCI were collected when this information was available.

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Part II: In-depth content analysis

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Appendix VI – Analysed data

TCI	Data	Retrieved from:
Nature4Climate	Website and reports	'Homepage' 'Our purpose' 'Science' 'Tools' 'Newsroom' 'Case Studies' 'Resource Center' 'Reports'
	Twitter	Activities in January-June 2021, checked on June 17 & 18
	LinkedIn	Activities in January-June 2021, checked on June 17 & 18
	Facebook	Absent
Climate and Land Use Alliance	Website and reports	'Homepage' 'Who we are' 'Where we focus' 'What we support' 'What's new' 'Reports'
	Twitter	Activities in January-June 2021, checked on June 17 & 18
	LinkedIn	No messages
	Facebook	Absent
Rainforest Alliance Certified	Website and reports	'Homepage' 'What we are doing' 'Our Impacts' 'Our Approach' 'What you can do' 'The Latest': 'news', 'research' & 'stories' 'About the Rainforest Alliance' 'Reports'
	Twitter	Activities in January-June 2021, checked on June 17 & 18
	LinkedIn	Activities in January-June 2021, checked on June 17 & 18
	Facebook	Activities in January-June 2021, checked on June 17 & 18
Blue Carbon Initiative	Website and reports	'Home' 'About Blue Carbon' 'Working groups' 'Implementation of Blue Carbon Activities' 'Resources': 'news', 'events', 'manual', 'policy guidance', 'ocean-climate dialogue', 'library', 'partners', 'member list'
	Facebook, Twitter and LinkedIn	Inactive/absent
Cool Earth	Website and reports	'What we do' 'Where we work' 'Get involved' 'Supporters' 'Stories' 'Reports'

	Twitter	Activities in January-June 2021, checked on June 17 & 18
	LinkedIn	Activities in January-June 2021, checked on June 17 & 18
	Facebook	Activities in January-June 2021, checked on June 17 & 18
4Pour1000	Website and reports	'Welcome to the '4Pour1000' Initiative' 'Act' 'Get involved' 'Governance' 'News & Events' 'Resources'
	Twitter	Activities in January-June 2021, checked on June 17 & 18
	LinkedIn	Activities in January-June 2021, checked on June 17 & 18
	Facebook	Activities in January-June 2021, checked on June 17 & 18
Cities Climate Finance Leadership Alliance	Website and reports	'About' 'Members' 'Resources' 'Action Groups' 'Commitments' 'News & Events'
International Development Finance Club	Website and reports	'IDFC' 'Climate Change' 'Implementing SDGs' 'News' 'Agenda' 'Publications'
The Gold Standard	Website and reports	'Standard + solutions' 'Innovations' 'Take Action' 'Resources' 'About Us'
UNEP Finance	Website and reports	'About Us' 'Our members' 'Finance Industry' 'Key themes' 'Regions' 'Resources'
WEF Sustainable Development Investment Partnership	Website and reports	'Home' 'Country Financing Roadmaps' 'SDG Regional Hub' 'GFC on Development Finance' 'Members and Partners' 'Documents'
Social Carbon	Website and reports	'Home' 'Who we are' 'Developers' 'Documents' 'News/events' 'Contact us'
Climate Alliance of European Cities with Indigenous Rainforest Peoples	Website and reports	'About Us' 'Municipalities' 'Indigenous Partners'

		'Activities' 'Newsroom' 'Events' 'Downloads'
Global Covenant of Mayors of Climate & Energy	Website and reports	'Home' 'Regions & Cities' 'Our Initiatives' 'Resources' 'Newsroom' 'About Us'
Governors' Climate and Forest Task Force	Website and reports	'Who we are' 'What we do' 'Where we work' 'News'
Indigenous Climate Action	Website and reports	'About' 'What's new' 'What we do'
Plan Bleu	Website and reports	'Blue Plan' 'Themes' 'Projects' 'Resources' 'Publications' 'Events'
We Are Still In	Website and reports	'About' 'Who's in' 'News' 'Success stories' 'Climate Contributions' 'Take Action'
Interreg MED	Website and reports	'Biodiversity Protection' 'Biodiversity Protection Declaration' 'Our projects' 'MBPC Knowledge Platform' 'News' 'Events' 'Open Communication Resources'
The CGIAR Research Program on Climate Change, Agriculture and Food Security	Website and reports	'About' 'Donors' 'Partners' 'People' 'Research Themes' 'Regions' 'News' 'Events' 'Outcomes' 'Resources'