GOVERNANCE *for* RESILIENCE:

Assessing how GOVERNANCE
Influences Implementation
of RESILIENCE Measures in
Nature Areas

Maia Lordkipanidze

ASSESSING HOW GOVERNANCE INFLUENCES IMPLEMENTATION OF RESILIENCE MEASURES IN NATURE AREAS
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LIST OF ABBREVIATIONS

CDA	Christian Democratic Appeal
CIT	Contextual Interaction Theory
COM	Communication from the Commission to the European Parliament
DFW	Drents-Friese Wold National Park
DG	Directorate General
DLG	former Government Service for Land & Water Management under the LNV
DROP	Benefits of Governance in DRought AdaPtation
EDO	European Drought Observatory
EHS	Ecological Hoofdstructuur (Dutch National Ecological Network)
EU	European Union
EU LIFE	European funding program for rehabilitation of special natural values in Natura2000 areas
GAT	Governance Assessment Tool
GDP	Gross Domestic Product
IDMP	Integrated Drought Management Programme
IJWG	International Journal of Water Governance
ILG	Investeringsbudget Landelijk Gebied (Investment Budget for Rural Areas)
INTERREG	Interregional programme
IUCN	International Union for Conservation of Nature
IVN	Institute for Nature Education and Sustainability
KKBA	Kengetallen Kosten Baten Analyse (Cost Benefit Analysis)
KOPTOP	Association of recreation entrepreneurs in the Weerribben-Wieden region
LNV	Dutch Ministry of Economic Affairs, Agriculture and Innovation
LTO	Dutch farmers' organisation
MEA	Millennium Ecosystem Assessment
NP	National Park
NPWW	National Park Weerribben-Wieden
OECD	Organisation for Economic Co-operation and Development
PES	Payment for Ecosystem Services
SPA	Special Protected Area
UNDP	United Nations Development Programme
WCT	Water Collective Twente
WILG	Dutch Rural Areas Development Act

CHAPTER 1: Introduction

1.1 Research background

Governance is an essential service to deliver protected area management and conservation of biodiversity and ecosystems. This is especially so now, in the Anthropocene era, when humans are altering conditions across the entire planet (Borrini-Feyerabend and Hill, 2015: 171). One purpose of protected area establishment is the maintenance of the functions and values of the natural ecosystems that address human needs. In the future, protected areas may well become some of the last natural lands. Knowing human behaviour, the threat would be legal or illegal utilization of these last resources, despite the consequences (Worboys, Lockwood and Kothari, 2015: 32). Therefore, ensuring effective management and governance of protected areas remains a significant challenge in the face of climate change and human-induced disturbances (Sandwith et al, 2015: xxv). Governance for nature strives for a balance between conserving biological diversity and achieving economic development (Borrini-Feyerabend and Hill, 2015: 171).

A distinction must be made between governance and management. While management is about the means and actions to achieve given objectives, governance is about who decides, how these decisions are taken, and who holds power, responsibility and accountability (Borrini-Feyerabend and Hill, 2015). 'Governance quality can only be understood in a particular context, as culture and values strongly affect this context and processes to achieve increased resilience in protected areas' (Borrini-Feyerabend and Hill, 2015: 189).

This research addresses the concepts of resilience and governance and explores the connection and relationship between them. The literature observes a firm relationship between the quality of biodiversity and the quality of the governance context (Smith et al., 2003; Eklund and Cabeza, 2016). Therefore, it makes sense to view the resilience of protected areas from a governance perspective that can help improve our understanding of the relationship between the governance context, governance processes and ecosystem resilience.

The theoretical framework used to study these relationships and processes needs to shed light on the interactions that affect the governance context. Contextual interaction theory (CIT) and the governance assessment tool (GAT) provide a framework for this research. These are explored further in the theoretical discussion in Chapter 2.

1.2 Problem definition

Human behaviour has increasingly transformed the Earth's ecosystems.¹ In the last 50 years, an estimated 60% of the Earth's ecosystems have been degraded with consequences for the ecosystem services that depend on them (MEA, 2005). Despite growing conservation efforts, ecosystems are still under threat, particularly from climate change (MEA, 2005) and widespread human impacts. Not surprisingly, therefore, there is increasing concern globally about the resilience of ecosystems. To deal with the scale of the challenges requires changes in policies and governance (OECD, 2014) and the participation and collaboration of different stakeholders to address these concerns in ecosystem management (Berke, Kartez, and Wenger 1993; Warner, Waalewijn, and Hilhost 2002).

Concerns have grown worldwide that droughts and floods may be increasing in frequency, intensity and duration as a result of climate change (IDMP, 2010). According to the OECD (2014), current regimes are not well-equipped to deal with more frequent and severe water shortages. Flood risks, water scarcity and drought problems in the EU are also increasing due to climate change. 11% of the European population and 17% of its territory have been affected (COM 2007, European Commission DG Env, 2010). Even in the Netherlands, climate change can increase the risks of shortage of freshwater supplies. For example, periods of droughts and low river discharge occurred in 1976, during the very dry summer of 2003, the dry spring of 2005, in 2011 (OECD, 2014), and in the summer of 2018 (EDO Analytical Report, 2018). The potential for water shortage in the Netherlands was assessed by the "Drought study" (Droogtestudie, 2005). This was recently updated in the Deltares report, "Freshwater supply in the

¹ The annual loss of ecosystem services is estimated as being equivalent to €50 billion, while by 2050 the estimated annual loss of ecosystem services will be worth nearly €14 trillion, equivalent to 7% of GDP (European Commission DG Env., 2008; COM, 2010).

Netherlands”, (Klijn et al., 2012). For the north of the Netherlands, drought problems are expected to affect most nature areas and impact the ecological services these areas provide, for example, to support sustainable tourism development, among others. In the Province of Friesland, these drought problems are clearly present. Some 40% of the 30,000 hectares of Frisian nature area’s ecological network suffers from desiccation problems (Province of Fryslân, 2009). Unless adaptation actions are taken, the impact of water scarcity and droughts due to climate change is projected to increase.

To specify the focus of the challenge, a new approach to governance is required to manage key ecosystems and to adjust to changing climate or human impacts. To address the challenges requires concrete measures for ecosystem resilience. However, these actions face a multiplicity of governance context conditions that can positively or negatively impact the feasibility of measures to improve an area’s resilience. This research addresses the problem of governance complexity in the efforts to help aid ways in which we can protect natural areas and enhance their ability to increase resilience.

1.3 Research objective

The objective of this research is to observe, evaluate and explain the extent to which the governance context supports or hinders implementation of adaptive measures to increase resilience in nature areas. The research investigated the measures undertaken to increase resilience in selected areas. It also assessed what governance factors or other context conditions have influenced the implementation of these measures and whether they enabled or restricted the success of the process. The quality of the governance context was assessed using the governance assessment tool (Bressers and Kuks 2003, 2004; Bressers and Lulofs 2010; Boer de and Bressers, 2011; Kuks, et al 2012; Boer de 2012) to explain and understand why certain things happened and what could have been done better.

The research focuses on the governance context and processes under which measures are taken to achieve better resilience in nature areas. The GAT pays attention to the governance settings that can hinder or encourage adaptation measures under complex and dynamic conditions.

1.4 Research questions

Given the research objective above, the research questions to be asked were formulated as follows:

- *How is resilience observed and what are the threats in the selected nature areas?*
- *What measures are envisaged to increase resilience in those areas?*
- *What are the governance factors that support or hamper implementation of adaptive measures to increase resilience of those areas?*

The first research question helps evaluate the on-going resilience of the selected areas. The second question considers which measures have modified the problem. The third question employs the GAT to examine the governance regime context and conditions.

1.5 Methodology

This thesis explores the actual circumstances of the governance for resilience to understand how governance influences resilience in nature areas. The research starts with a review of the literature. This covers the key concepts and offers an assessment framework focusing on the processes and interactions of actors involved in the implementation of resilience measures. This assessment framework was then applied to the case studies selected for this research.

The methodology employed several case studies and comparative analysis. The case study research strategy relies on direct observations of the events under study and on interviews with people involved in the events (Yin, 2003). The case studies identify the challenges where there is harmful influence on biodiversity and ecosystems.

The areas selected are mainly in the Dutch Province of Friesland and in its neighbouring provinces. To allow comparison, one international case from the UK is included to provide deeper insights into the specific characteristics of the Dutch governance context.

The research benefits from the synergy with an international Interreg IVB project DROP (Benefits of Governance in Drought Adaptation) on drought adaptation measures that ran from January 2013 to 2016. Two case studies

were selected from this project. The DROP project ² was looking to identify how various regional governance contexts supported or restricted drought adaptation actions and how these contexts could be improved. Water scarcity and droughts form a relatively new water resources problem in Northwest Europe. They already have led to negative impacts on agricultural production, nature and freshwater supply. This Interreg project did not include the north of the Netherlands. Its scope on drought measures did not include other climate resilience issues, nor nature parks and their ecosystem services. However, the lessons learned in parallel can be of great mutual benefit to both the DROP project and this research.

1.5.1 Case study selection

The selection of the case studies was based on various characteristics in each area (Table 1) that took physical and governance characteristics into account. The areas have varied landscapes with agricultural lands and/or protected areas affected by climate change and/or human impacts. In the Netherlands, the focus is on the Frisian Province and its neighbouring provinces. The Frisian Provincial government enabled this research by providing funding for this research.

The selection logic starts with two core case studies. The Aldea Feanen National Park (NP) is located fully in the domain of the Province of Friesland, while the Drents-Friese Wold NP is split between Friesland and a neighbouring province of Drenthe. The next Dutch case is Weerribben-Wieden NP in the neighbouring Overijssel Province. This is a wetland, as is the first case. Two cases are selected from EU Interreg DROP project due to their relation to water/droughts and nature-oriented issues. One is a former national landscape Northeast of Twente region but has no status of a national park. The second is a British case study from Somerset where the Dutch policy context is removed, yet where the same EU policies still apply. This selection of an international case provides deeper insight in the Dutch context. These shifts in institutional context are intended to provide interesting backgrounds to compare the governance of each case.

² The DROP project at Interreg North-West Europe: <http://www.nweurope.eu/about-the-programme/our-impact/challenge-5/the-drop-project>

Table 1 Characteristics of the selected cases

<i>Area</i>	<i>Status/ type of area</i>	<i>Landscape, Biodiversity</i>	<i>Biodiversity threats</i>	<i>Governing authority</i>	<i>Measures</i>
<i>Alde Feanen</i> <i>NL</i>	National Park Since 2006	Wetland, peat bogs, meadows	Decline in water level dynamics, reed beds; human interventions - waterway for commercial boats	Decentralized to Province of Friesland; multi-level character	Restoration of water level dynamics; alternative routes for the waterway
<i>Drents-Friese Wold</i> <i>NL</i>	National Park Since 2000	Forests, heath land, sand drifts, agriculture	Drought and soil eutrophication due to agriculture activities	Decentralized to Provinces Friesland and Drenthe; multi-level character	Several land use changes from nature to farmland & vice versa; deforestation; Canals for drainage blocked; Restoration of nature area.
<i>Weerribben-Wieden</i> <i>NL</i>	National Park Weerribben since 1992 Wieden since 2009	Freshwater wetland, peat, reeds, morass, woodland	Poor quality of environmental conditions, insufficient water quality- due to intensive farming in the past	Decentralized to Municipality Steenwijkerland; mostly local levels	Restoration of nature, Water storage
<i>North-East of Twente region</i> <i>NL</i>	National Landscape	Dry area with small creeks	Water scarcity, droughts in summer times	Decentralized; Water board took the lead; Province of Overijssel has a role of partner;	Drainage systems removed; ditches muted; streams shoaled; water storages constructed. Two research projects to reduce surface runoff to improve resilience

<i>Area</i>	<i>Status/ type of area</i>	<i>Landscape, Biodiversity</i>	<i>Biodiversity threats</i>	<i>Governing authority</i>	<i>Measures</i>
Somerset County Levels and Moors <i>UK</i>	Wetland in SPA and SAC	Peat moors, clay levels along the coast, grassland, less arable area	Shifts between extreme events within one year, e.g. shift from drought to flood events	Complex multi- level/actor character. County has a role in emergency planning & local flood management. Top down hierarchy decision making in emergency situations	Restoration of habitats; soil- based approach; area-wide modelling

1.5.2 Description of the case studies

The **Alde Feanen National Park** is located in the Province of Friesland. The main function of this national park is nature protection, nature-oriented recreation, information/education and allowing scientific research. The park has been established since 2006. Its key qualities are as follows: a high diversity of species in low moor bog (about 450 plant species, and more than 100 bird species); large non-fragmented nature areas (40 km²); almost all succession phases on the moor; good possibilities for co-use for recreation; and, a high variation of landscapes. Key tourist attractions include possibilities for water sports and several small-scale cultural attractions ³. Our study investigated how Alde Feanen NP might reach increased ecosystem resilience and how governance conditions might best support adaptation measures against climate change.

³ National Park De Alde Feanen (2018): <https://www.np-aldefeannen.nl/en/about-the-park/>

Figure 1 Alde Feanen National Park
(Source: Nouta, 2015)

The ***Drents-Friese Wold National Park*** is located in two Dutch provinces - Friesland and Drenthe. The park was established in 2000 and covers 61 km². The Oude Willem is an area within the Drents-Friese Wold and embraces a stream valley restoration project within the national park. The water system represents an important ecosystem service. The Oude Willem restoration project is investigated in terms of water system restoration to maintain and increase ecosystem resilience, and to assess the governance processes. The Oude Willem area and the whole national park are a recognized Nature 2000 area. Recently, this area has lost some of its valuable natural properties to development, including a great deal of forest and peat land (DFW, 2014).

Figure 2 Drents-Friese Wold National Park

Source: licensed under the Creative Commons Attribution-ShareAlike 2.0 license (CC-BY-SA 2.0) http://nl.wikipedia.org/wiki/Nationaal_Park_Drents-Friese_Wold

The **Weerribben-Wieden National Park** is located in the province of Overijssel. Its main function is nature protection, nature-oriented recreation and education and research. The park consists of two areas, the Weerribben and the Wieden. These have a combined area of roughly 100 km². The Weerribben was declared a National Park in 1992, although the Wieden was added only in 2009. It is an old peat district and one of the Western Europe's biggest marshlands. The main qualities of the Weerribben are the presence of reeds, woodland, hovering moor land and turf ponds. There is an abundance of various orchids and other typical marsh plants. There are some 80 different species of breeding birds, for example, herons, black terns and bittern. All these species are connected to a system of natural succession that contributes to an interesting landscape for cycling and canoeing.⁴ The nearby Wieden nature reserve has the same

⁴ Over de Weerribben (2018)
<https://www.staatsbosbeheer.nl/natuurgebieden/weerribben/over-de-weerribben>

characteristics and several large freshwater lakes. Key tourist attractions include nature areas with possibilities for water sport, several small-scale cultural museums, camping sites, visitor centres and water-born villages.

Figure 3 Weerribben-Wieden National Park

Source: By OpenStreetMap contributors openstreetmap.org, CC BY-SA 2.0,
<https://commons.wikimedia.org/w/index.php?curid=9965609>.

The ***Northeast of Twente*** region is and remains a former national landscape. It is a dry area vulnerable to water scarcity and droughts. The interaction between nature conservation measures and general water management is the focus of this case. Ninety percent of the small creeks run dry in summer and, if nothing is done, this will probably increase with climate change⁵. This situation is a cause for complaint by both nature

⁵ In the first eight months of 2013 rainfall in the Netherlands was 37% less than 'normal', seven of the eight months had water shortages.

organizations and farmers. Flora and fauna in the creeks die and habitats and landscape suffer. Yields can fail and algae blooms can occur in the urban areas. Extraordinary dry years were experienced in 2003, 2006, 2009, 2010 and 2013. However, irrigation ban had been announced already in 1994-1996 for three consecutive years. These problems have been caused partly by earlier measures taken by the water board itself, fighting water problems in wet periods by ‘improving’ the drainage capacity of the water system. The challenge is to create neither too much, nor too little, water, but more resilience towards both ends (Bressers et al., 2016).

Figure 4 Northeast of Twente region

Legend: Kwetsbare wateren/Onttrekkingsverbod (vulnerable waters/ withdrawal ban)
 Onttrekkingsverbod grondwater (withdrawal ban groundwater)
 Begrenzing waterschap (boundary of water board)
 (Source: from the former Regge and Dinkel waterboard website)

Water Collective Twente (WCT) development projects are seen as measures to deal with water scarcity and droughts and to increase resilience of the areas. It is a collection of agriculture and nature-related pilot projects

addressing the scarce availability of water creating problems for agriculture and nature.⁶

The Somerset County is England's seventh-biggest county by area (4,171 km²). The *Somerset Levels and Moors* is a unique manmade wetland landscape of international importance. It is artificially drained and irrigated in order to open the area for productive settlement and uses, such as farming. The peat soils of the *Somerset Levels and Moors* provide multiple ecosystem services. These include food production, nature, carbon storage and protection of the historic environment. These peat soils are vulnerable to sudden and irreversible changes associated with drought and dehydration. These changes include a lowering of the land as water is lost. This then leads to difficulties in managing water levels at a landscape scale. The most notable place where freshwater availability is an issue is the *Somerset Levels and Moors*, which is a Special Protected Area (SPA) and a Ramsar site. Managed watercourses in Somerset are vulnerable to drought and are under increasing pressure from tourism, agriculture and the changing requirements of the natural and historic environment for water of sufficient quality and quantity. Pressures from development and more intensive land uses are placing increasing stress on the water management system; the impacts of which are likely to become worse with predicted climate change (Browne et al., 2016).

⁶ WCT projects are: Restructuring of upper reaches of Snoeyinksbeek brook, of Springendal brook, of Molenbeek brook, of Poelbeek brook; Restructuring of Arboretum, Restructuring Hakenberg – Boerskotten, Restructuring of Singraven country estate, Water depletion measures for agriculture and nature at Tubbergerveld, Restructuring of Lonnekerberg, Jufferbeek, and Deurningerbeek brooks, Restructuring Doelinksbeek – Dalhuizerbeek brooks, Reconstructing of Haarsloot, Restructuring of English Garden, Restructuring of Moerbekke, Restructuring of Vasser burial ground; Optimisation measures Back to the Source 2005–2012 (Source: DROP project)
<https://www.utwente.nl/en/bms/cstm/research/wat-gov/#key-academic-projects-in-progress>

Figure 5 Somerset County Levels and Moors

(Source: Environment Agency (EA) Browne et al., 2016; Available via license: CC BY-NC 2.5)

1.5.3 Data collection

The data collection methodology entailed both primary and secondary sources. Qualitative method, such as in-depth interviews with stakeholders, observations and workshops, were used for primary data collection. Twenty-one interviews were conducted with the stakeholders from sixteen organisations involved in the case study areas. A workshop was conducted related to the Dutch national parks with the topic of “Resilience and governance of natural landscapes: climate resilience measures and governance analyses of the Dutch National Parks”. Two cases studies, Alde Feanen and Weerribben-Wieden, were discussed in this workshop. Secondary data collection focused on the academic literature, relevant reports and documents. Table 2 shows a research matrix per research question. The results of the case studies were published in the form of the scientific articles (*Chapters 3, 4, and 5*) which produce the main content of the thesis.

Table 2 Research matrix per research question

Relevant research question	Information needed	Sources of information	Research method applied
<i>RQ 1: How is resilience observed and what are the threats in the selected nature areas?</i>			
Case study areas	Definitions, data about the area, ecosystem services, capacity of nature areas, management practices	Literature, documents, interviews	Desk research; observation, content analyses
<i>RQ 2: What measures are envisaged to increase resilience in those areas?</i>			
Specific case projects, strategies	Measures, instruments, policies, management strategies	Literature, reports, interviews	Interviews, observation, content analyses
<i>RQ 3: What are the governance factors that support or hamper implementation of adaptive measures to increase resilience of those areas?</i>			
Governance context and processes of cases	Actors, networks, strategies, resources, Governance factors, processes of interaction,	Policy documents, projects, interviews, workshop	Governance assessments tool, context analyses

1.6 Thesis outline

The thesis begins with an introduction to the research background presented in **Chapter 1**. This identifies the problem, the research objective and the research questions and explains the methodology for case study selection and data collection. **Chapter 2** describes and explains the key concepts, resilience and governance, and explains the operational challenges and factors that influence resilience. It also presents an overview of the conceptual model and the governance assessment framework. **Chapter 3** presents the case study of Alde Feanen national park which addresses the challenge of governance complexity and assesses the capacity of actors and institutions to influence resilience. The focus of the assessment is on a navigable waterway within the park that threatens the natural values of the park. **Chapter 4** presents the case of Drents-Friese Wold national park. The main issue analysed here is the restoration of degraded agricultural land as a measure to manage the drought prone area

and to increase resilience of the park. **Chapter 5** gives the case study of the Weerribben-Wieden national park. The main focus in this case is on a transition process from an old to a new model of governance for the national park given major changes in nature policy and restructurings in the governance of the park. **Chapter 6** develops a comparative analysis of the case studies in which the Northeast Twente region and the Somerset County Levels and Moors are included. This chapter demonstrates the results of the five case studies and compares them in terms of the key characteristics of the governance contexts that influence resilience in the selected areas. **Chapter 7** deals with the research discussion and conclusions. This chapter answers the main research questions, discusses the relationship between resilience and governance in the case studies, reflects on the assessment framework used, and presents contribution and implications of the research.

Chapters 3, 4, 5 and **6** were written as individual original research articles for various journals. Three are already published and the fourth in **Chapter 6** is prepared for submission. The published articles are presented in dedicated chapters in their original form as they appeared in the peer-reviewed journals. Therefore, some overlaps occur with previous chapters, for example, in the literature review, methodology and assessment framework. The numbering of the chapters, tables and figures of the published articles is adjusted to the numbering in the thesis.

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CHAPTER 2: Reviewing key concepts

This chapter reviews the main concepts used in this thesis. Resilience and governance concepts are known in various fields of studies but have no standard definitions. Understanding these concepts sheds light on the challenges they entail. Resilience in the context of climate change and in relation to sustainable development is reviewed. Operationalisation challenges of resilience and governance are also discussed. Based on the literature studied, the conceptual design and the governance assessment framework are elaborated. This research does not assess resilience but observes measures in support of resilience.

2.1 Understanding resilience

The concept of resilience has known different interpretations in various disciplines and fields of study underpinning different aspects. However, there is no standard definition of the term resilience as the concept is very broad (Djalante et al, 2011). The concept was developed in the field of ecology (Holling, 1973), in engineering (Holling, 1996), natural hazards (Klein, Nicholls and Thomalla, 2003), social-ecological systems (Folke, 2006), development studies (Gaillard, 2010) and in policy and governance (Barnett, 2001). In Table 3, Folke (2006) distinguishes three different aspects of resilience explaining them in terms of characteristics, their focuses and context.

Table 3 Three facets of resilience
(Folke, 2006)

<i>Resilience concepts</i>	<i>Characteristics</i>	<i>Focus on</i>	<i>Context</i>
Engineering resilience	Return time, efficiency	Recovery, constancy	Vicinity of a stable equilibrium
Ecological resilience	Buffer capacity, withstand shock, maintain function	Persistence, robustness	Multiple equilibria, stability landscapes
Social-ecological resilience	Interplay disturbance and reorganization, sustaining and developing	Adaptive capacity, transformability, learning, innovation	Integrated system feedback, cross-scale dynamic interactions

Engineering resilience is about resisting disturbance and change, to conserve what you have, essentially focusing on maintaining efficiency of function (Holling, 1996). Ecological resilience is much linked to ecosystems (Gunderson et al., 1997; Holling, 1973; Shinderman, 2015) focusing on persistence and maintaining existence of function in the face of changing conditions (Holling, 1996). And social-ecological resilience describes the ability of a system to absorb disturbance and still remain its function, the degree to which the system is capable of self-organization, and the capacity for learning and adaptation (Carpenter et al., 2001). An important consideration is also that resilience results from the trade-offs between three core attributes: the absorptive, the adaptive and the transformative capacities of a system, to respond to different levels and intensity of stresses (Béné, 2013, Walker et al., 2004).

Based on different interpretations, resilience is understood as the ability to self-organize, learn and adapt (Carpenter et al., 2001). Adaptive capacity of resilience reflects the learning aspect of system behavior in response to disturbance (Gunderson, 2000). Thus, resilience is not a fixed end state, but is a dynamic set of conditions and processes (Turnbull et al., 2013), adaptable to different uses and contexts. Measuring resilience becomes an important tendency; however current resilience measures face some operational challenges (Resilience Alliance, 2014). In this thesis, resilience is not measured as such, but it is observed what resilience measures are applied to the addressed areas and how governance influences their success.

The definition of resilience that is adopted for this research reads as ‘the capacity of a system to deal with change and continue to develop’ and ‘the ability to persist and adapt’ in the face of pressures that arise from natural or human-made interactions or events (Stockholm Resilience Centre, 2018).

2.2 Resilience and climate change

In the context of climate change, resilience is perceived as a desired property of natural and social systems (Klein et al., 2003). Present framing of resilience in climate change is mainly rooted in socio-ecological systems (Pelling, 2011). Hollings (1973) projected resilience as a ‘descriptive’ rather than ‘normative’ concept (Blaikie and Brookfield, 1987) that determines the

persistence of relationships in the context of changes (Holling, 1973). In the management of natural ecosystems, resilience has become a central concept aiming to increase ability of ecosystems to resist and to recover from climate disturbances (Holling, 1973, Côté and Darling, 2010: 1). Consequently, in the face of climate change 'increasing resilience of natural systems may have important implications for human welfare' (Côté and Darling, 2010: 1).

Adaptive measures to increase resilience of nature areas cover a wide range of ecosystem management activities (Colls, et al., 2009). For example, establishing protected areas and effectively managing them can ensure continued delivery of ecosystem services; or sustainable water management where river basins are managed to provide water storage and flood regulation services; sustainable management of grasslands, restoration of fragmented or degraded ecosystems or simulation of missing ecosystem processes can increase the resilience to droughts and flooding (Colls et al., 2009). 'Protecting, restoring and managing key ecosystems helps biodiversity and people to adjust to climate change conditions' (Colls, et al., 2009: 2; UNDP, 2010).

In relation to protected areas, enhancing resilience is mentioned as a means to achieve conservation goals in the face of climate change and human impacts (Parker and Murphy, 2013). A protected area consists of various interrelating biophysical elements and associated actors and institutions. When assessing resilience of national parks, Parker and Murphy (2013) highlight some important aspects, such as understanding of the current state of the park's ecosystem, disturbances and governance system of the park. In the case studies used in this research, the challenges that have harmful influence on ecosystems are identified, measures in support of resilience are observed and the governance contexts under which the measures are implemented are assessed.

2.3 Resilience and sustainable development

Connections have been drawn between resilience and sustainable development (Pisano, 2012; Folke et al, 2002; Derissen, Quass and Baumgärtner, 2009; Brand, 2009). In some literature, resilience is perceived as a 'necessary precondition for sustainability' (Lebel et al., 2006:

2), and that a 'development strategy is not sustainable if the life-support ecosystems are not resilient' (Perrings, 2006: 418; Derissen et al., 2009:3). Strengthening the capacity of societies to manage resilience becomes crucial in pursuing sustainable development (Lebel et al., 2006: 2). However, resilience can be viewed as a positive or negative property. In a positive sense, it reflects the ability of a system to adapt to changing circumstances or environments, being a critical component of sustainable development (Folke et al., 2002; Walker et al., 2004). In a negative sense, resilient systems that do not change or adapt over time can be in a pathologic state (Holling and Meffe, 1996; Gunderson, 1999); these systems are described as trapped (Gunderson and Holling, 2002). Boonstra and de Boer (2014) conceptualize the 'social-ecological traps' as a process and highlight that social and environmental events contribute to the production of trap processes. They identify that timing and historical sequence of ecological, economic and political events is of crucial importance not only to understand but also to prevent 'social-ecological traps' (Boonstra and de Boer, 2014). It is important to identify where there is a need to build resilience and where to reduce it to enable transformation. A range of different types of traps characterized by severe social and ecological processes (tied to environmental and livelihood degradation) make change a real challenge (Boonstra and de Boer, 2014). Where traps exist, the goal may be to reduce resilience and build transformative capacity (Resilience Alliance, 2014). Furthermore, resilience concept suggests that managed ecological systems are dynamic and unpredictable; and management for optimality or efficiency tends to erode resilience, making the system vulnerable to dramatic and surprising changes (Holling and Meffe, 1996). Pisano (2012) in his study provides guidance to the importance of resilience and system thinking for policy makers and governance. Resilience thinking is certainly system thinking as much as sustainable development is. When considering social-ecological systems it is important to consider the system as a whole (Walker and Salt, 2006).

2.4 Understanding governance

Nowadays, the terms 'governance' and 'government' are distinct from one another (Fasensfest, 2010; Jordan, Wuzel and Zito, 2005). 'Government' covers whole range of institutions involved in the process of governing, while 'governance' refers to traditions and institutions that exercise political authority to manage society's problems and affairs for the benefit of all actors (Grant and Kirton, 2007; UNDP, 2012). 'Governance', as a process, may operate at any scale and is a way to manage power and policy, while 'government' is an instrument to do so. Governance is seen as an alternative to conventional top-down government control, yet issues of legitimacy and accountability proliferate in the literature on governance (Folke et al., 2005). 'Governance includes a process of choosing among conflicting interests over resource-use and non-use, and of setting goals for a particular social-ecological system' (Boyle et al., 2001; Cosens, 2013: 2). Clarity of institutional roles is an important part of governance. It is difficult to measure governance but comparing different governance regimes over time infers the quality and its influence. Key aspect is flexibility, a degree of overlap in responsibilities and functions, empowerment in local decision-making and the ability to change the rules that govern resource use (Walker et al., 2014).

There were also many changes in how the term 'government policy' is understood. The change is that the future developments of sectors in society are not determined by government alone, but through the interaction of many actors. In these networks of actors, the government can take a position that is less central and dominant. This change represents a shift from government policy, or 'government', to 'governance' (Bressers and Kuks, 2003; Jordan, Wurzel and Zito, 2005).

In a current complex world, a new approach to governing is required, as without complexity there will be no demand for resilience (Chandler, 2014). According to Freeman (1997), the weaknesses of the present system of policy governance is based on a confrontational administrative decision-making process driven by interest representation. It is also argued that fundamental transformations are occurring in environmental policy and governance, but practice and scholarship has not integrated these yet (Booher and Innes, 2010). Natural resources concerns require collaborative

governance, joint problem solving, broad participation, sharing of regulatory responsibility across the public-private share and flexible, engaged agencies (Freeman, 1997; Booher and Innes, 2010).

An adaptive governance approach is highlighted as an alternative method for managing resilience to complex social-ecological systems (e.g. Brunner et al., 2005; Folke et al., 2005; Djalante et al., 2011). It is presumed that the new governance is “less rigid, less uniform, less prescriptive and less hierarchical, promising a more innovative but effective ways of dealing with complex environmental problems” (Holley, 2010). In Table 4, differences of the traditional and adaptive governance approaches are presented along governance dimensions.

Table 4 Comparison of traditional and adaptive governance
(Booher and Innes, 2010)

Governance dimensions	Traditional	Adaptive
Structure	Top-down hierarchy	Interdependent networks
Source of direction	Central control	Distributed control
Boundary condition	Closed	Open
Goals	Clear and defined problems	Various and changing
Organizational context	Single authority	Shared authority
Role of manager	Organization controller	Mediator, process manager
Managerial tasks	Planning, guiding organization processes	Guiding interactions, providing opportunity
Managerial activities	Planning, designing, leading	Selecting agents and resources, influencing conditions
Leadership approach	Directive	Generative
Nature of planning	Linear	Nonlinear
Criterion of success	Attainment of goals of formal policy	Realization of collective action
System behavior	Determined by component participant	Determined by interactions of participants
Democratic legitimacy	Representative democracy	Deliberative democracy

It is presumed that both approaches to governance will co-exist for some time. They will be mixed, and actors involved in governance will have to learn to adapt in both situations. The tension between two types of governance may be a source of novelty contributing to resilience (Stacey, 2001). In the long run, governance strategies for resilience may require a combination of strategies depending on the context. Collaborative networks may work better as change becomes faster and more uncertain, but these networks might work better also in times of stability and predictability (Duit and Galaz, 2008). Context with high fragmentation may require complex adaptive governance, whereas traditional governance may work well in the context with relatively minor fragmentation in preference. And it can be that resource systems are multi-scale, requiring different management approaches at different scales at the same time (Berkes, 2002).

In the context of this research the governance is defined as ‘a combination of the relevant multiplicity of responsibilities and resources, instrumental strategies, goals, actor-networks and scales that forms a context that to some degree restricts and to some degree enables actions and interactions’ (Bressers et al., 2016: 6).

2.4.1 Adaptive governance

Although there is no single adaptive governance model, the theories that underpin it emphasize some of the following principles: polycentric and multi-layered institutions, participation and collaboration, self-organization and networks, learning and innovation. The term adaptive governance groups these diverse theories together (Djalante et al., 2011; Sabatier et al., 2005). In Figure 6, the interlinkages among characteristics of adaptive governance that foster resilience to natural threats are presented.

Figure 6 Interlinkages between key characteristics of adaptive governance in relation to resilience

(Source: Djalante et al., 2011)

'The *solid line* arrows show direct relationships. *Polycentric and multi-layered institutions* are the main steps towards adaptive governance. The *leadership, trust and social capital* can increase the likelihood for *participation and collaboration*. *Self-organization* can be done formally or informally in different forms of *networks*. These networks help to enhance *learning and innovation*, which can create enabling conditions for building resilience. The *striped lines* represent indirect relationships. *Polycentric and multi-layered institutions* help to encourage *self-organization* and the formation of *networks* and vice versa, while *participation and collaboration* can further accelerate *learning and innovation*' (Djalante et al., 2011: 3).

Various studies have pointed out the importance of participation and collaboration of different stakeholders at different stages of the planning and management of adversities (Berke, Kartez, and Wenger 1993; Warner, Waalewijn, and Hilhost 2002; Warner, 2008). A network is emphasized as a self-organized and informal governance system in which diverse actors are knitted together across organizational levels to focus on common problems (Folke et al., 2005). Adaptability can be seen as 'the capacity of actors in the network to influence resilience' (Walker et al., 2004; Folke, 2016).

From a policy and governance perspective, resilience concept is perceived through the stakeholder collaboration and networking of multi-level

governance actors focusing on common problems, and adaptability of actors to influence resilience. In that sense resilience can be viewed as a process with involvement of multiple actors. According to UNDP, resilience ‘is more of a process than an outcome...’ a ‘transformative process of strengthening the capacity of communities or ecosystems to anticipate, manage, recover and transform from shocks’ (Kindra, 2013). When connecting resilience to governance, resilience can be more of an input to the process to define and monitor stressors. From ecological point of view, the concept of resilience expresses the societal desire to maintain, protect or preserve specific parts of nature that are valued for particular reasons (e.g. ecological or economic value) (Brand, 2009).⁷

2.4.2 Governance affecting resilience

In the resilience literature, scholars use the term governance to describe the laws, policies, regulations and institutions involved in governing (Cosens, 2013). In this research governance is perceived as a significant aspect influencing and contributing to the fostering ecological resilience, stressing on complex governance processes. Polycentric and multi-layered institutions have a high potential to influence the capacity to foster resilience. They also help to encourage self-organization and the formation of networks, while participation and collaboration can further accelerate learning and innovation (Djalante et al., 2011). Yet, in the attempt of the governance to contribute to the resilience, measures to assure social acceptance of management decisions must be taken into consideration (Cosens, 2013). This helps to identify and support interventions that have more effects on society’s ability to respond to disturbances and to understand the processes that strengthen resilience (Béné, 2013).

2.5 The challenges to operationalize resilience

In today’s world, consisting of a complex set of overlapping and emerging processes, resilience is viewed as ‘relational and context-dependent’ and it

⁷ For instance, a coastal community aims to maintain the stock of coral reefs in order to secure the delivery of sea food products, raw materials or recreational possibilities (Moberg & Folke, 1999) and “science” tries to grasp the mechanisms underlying the “stability” of coral reefs by means of the concept of resilience (Brand, 2009), underlining that resilience represents a measure for the “stability” of a system.

'appears to be a process of learning lessons of governance failure' (Chandler, 2014: 12,13). According to Davidson et al., (2013:2) operationalizing resilience relates more to general conceptual and practical challenges. Conceptual challenge is related to the definition of the resilience, resulting from the vagueness of the term and its dynamic context, while practical challenge involves difficulties of resilience measures determining which factors to measure (Davidson et al., 2013; Nelson et al., 2007; Carpenter et al., 2005; Cumming et al. 2005). From a policy perspective, operationalization can enhance the overall understanding of resilience as a concept, because this can lead to the gradual incorporation of resilience goals into policies and organizations (Gudmundsson, 2003), and provide information on complex issues in a way that is accessible to decision-makers (Niemeijer and de Groot, 2008). But until recently, an effort to identify operational indicators for resilience has received little attention (Carpenter et al., 2001; 2005).

2.5.1 Factors influencing resilience

Biodiversity, which refers to the range of species and functions that different species perform within an ecosystem, provides a source of ecological resilience (Peterson et al., 1998; Holling, 2001; Gunderson, 2009). For example, some plants regulate nitrogen in ecosystems, others tolerate droughts, and some provide different sources of food for other organisms. The decline or removal of functions leads to the decline of ecological resilience (Folke et al. 2004; Gunderson, 2009); the loss of the functional biodiversity across scales can affect resilience (Holling, 2001). Some authors demonstrate how the loss of biodiversity decreased the rate of system recovery, e.g. following droughts (Tilman and Downing, 1994; Tilman et al., 1996; Gunderson, 2009). Others (Walker, 1992; Walker et al., 1999) showed that functional attributes of species and redundancy of those functions provide ecological resilience.

To measure ecological resilience is a challenge due to its emerging property to the system and it is recognized only when it is declined, creating an ecological regime shift (Gunderson, 2000). Everglades National Park (in

Florida, US) is one such example⁸, as well as algal blooms and vegetation shifts in shallow freshwater lakes (Gunderson, 2009; 2010; Scheffer and Carpenter, 2003) as another example. Moreover, the decline of ecological resilience can be experienced due to a change in key controlling processes, e.g. nutrients, as such controls in ecosystems (Gunderson, 2009). According to Holling (1986), there are also mechanisms that can erode ecological resilience, such as, for example, practices that stabilize or regulate key elements of the system⁹. In social systems, the analogue to regime change would be the removal of key functional roles during or after adversities that would lead to undesirable outcomes (Gunderson, 2009; 2010).

Regarding protected areas, operationalization involves practical application of the resilience concept in decision-making and planning; making it useable beyond its theoretical context to policy makers and managers in protected areas, will be beneficial (Davidson et al., 2013).

In the light of complex overlapping emerging processes, it is important to understand the complexity and diversity of the factors that impact the resilience, as shown in Table 5.

⁸ [The loss of resilience is revealed when a disturbance that had previously been absorbed by the system, all of a sudden creates a regime shift. For thousands of years, the marshes of the Everglades have been subject to recurring droughts, floods, and fires (Gunderson and Light, 2006). These disturbances maintained a landscape of sawgrass-dominated marshes and non-emergent vegetated wet prairies. This changed following fires and droughts in the mid 1980's, when cattail plants dominated these marshes. The regime shift was due to a slow increase in soil nutrients, associated with runoff from agricultural fields interacting with the disturbances that have occurred for millennia. In this case, disturbances (fires, droughts) created a regime shift because of slowly changing system variables. This is one example of how variables operating at different speeds (Holling 1986; Gunderson and Holling, 2002; Folke et al., 2004) contribute to the property of resilience].

⁹ [A common example is in the suppression of forest fires in fire-adapted systems. The longer that fires are excluded from these systems, the more fuel accumulates. The amount of fuel and spatial distribution increases the likelihood of a more intense fire that could lead to a regime shift (Holling, 1986). A similar story occurred in the mid 1990's in central Florida, as human community development occurred in fire-adapted pine forests. As houses were constructed in the previous decades, many homeowners would allow trees and shrubs to grow in their yard and surrounding areas. When fires started during dry periods in the 1990's, the higher fuel loads led to an increase in fire damage and many homes were destroyed].

Table 5 Key factors influencing resilience

(adapted from Turnbull et al., 2013)

Factors	Attributes
Institutional	Resources; Planning; Responsiveness; Accountability; Rule of law
Political	Leadership; participation; representation
Cultural	Knowledge transfer; belief systems; customs
Social	Communications; support networks; organization; inclusion; conflict resolution
Environmental	Land use, access to natural resources; sustainability
Human	Food security; health; education
Economic	Income security; access to markets and employment; livelihoods diversity and flexibility; financial services; land tenure
Physical	Structures, water supply, sanitation

Resilience is enhanced when there is a good match between institutional characteristics and the natural context of ecological systems. Institutional characteristics refer to the density of institutions available to a given environment and reflect the institution's relationship with other institutions it interacts, overlaps, co-exists or competes. The natural context refers to the biophysical dimension and reflects its interaction with abiotic and biotic components of ecosystems (Ebbin, 2008). Based on the literature researched (Ebbin, 2008; Turnbull et al., 2013; McLean and Guha-Sapir, 2013), key fundamentals envisioning resilience are illustrated in Table 6.

Table 6 Framework envisioning resilience

Biophysical dimension	Social dimension	Institutional dimension
Natural and physical environments and carrying capacity	Human capital: education, skills, cultural attributes	Management and regulatory regimes
Ecosystem species and habitat diversity	Social capital: social and political environment, connections among individuals, social networks	Institutional capital: character and density of institutions available to a given community
Geographic location and size	Various social networks of the human population	Institutional networks

2.5.2 Case study approach to operationalize resilience

Davidson et al. (2013) emphasizes a case study approach to operationalize resilience. Different factors highlighted in the literature on resilience, allow case studies to illustrate a theoretical frame to the research content that can

target the core fundamentals and factors of resilience (McLean and Guha-Sapir, 2013). López-Angarita et al., 2009, emphasize that applying the concept of resilience in case studies is vital for understanding the current state of a system, predicting future directions and identifying which aspects are deliberating resilience. The Resilience Alliance (2010: 25) assessment workbook also highlights that ‘understanding resilience of a system involves describing its current state, as well as its historical and potential future states. A state is defined by its key components and how they interact, function and respond to changes that are both internal and external to the system’.

Referring to the case study approach, the main aspects in case of the protected areas can be categorized according to the concepts used in this research, assuming to foster resilience through the adaptive measures under the governance context conditions. According to López-Angarita et al. (2009), Table 7 represents resilience components (ecological and social), to understand current conditions of the system under specific study related to the protected area.

Table 7 Resilience components

(adapted from López-Angarita et al., 2009)

RESILIENCE			
ECOLOGICAL COMPONENT		SOCIAL COMPONENT	
Ecosystem conditions	Biodiversity/physical-chemical environment	Institutional management	Adaptive capacity
Terrestrial/benthic conditions	Species diversity	Rules, legitimacy and compliance	Social capital and community participation
Species population	Land/water quality	Enforcement and surveillance	Human capital
Connectivity			Financial capital

Although in most scholarly literature on resilience authors often include the social and governance factors as part of resilience rather than as factors influencing resilience, in this research the two concepts are viewed separately with the focus on the relationship between the qualities of the governance regime and the ecosystem resilience. Thus, the attempt is to connect the two concepts of governance and resilience to be able to see how they relate and influence each other.

2.6 Operationalizing governance

Governance is certainly important for resilience but to see how governance influences resilience both concepts are studied separately in this research. Within governance, the concept of resilience is relatively new dimension. Governance is generally comprised of multiple institutions from different sectors. Those institutions within governance structure have well-defined rules and relationships to achieve goals or objectives which are rooted in the expectations of the stakeholders and the organizations (Scott, 2008). But whether institutions or organisations are actually committed to resilience, is a matter of extent to which resilience is embedded within practices and procedures. For the operationalization of the governance, the governance assessment framework is applied, which incorporates the Contextual Interaction Theory and Governance Assessment Tool. The framework is further elaborated in *Section 2.8*. Governance Assessment Tool (Bressers and Kuks 2003, 2004; Bressers and Lulofs, 2010; De Boer and Bressers, 2011; Kuks et al., 2012) is a method to investigate the governance processes and conditions under which the measures to increase resilience are applied. According to some scholars (Hajer and Wagenaar 2003; Booher and Innes, 2010), the challenges, such as uncertainty, complexity, fragmentation, diversity and interdependence for decision-making, are considered as contributing elements to a changing context of governance, and are seen as actions, trying to combine traditional norms and practices to the emergent ones. However, in Bressers and Kuks (2004) governance circumstances, elaborated in the Governance Assessment Tool, are the context for such actions.

2.7 Conceptual design

The conceptual model (Figure 7) is designed after reviewing the relevant literature to understand the main concepts, and to explain how they relate and influence each other.

Figure 7 Conceptual model

Under the governance context there are governance circumstances and conditions for actions and interactions for decision-making; this context conditions positively or negatively impact the feasibility of measures which influence resilience of the system. Resilience here is viewed as an ability of ecosystems to persist and adapt in the face of impacts that arise from natural or human-made interactions or events (Holling 1973, Adger, 2003); Adaptive measures are policies ensuring and maintaining ecosystem resilience, and projects undertaken to further strengthen resilience in the chosen areas; Governance is a combination of the relevant multiplicity of dimensions and qualities that form a restrictive or enabling context for actions and interactions (Bressers et al., 2016: 6). The governance context is broader; it includes the specific context, structural and wider context (De Boer and Bressers, 2011) as elaborated further in the next section.

2.8 Governance Assessment Framework

The governance assessment framework incorporates Contextual Interaction Theory and Governance Assessment Tool as part of the theory. CIT and GAT are designed to assess the governance context and processes as a multi-actor interaction process for the implementation of relevant policies. CIT has been developed over the years with its initial roots in the implementation analysis that has been further elaborated in the “policy instrument theory” to enable comparison of instruments (Bressers et al., 2016) subsequently adding network analysis, multiple scale issues and other governance regime aspects as context. The framework used provides a synthesis of other available frameworks focusing on implementation processes. The benefit of the applied framework is that it concentrates on

the effectiveness of the governance context in supporting the processes of implementation of resilience measures. The benefit is particularly demonstrated in understanding social interactions in policy implementation, with internal and external influences in a case-specific context (De Boer and Bressers 2011).

CIT is based on the perception that multi-actor processes can be understood from the characteristics of different stakeholders involved in the process. These characteristics are: motivations (which drive their actions), cognitions (information with which the situation is interpreted) and resources (providing capacity and power) (Bressers et al., 2016). They are not only intrinsic to the actors and influenced by the process, but also influenced by many external factors from multi-layered context. This context includes specific context, structural and wider context (Figure 8).

Figure 8 Multi-layered governance context of the CIT
(Bressers et al., 2016)

Specific context involves factors like characteristics of the geographical place where the project is realized, but also other circumstances such as the case history of previous decision making. This sets an institutional arena for the process that influences which actors participate, to what extent and with what legal sources and expectations. The structural context involves the elements of governance. In the layer of wider context, there is culture, economic and technological development and political system (Bressers

and Kuks, 2004; Bressers 2009; Bressers and Lulofs, 2010; De Boer and Bressers, 2011).

GAT, presented in this research, elaborates a simple concept of policy, with goals and means as its essential ingredients (Bressers and Kuks 2003, 2004; Bressers and Lulofs 2010; De Boer and Bressers 2011; Kuks et al, 2012). Goals are rooted in perceptions about the problems at hand. Means consist of both the resources and organization of implementation and the strategies and instruments. Next to these three dimensions, the multi-level and multi-actor dimensions in governance also need to be taken into account. In the model, the five dimensions of governance are next:

1. Levels & scales:	<i>Governance assumes a general multi-level character of all other dimensions.</i>
2. Actors & networks:	<i>Governance assumes the multi-actor character of the relevant network(s).</i>
3. Problem perceptions & goal ambitions:	<i>Governance assumes the multi-faceted character of the problems and ambitions</i>
4. Strategies & instruments:	<i>Governance assumes the multi-instrumental character of the strategies of the actors involved.</i>
5. Resources & responsibilities:	<i>Governance assumes the complex multi-resource basis for implementation.</i>

These five dimensions can be used to systematically describe the contents of a governance regime in a certain area concerning a certain issue, like drought. To assess the accuracy of the governance regime, four criteria were added: *extent*, *coherence*, *flexibility* and *intensity* (Bressers and Kuks 2003, 2004; Bressers and Lulofs 2010; De Boer and Bressers 2011; Kuks et al, 2012).

1. *The extent of a regime refers to the scope of issues taken into account, the completeness and the comprehensiveness. The extent of a regime concerns its inclusiveness with respect to all uses or values related to a water resource.*
2. *The coherence of a regime refers to the degree to which the various elements of the regime are strengthening rather than weakening each other. Paying attention to more separate issues only adds to complexity and fragmentation when it is not accompanied by thoughtful connections.*

3. *The flexibility of a regime refers to the degree to which the regime elements support and facilitate adaptive actions and strategies in as far as the ambitions are served by this adaptiveness.*
4. *The intensity of a regime refers to the degree to which the regime elements urge changes in the status quo or in current developments.*

Extent and *coherence* assess the strength of network relationships of the actors. They indicate the degree of inclusiveness of all relevant elements and determine the degree of completeness of the aspects that are included in each of the five governance dimensions. The degree of interrelatedness of networks (*coherence*) should be in accordance with the importance of the stakeholders to the issue at hand (De Boer., et al 2013). *Flexibility* and *intensity* are indicators of supportive governance. *Flexibility* refers to the degree to which it allows and facilitates the case-specific variation of actors and strategies needed for adaptive management. The *intensity* of a governance context is the degree to which the context strives for and supports change from the 'business as usual' governance model. When *intensity* of governance context is strong, it can face increased resistance requiring actions to overcome negative feedback or actions to support a positive response. When *intensity* is weak, changes away from 'business as usual' are not attempted or are superficial. When an actor wants to make significant changes to the issues at hand, this can increase the tendency to try to increase control from the top down, which can result in a decrease of *flexibility*. In complex and dynamic situations decreasing *flexibility* can contribute to implementation challenges: potential opportunities can be missed, and obstacles are less likely to be avoided. Despite this, when there is sufficient trust that the implementers' motivation is in line with that of the policy makers', increased *flexibility* can support efficient implementation (De Boer., et al 2013).

Table 8 Evaluative questions of the GAT
(Bressers et al., 2016)

Governance dimension	Quality of the governance context			
	Extent	Coherence	Flexibility	Intensity
Levels & scales	Are all relevant levels (EU, national, regional, local) involved in dealing with an issue? Are there any gaps or missing levels?	Do these levels work together, trust each other between levels? Is mutual dependence among levels recognised?	Is it possible to move up and down levels (up scaling and downscaling) given the issue at stake?	Is there a strong impact from a certain level towards behavioural change or management reform?
Actors & networks	Are all relevant stakeholders involved? Are any not involved or excluded?	Do the stakeholders work together? Do they trust and respect each other?	Is it possible that new actors are included or even shifts from one actor to another? Do the actors share and support each other's tasks?	Is there a strong pressure from an actor or actor coalition towards behavioural change or management reform?
Problem perspective & goal ambitions	To what extent are the various problem perspectives considered?	To what extent the governance arrangements in place manage the clash of interests?	Are there opportunities to re-assess goals? Can multiple goals be optimized in package deals?	How different are the goal ambitions from the status quo or business as usual?
Strategies & instruments	What types of instruments are included in the policy strategy? Are there any excluded types? Are monitoring and enforcement included?	To what extent is the incentive system based on synergy? Are trade-offs between different objectives considered? Are there any overlaps or conflicts of incentives created by the included policy instruments?	Are there opportunities to combine or make use of different types of instruments? Is there a choice?	What is the implied behavioural deviation from current practice and how strongly do the instruments require and enforce this?
Responsibilities & resources	Are all responsibilities clearly assigned and facilitated with resources?	To what extent do the assigned responsibilities create competence struggles or cooperation within/across institutions? Are they considered legitimate by stakeholders?	To what extent is it possible to pool the assigned responsibilities and resources as long as accountability and transparency are not compromised?	Is the amount of allocated resources sufficient to implement the measures needed for the intended change?

Table 8 presents GAT and its evaluative questions. The governance model used in this research (Bressers and Kuks, 2003, 2004) elaborates multi-

level multi scale approach in assessing the governance context. The model was originally designed for assessing the water governance regimes, but since it also may be suitable to analyse the governance context for social-ecological resilience.

2.9 Conclusions

This chapter highlighted that governance and resilience are both broad concepts with no standard definitions facing operational and practical challenges along with the conceptual challenges. In this research, governance is perceived as a significant separate aspect affecting and fostering resilience, stressing on complex governance processes. The definition of resilience used in this study reads as resilience being a dynamic process with the ability to absorb the changes, persist, adapt and transform from the shocks in the face of the natural and manmade pressures. It has been emphasized that the application of the resilience concept implies the integration of multiple scale and multi-component nature of resilience, and from the governance perspective it is perceived through the collaboration and involvement of multi-level actors. For the operationalisation of resilience, a case study approach is emphasized to understand the resilience state of the studied areas used in this thesis. Governance as well is a process that may operate at any scale to manage power and policy, and clarity of institutional roles is an important part of the governance process. It is also difficult to measure governance but comparing different regimes over time understands the quality and its influence. An adaptive governance approach and resilience thinking are stressed for managing resilience in complex social-ecological systems considering the system as a whole. Governance strategies for resilience may require collaborative governance and a combination of strategies depending on the context. Based on the literature reviewed, the conceptual design is developed including the main concepts discussed and measures to enhance resilience in the chosen areas. Governance assessment framework is elaborated which is applied in the case studies to assess the governance contexts and processes for the implementation of relevant policies and measures.

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CHAPTER 3:

This chapter is based on:

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Governance assessment of a protected area: the case of the Alde Feanen National Park

Abstract

This paper addresses the challenge of appropriate governance of complexity and diversity in the Dutch national park Alde Feanen. The issue is how to enhance ecosystem resilience. Our focus relates to a navigable waterway within the park that affects the natural values of the areas. The governance assessment tool is used to assess the governance context of the waterway and ecosystem resilience in the area. The study shows that a lack of a long-term integrated vision makes the governance context less supportive. Such a vision could maximize the focus on the resilience of the park's nature and motivate actors to work towards a common future for a concerned area. However, institutional complexity, combined with institutional inertia, is revealed as a hindrance to the quality of governance and shapes a weak ability to adapt the current situation to move towards resilience.

Keywords: governance assessment; ecosystem resilience; national parks

3.1 Introduction

Literature on the governance of protected areas addresses important concerns regarding deterioration, disturbances and recovery from natural

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or man-made stresses. Disturbances and recovery are often linked to the concept of resilience of the system. Many national parks are already experiencing substantial impacts from human pressures and climate change. As illustrated in this paper, human activities can threaten the natural environmental qualities at local and regional levels. But, to be resilient, national parks need to cope with, and adapt to, changing human and climate conditions over time in a way that those areas continue to deliver long-term ecosystem services (Dudley and Stolton 2008). As providers of ecosystem services, national parks have a wide spectrum of functional roles that contribute to human well-being (Reid et al. 2005). These roles are related to provision of ecosystem services¹¹ (and their benefits) that are utilized by humans and serve their key functions (Boyd and Banzhaf 2007). Two key examples of specific benefits in national parks are: biodiversity benefits (supporting services) – that maintain ecosystem functioning, increase resilience and provide aesthetic values; and, landscape/cultural benefits (cultural services) – that allow recreational activities and that provide non-use values and spiritual benefits (Boyd and Banzhaf 2007). Thus, maintaining resilience of the biodiversity within protected areas becomes essential for the long-term sustainability of these areas (Lebel et al. 2006; Parker and Murphy 2013). However, the role of biodiversity in sustaining the ecosystem services is often poorly understood or undervalued (Science for Environment Policy 2015), meaning that the crucial importance of supporting ecosystem services, as a basis for other services, is often overlooked.

Governance in relation to protected area resilience is a relatively new area of research and with, as yet, limited scholarly literature related to it (Hannah 2006; Lockwood 2010; Eagles et al. 2013). In the majority of the literature, governance is viewed as a component of resilience and often these concepts are interlinked (Biggs et al. 2012; Mitchell et al. 2015). Our paper's focus on the governance context, and whether this context restricts or enables the absorptive, adaptive and transformative capacity of the

¹¹ Provisioning services (such as food and water), supporting services (such as nutrient cycling for maintaining life conditions), regulating services (such as floods and disease control) and cultural services (such as spiritual, recreational and cultural benefits) (MEA 2005)

system under consideration (which is the national park), adds to the body of literature in this relatively new field. The purpose of assessing the governance context influences on resilience is to draw attention to how this context operates through complex governance processes and relations towards reaching policy goals.

3.2 Conceptualizing resilience

Conceptually, we first need to address the challenge that results from the vagueness of the term and its dynamic nature and context (Davidson et al. 2013; Nelson, Adger, and Brown 2007; Carpenter, Westley, and Turner 2005; Cumming et al. 2005). This is to be done to prepare the ground for our case study and to make the approach practical and useable beyond its theoretical context to policy-makers and managers in protected areas (Davidson et al. 2013).

Originally, the concept of resilience was introduced by Holling (1973) as: “a measure of the ability of ecosystems to persist in the face of disturbances and maintain relationships within a system” and the: “ability of these systems to absorb changes and still persist” and adapt (Adger 2003, 1; Davoudi 2012, 300; Bahadur, Ibrahim, and Tanner 2010, 7; Folke et al. 2010). This view on resilience derives from the understanding of natural systems as being dynamic (Bahadur, Ibrahim, and Tanner 2010; Davidson et al. 2013). An important consideration is that resilience results from trade-offs between “the absorptive, adaptive and transformative capacities” of a system under consideration; and these capacities respond to different levels and intensity of stresses (Béné et al. 2012, 21; Folke et al. 2010; Walker et al. 2004). According to Folke et al. (2010), adaptability and transformability are seen as parts of resilience, and as key ingredients of resilience thinking. Adaptability has been defined as: “the capacity of actors in a system to influence resilience” (Walker et al. 2004, 5) and: “to maintain certain processes despite changing internal demands and external forces on the ecosystems” (Folke et al. 2010, 4; Carpenter and Brock 2008). Transformability has been defined as: “the capacity to create a fundamentally new system, where ecological, economic or social structures make the existing system untenable” (Walker et al. 2004, 5). The theoretical basis of resilience in our study views resilience as a dynamic and adaptive

system where ‘change’, rather than ‘equilibrium’, is characteristic of the normal resilience state (Folke et al. 2010; Lockwood et al. 2014; Mitchell et al. 2015; Davidson et al. 2013). Therefore, we focus on, in the governance context, what restricts and enables absorptive, adaptive and transformative capacity of the system under consideration.

According to some scholars, resilience is viewed as being context-dependent and as a process of learning lessons from governance failures (Chandler 2014; Joseph 2016). It also depends on the legal and regulatory environment that gives control over natural resources to its users (Bahadur, Ibrahim, and Tanner 2010, 10). Given these dependencies, we aim to analyse the context of governance processes in managing resources to see how governance affects system resilience as a whole. Our focus is on understanding better the relationship between the qualities of the governance regime and the feasibility of measures to foster ecosystem resilience.

3.2.1 Resilience through the governance lens

Recent trends in protected area governance have seen multi-level stakeholders involved in inclusive governance models (Lockwood 2009). Lockwood (2009, 754) highlights this form of governance as relating to the “structures, processes and traditions.” It determines “how power and responsibilities are exercised, how decisions are taken and how stakeholders have their say.” In our research, governance is defined as a “combination of the relevant multiplicity of responsibilities and resources, instrumental strategies, goals, actor-networks and scales that forms a context that to some degree restricts and to some degree enables actions and interactions (Bressers et al. 2016, 6).”

There is a solid relationship signalled in the literature between the quality of biodiversity conservation and the quality of the governance context (Smith et al. 2003; Eklund and Cabeza 2016). Hence, it makes sense to view resilience of protected areas from a governance perspective in ways that can improve our understanding of the relationship between the governance context, governance processes and ecosystem resilience. We examine the case of the Dutch national park, Alde Feanen, to assess to what

extent a concern for ecosystem resilience is embedded in the governance of this area in the face of ongoing climate and human disturbances.

3.2.2 Purpose, objective and contribution

The purpose of our case study is to highlight the importance of the governance context as a key element through which the ecosystem resilience of a concerned area can be enhanced. Governance is generally comprised of multiple institutions from different sectors. One issue is whether institutions with governance responsibilities are actually committed to resilience. Concrete measures for the resilience of protected areas often face a variety of governance context conditions that influence the feasibility of these arrangements. Thus, our objective is to explore and assess these conditions as to whether they support or restrict processes aimed towards enhancing resilience. These conditions were investigated using the governance assessment tool (GAT) (Bressers et al. 2016). This has its basis in contextual interaction theory (CIT) (Bressers 2004) and we test whether this tool can contribute to the assessment of governance processes in efforts to enhance resilience of the concerned area. The research question to be addressed was: *what governance aspects support or hamper implementation of measures to foster resilience in the Alde Feanen National Park?* Implementation means the “processes that concern the application of relevant policy instruments, including the realisation of projects to achieve physical changes” (Bressers 2004, 284). Measures can mean the arrangements or actions undertaken to enhance the resilience of the park.

Achieving the objective and answering the research question will provide insights into the governance of resilience of the studied area. This will occur by exploring the processes of institutional arrangements in the implementation process. This will examine how decisions are made and highlight any connections between conceptual governance tool and adaptive implementation actions in the process towards resilience. The study will contribute to the understanding of protected area resilience from a governance perspective and will enrich the scarce literature in this field.

In what follows, Section 3.3 describes the methodology. Section 3.4 elaborates the conceptual framework. Section 3.5 introduces the case study. Section 3.6 presents and explores the application of the assessment

framework to the case study. Analyses and observations of the supportiveness of the governance context are examined according to the GAT. Finally, in Section 3.7, our findings are discussed that answer the research question and draw conclusions.

3.3 Methodology

The method proposed is to build understanding based on a case study approach. The focus and interactions around the research are in a real-life context surrounding a contemporary phenomenon (Yin 2003). A case study approach is also used to operationalize resilience. It helps to understand the current state of resilience in a system, predicting future directions and identifying aspects that deliberate resilience (Davidson et al. 2013; Lopez-Angarita et al. 2009). The Resilience Alliance (2010, 25) assessment workbook also highlights that: “understanding resilience of a system involves describing its current state, as well as its historical and potential future states. A state is defined by its key components and how they interact, function and respond to changes that are both internal and external to the system”.

Key components of the system might include the biophysical properties of the park (e.g. species, climate variables and changes in the species regime) and the social properties (e.g. developments, nature monitoring programmes and economic incentives to control human interventions). The relationships and interactions among components enable systems to function and determine how a system can respond to change. Identifying the focal system (i.e. the case study area) and scale and main issue(s) are essential to understand the current state of resilience (Resilience Alliance 2010).

Regarding governance, this article offers an assessment framework based on the CIT, of which the GAT is part, and uses a case study of the Alde Feanen National Park to illustrate how this framework can be applied. The selected area is an important wetland characterized by fenland vegetation and polders. The landscape scale, which is bigger than the park itself, is chosen in response to an expressed need from regional authorities for alternative approaches to the use of the waterway in the area (which is deemed to be

undesirable by many involved stakeholders) and to the need for improvement of the declining environmental quality due to identified threats. The area is also of international importance, as it is a part of European Nature 2000 network and is a listed global Ramsar wetlands site.

The main issue analysed concerns human interventions that affect the ecosystem resilience of the area. The waterway crosses the park, and a controversial decision is about whether to widen the waterway to facilitate large transport vessels, or to close the park for those vessels. The unit of analysis for the assessment framework targets the processes and interactions of the actors involved in decision-making about the issue and implementation of system interventions to enhance the ecosystem resilience of the area.

A case study approach (Yin 2003) is well suited to answer the research question as it is based on direct observations, documents and systematic interviewing. The nature of the research question is 'what' and 'process' oriented. It is exploratory by nature, but also explanatory, in terms of how and why multiple actors interact to provide in-depth understanding and insight concerning their behaviour towards reaching the goals (Yin 2003).

The data that form the basis of the conceptual analysis have been acquired from secondary sources, including academic literature, relevant reports and documents and/or reliable Internet sources. Interviews and observations were used for primary data collection. The evaluative questions of the GAT (presented in Table 8) were asked during interviews. These questions shed light on the degree to which the governance context is supportive towards or restricts the implementation of policies and projects.

Table 8 Evaluative questions of GAT (Bressers et al., 2016)

Governance dimension	Quality of the governance context			
	Extent	Coherence	Flexibility	Intensity
Levels & scales	Are all relevant levels (EU, national, regional, local) involved in dealing with an issue? Are there any gaps or missing levels?	Do these levels work together, trust each other between levels? Is mutual dependence among levels recognised?	Is it possible to move up and down levels (up scaling and downscaling) given the issue at stake?	Is there a strong impact from a certain level towards behavioural change or management reform?
Actors & networks	Are all relevant stakeholders involved? Are any not involved or excluded?	Do the stakeholders work together? Do they trust and respect each other?	Is it possible that new actors are included or even shifts from one actor to another? Do the actors share and support each other's tasks?	Is there a strong pressure from an actor or actor coalition towards behavioural change or management reform?
Problem perspectives & goal ambitions	To what extent are the various problem perspectives considered?	To what extent/ or how the governance arrangements in place manage the clash of interests?	Are there opportunities to re-assess goals? Can multiple goals be optimized in package deals?	How different are the goal ambitions from the status quo or business as usual?
Strategies & instruments	What types of instruments are included in the policy strategy? Are there any excluded types? Are monitoring and enforcement included?	To what extent is the incentive system based on synergy? Are trade-offs between different objectives considered? Are there any overlaps or conflicts of incentives created by the included policy instruments?	Are there opportunities to combine or make use of different types of instruments? Is there a choice?	What is the implied behavioural deviation from current practice and how strongly do the instruments require and enforce this?
Responsibilities & resources	Are all responsibilities clearly assigned and facilitated with resources?	To what extent do the assigned responsibilities create competence struggles or cooperation within or across institutions? Are they considered legitimate by the main stakeholders?	To what extent is it possible to pool the assigned responsibilities and resources as long as accountability and transparency are not compromised?	Is the amount of allocated resources sufficient to implement the measures needed for the intended change?

Eleven interviews were conducted with stakeholders from organizations involved in the governance of the case study area, including: regional

authorities (Province of Fryslân); Alde Feanen managers; representatives from a nature conservation organization (It Fryske Gea); the water board (Wetterskip Fryslân); Institute for Nature Education and Sustainability (IVN); Frisian Environmental Federation; and Consultative Board (Overlegorgaan) members of the Alde Feanen National Park (Table 9). The GAT was also used to guide an interactive workshop with stakeholders dedicated to the case study. The goal of the workshop was to bring together various actors involved in the governance of the studied area in an interactive session to discuss the on-going threats and developments. They focused on the issues that require decision-making, and to reveal and assess positive or negative aspects in the governance context that influence the resilience of the park. The main questions asked were: how is ecosystem resilience observed in the area? What are the main issues or threats observed? To what extent is resilience actually embedded within practices and procedures, or in management agendas?

Table 9 Interviewed individuals

Category	Number of respondents
Overlegorgaan (Consultative board) representatives from: Province of Fryslân, and nature conservation organisation	3
It Fryske Gea (Nature conservation organisation), managers of Alde Feanen	2
Nature quality department of It Fryske Gea	1
Wetterskip Friesland (Regional water board)	2
Friese Milieu Federatie (Frisian Environmental Federation)	1
IVN, Instituut voor natuureducatie en duurzaamheid (Institute for Nature education and sustainability)	1
Researcher specialized in Ecosystem services of the National Park Alde Feanen	1
Total	11

The analysis relied on open discussions between the interviewees and the interviewer, interview transcripts and notes. The ranking of high, medium and low (as scores) was used when the governance context was assessed according to the qualities and dimensions of the GAT. These judgments were made through discussions between at least two of the

research team to ensure that the assessment did not overlook any important aspects and to check for consistency in the analysis.

3.4 Conceptual framework for governance assessment

A number of assessment frameworks appear in the governance literature to analyse governance systems (Ostrom 2005; Lockwood 2009; Borrini-Feyerabend and Hill 2015; Potts et al. 2016; Clement, Moore, and Lockwood 2016; Wyborn 2015). Some are used more often (Ostrom 2005). Others are based on the principles of good governance to ensure sustainable management (Lockwood 2009) or they are tailored to the requirements of environmental problems or specific needs (Young 2008; Clement, Moore, and Lockwood 2016). For instance, the institutional fit concept, which is closely related to the approach of institutional diagnosis (Young 2008; Cox 2012; Clement, Moore, and Lockwood 2016; Potts et al. 2016), determines that actors and institutions should share the same values or norms when dealing with problems. However, the concept of fit is considered limiting as it is rather vague and raises many questions (Cox 2012). Most identified evaluative frameworks do not address governance systems holistically (Potts et al. 2016) and do not consider the cumulative influence of the interactions between plans, policies, programmes and relationships within governance systems as a whole (Potts et al. 2016). There is no widely accepted method from amongst the large number of assessment frameworks that identifies the requirements of a good governance regime for protected areas (Lockwood 2009).

Our conceptual framework for governance assessment incorporates the CIT and GAT as part of the theory. CIT has been developed over the years with its initial roots in the implementation analysis that has been further elaborated in the “policy instrument theory” to enable comparison of instruments (Bressers et al. 2016) subsequently adding network analysis, multiple scale issues and other governance regime aspects as context. The framework used provides a synthesis of other available frameworks focusing on implementation processes. CIT and GAT are designed to assess the governance context and processes as a multi-actor interaction process for the implementation of relevant policies. The reasons we use this

particular governance assessment framework are: first, it emphasizes the implementation processes; and, second, it focuses on how well the governance context supports or restricts the implementation process. The GAT is the most appropriate tool for this. The benefit of the applied framework, in comparison with others, is that it concentrates on the effectiveness of the governance context in supporting the processes of implementation of resilience measures. The benefit is particularly demonstrated in understanding interactions in policy implementation and envisions these processes as participatory social interactions, with external influences and internal frictions in a case-specific context (De Boer and Bressers 2011).

The GAT elaborates a simple concept of policy, with actors striving to achieve goals with means, and expands this to all relevant aspects of the governance context. It consists of five governance dimensions:

- (1) *Levels and scales*: assuming a general multi-level character for all scales (not necessarily administrative, but could relate to, for example, spatial, hydrological and political);
- (2) *Actors and networks*: assuming a multi-actor character for relevant network/s;
- (3) *Problem perceptions and goal ambitions*: assuming a multi-faceted character for problems and ambitions;
- (4) *Strategies and instruments*: assuming a multi-instrumental character for strategies of the actors involved;
- (5) *Resources and responsibilities*: assuming a complex multi-resource basis for implementation.

These five dimensions can be used to systematically describe the governance context in a certain area and for a certain issue. To assess the quality and capacity of the governance regime, four evaluation criteria are added to form a matrix together with the five dimensions. These quality criteria are:

- (1) *Extent* (refers to the completeness and comprehensiveness of issues at hand, enquiring if all relevant aspects of the governance dimensions are taken into account);
- (2) *Coherence* (refers to whether elements of the governance dimensions strengthen, rather than contradict each other: paying more attention

to separate issues that add to complexity and fragmentation when it is not accompanied by thoughtful connections);

- (3) *Flexibility* (refers to what degree the governance regime elements allow and facilitate multiple adaptive strategies to reach the goals);
- (4) *Intensity* (refers to the degree to which the elements of the governance context urge and support changes in current developments).

This tool aims to provide a systematic assessment of all relevant elements and qualities of the governance context and helps to understand the circumstances for the implementation of measures.¹²

The GAT has its basis in the CIT (Figure 9), which focuses on actors and their interaction processes and takes stakeholder characteristics into consideration. CIT is based on the notion that multi-actor processes can be understood from the characteristics of different stakeholders involved in the process. These characteristics are: motivation (which drive their actions), cognition (information with which the situation is interpreted) and resources (providing capacity and power). CIT explains the dynamics of social interaction processes and is meant to be simple and straightforward (Bressers et al. 2016).

¹² More explanation and use of this tool can be found in an open access book “Governance for Drought Resilience: Land and Water Drought Management in Europe” at: doi:10.1007/978-3-319-29671-5.

Figure 9 GAT within CIT as an assessment framework for the case. (based on Bressers and Lulofs 2010)

The characteristics of the actors shape the process, but are also influenced by the course of, and experiences in, the process and, therefore, can change gradually during the process. The three main characteristics are, not only intrinsic to the actors and influenced by the process but are also influenced by many external factors from a multi-layered context. Part of that context is the case-specific context. This involves factors such as the characteristics of the geographical place where the project is realized (Kotzebue, Bressers, and Yousif 2010). Another important element is the case history of previous decision-making and framing. This special type of case history affects the institutional arena for the process that influences which actors participate, and to what extent, and with what legal resources and expectations.

3.5 Case study: the Alde Feanen National Park

The Alde Feanen National Park covers about 40 km² and is located in the northern province of Friesland (Figure 1). It is one of the most extensive fenland areas in the Netherlands and is included in the Nature 2000 network. The area is of great natural significance and is popular with many holidaymakers, annually attracting a large number of visitors (Nouta, 2015). However, water quality problems, droughts and a decline in the quality of environmental conditions have been identified as threats affected

by different contributing factors. Most factors are related to human interventions that are potentially diminishing the natural values of the park.

The black line represents the boundary of the whole national park; while the green line represents the boundary of the Nature 2000 area. The area within the grey lines represents exclave areas (one of them is Eernewoude village).

Figure 1 Alde Feanen National Park. Source: Nouta 2015

The central objective for the park is conservation and restoration of the abiotic and biotic factors that determine the survival of the fenland area. Table 10 presents a time line of important historical changes to the area in terms of landscape formation and policy developments. Table 11 presents biophysical and social properties of the Alde Feanen focal system.

Table 10 Landscape formation and policy developments of the Alde Feanen area

From early middle ages	The area was formed by floods and stagnant water and was of low significance for people;
From 800-1200	The area was mined by digging drainage ditches mainly from the villages. A direct effect of reclamation was the drastic compaction of peat, which lowered the area and became again sensitive to floods and became uninhabitable and barely usable;
From 1200	The change came after interventions in water management by dewatering of the area via canals incidentally dividing the northern and southern peat core;
1700	Peat digging became on a bigger scale; the peat was pulled deeper under water, and the larger lakes were formed in the area;
End of the 19 th century	With the peat in the area almost ended; the edges of the Alde Feanen were transformed by humans into meadows and hayfields. Later the area was turned into polders (drained land) on a large scale;
Since 1920	Plans for further land reclamation were not performed due to the importance of the natural and recreational values;
1934	Manager of the area It Fryske Gea (Nature organization) bought 134 acres, and the ownership and management in acreage grew to 2500 ha;
1939	The last major polder (the Hege Warren, 400 hectares) was created;
1960	Part of the area outside It Fryske Gea ownership was designated for recreation-based development in a municipal zoning plan (bestemmingsplan) for Tytsjerksteradiel;
1990	The Dutch Nature policy is developed and accepted; the concept of Ecological Main Structure is to be carried out;
1990-1993	Many restoration measures have been realized, namely isolation from the basin water, dredging, bio-manipulation, and hydrological re-arrangement;
1992	Alde Feanen is included in the Ramsar List of Wetlands of International Importance;
1992	The committee was formed to discuss Alde Feanen in a broader context, to determine the future of the area;
1994	Alde Feanen is designated as a Special Protected Area;
1995	The committee became the governing body (overlegorgaan), discussing among other things potential management plan for the park;
2000	The nature policy document 'People for Nature, Nature for People' expanded nature policy from an ecological focus to include social values of nature;
2003	Alde Feanen was notified by the European Commission as a Habitat Area;
2006	The area became a national park;
2007	Alde Feanen became a part of Nature 2000 Network; it is also part of the National Ecological Network;
Since 2010	National government retreated and delegated its responsibilities for nature to lower, provincial levels; National Park is now a responsibility of the Province; a daily board of a Consultative body of Alde Feanen has been appointed;
End of 2012	Economic perspective of the shipping waterway to Drachten is drawn up;

2012	Former farm area at the south end of the Alde Feanen, de Burd 250 ha, has been added as a new nature area to the Park, thus extending the total area to about 4000 ha;
2013-2019	LIFE+ project 'Booming Business' started in Alde Feanen, aimed at improving water quality, restoring nature and increasing navigability.

Table 11 Key properties of the Alde Feanen focal system

BIOPHYSICAL PROPERTIES: species, climate variables, changes in the species regime, etc.	SOCIAL PROPERTIES: policies, networks, nature monitoring programs, economic developments, etc.
<p>High diversity of species in low moor bog (about 450 plant species, more than 100 bird species;</p> <p>Core area for various wetland birds; large number of geese come to breed affecting farms and nature;</p> <p>Large non-fragmented nature areas, high variation of landscapes;</p> <p>A relatively high position in a low peat zone, therefore the water flows away; replenishment does not take place via ground water from the environment.¹³</p> <p>Some non-native species are introduced accidentally, and their number explodes sometimes;</p> <p>Some insects are earlier in the season (e.g. mosquitos) while migratory birds are not yet in place.</p>	<p>Consultative governing body (Overlegorgaan) consisting of seventeen stakeholders from almost all level authorities and organizations, is involved in the management and monitoring of the area.</p> <p>Nature 2000 Management plan for the Alde Feanen (2015)</p> <p>LIFE+ project 'Booming Business' intends to restore and protect the peat bog area, recover aquatic vegetation, new reed beds, highly endangered floating fens and fen meadows; project consists of clusters of short-term measures;¹⁴</p> <p>Area offers good possibilities for co-use for recreation;</p> <p>Alternative measures (routes) to shipping waterway in the national park are considered as alternatives to the upgrading of same the waterway.</p>

The park is crisscrossed by a large number of watercourses. These vary considerably in size and breadth. They are used for transportation, fishing,

¹³ In surrounding areas, the ground water level is set relatively low for agricultural purposes and is controlled by (Wetterskip) regional water authority (Wetterskip, 2014).

¹⁴ Life+ project 'Booming Business' (2013-2019) (€6 mln); <http://www.np-aldefeenen.nl/8829/booming-business>; Life+ is a European funding program for rehabilitation and development of special natural values in Natura2000 areas

recreation, and agricultural activities and, in the early days, for transportation of dug peat. The situation under study concerns the shipping waterway (to the harbour of the city of Drachten) that passes through the Nature 2000 area in the middle of the park.¹⁵ The harbour is considered an important driver of employment in the region. However, the ecological value of the Alde Feanen has long been recognized, as well as its economic value in terms of tourism and recreation. The businesses involved believe it is necessary to upgrade (widen and deepen) the shipping waterway for bigger ships. However, other stakeholders (e.g. the nature protection organization It Fryske Gea) find this action undesirable, as this would lead to negative impacts to the ecosystem affecting a large part of the Frisian water system, as well as creating confrontations between the recreation and cargo ships. The ships involved are already considered too big as they require special traffic regulations to mitigate the impacts on the delicate landscape. As the waterway crosses the Nature 2000 area within the park, the construction of alternative routes (Figure 10) was also considered as a solution (CDA Fryslân [Christian Democratic Appeal, Political Party in Friesland] 2014). Additional benefits of these alternative routes are the relief of the village Eernewoude and the separation of the recreational and commercial vessels.

The discussion as to whether to upgrade the existing waterway for bigger ships, or to change it to alternative routes around the park, has been on-going for more than a decade. Although the waterway is an important transportation route for commercial shipping in the northern Netherlands, it has created considerable negative impacts on the environment of the area.

¹⁵ The waterway connects the harbour to the Princess Margriet canal which is a part of the EU network for the biggest inland vessels.

Varianten voor een alternatieve vaarweg naar Drachten

Figure 10 Alternative routes:

(1) broadening and deepening of the current route, also as 0+ variant (crosses Nature 2000 area); (2) alternative routes south of the Alde Feanen in two variants; (3) alternative route east of the Alde Feanen in three variants; (4) alternative route via De Leijen and lake Bergummermeer. Source: Province of Fryslân.

3.6 Application of the assessment framework to the case study

3.6.1 Results of the governance context analysis

How supportive the governance context is in relation to the resilience measures and waterway issue is described and analysed according to the GAT's five dimensions alongside the four governance qualities. The analysis is based on the information acquired from interviews, an interactive workshop with stakeholders and relevant documents and reports (KKBA Vaarweg Drachten 2014; Beheerplan Natura 2000 Alde Feanen 2015; Beheer-en Inrichtingsplan Alde Feanen 2005). There were two stages of the analysis: collecting the interview data according to the five governance dimensions of the GAT to describe the context concerning certain issues; and, analysing the data according to the four evaluation criteria to assess the quality and the capacity of the governance context. The questions were sent to the invited interviewees prior to the interview. The first questions dealt with the specific context of the national park. The second part of the questions used the GAT to investigate the governance context. The GAT was used as a checklist, and not as direct questions, to ensure that all issues were covered during the conversation. The approach guided stakeholders to assess the situation and the circumstances they were working in and to improve or deal with the issues. Each of the 20 cells of the GAT matrix was assessed by a brief statement and given a judgment of 'high', 'medium' or 'low' score in a discussion between observers. The statements are visualized in Table 12 with colours and scores.

After conducting the assessment and making judgments, the results of the analysis were sent to the respondents for feedback and comments on the accuracy of the assessment. Due to time limitations, not all interviewees could respond; only half of the respondents reacted (It Fryske Gea; Friese Milieu Federatie; Researcher; park managers, a representative of the overlegorgaan from nature organization) and agreed on the judgments made, and accepted the notion that a more ambitious agenda including, not only protection, but also resilience of the area, should be a main point for the future of the park. The rest of the interviewees can be approached in the

future for comments on the developments and decisions around the issues concerned.

Table 12 Visualisation of the governance context analysis

	Quality criteria			
Dimensions	Extent	Coherence	Flexibility	Intensity
Levels & scales	HIGH (+) , but no involvement of the national level	HIGH (+) , with a certain level of hierarchy in a decision making	MEDIUM (0) With adaptive atmosphere between levels	MEDIUM (0) Pressure comes from EU and global level
Actors & networks	HIGH (+) , but farmers are not fully considered	HIGH (+) , all inclined to cooperate	HIGH (+) , room for new actors and potential to shift lead from actor to actor.	LOW (-) , lack of support for resilience measures
Problems & goals	MEDIUM (0) ecosystem resilience is not emphasized as an issue.	LOW (-) big clash of interests	MEDIUM (0) boundary spanning options: longer time scales, bigger geographical scale	LOW (-) , different priorities with long time-scales for decisions
Strategies & instruments	MEDIUM (0) due to a lack of monitoring and enforcement in certain situations	LOW (-) , with fragmented policy instruments	LOW (-) , lack of combined instruments to improve the quality of environmental conditions	LOW (-) , no common strategy to strongly deviate from current practice
Responsibilities & resources	LOW (-) , dependence on the outside resources	LOW (-) , fragmented responsibilities as well as resources	LOW (-) , institutional inertia and separation of funds	LOW (-) , lack of sufficient resources

3.6.2 Overview of the assessments results

The observations were analysed and summarized according to the four governance qualities of extent, coherence, flexibility and intensity of the GAT. The issue about the waterway interconnects with other challenges in the park that affect the ecological qualities of the area. Whenever an assessment is different for this subcase it is mentioned in the text. Results point to what could change in order to improve the governance context.

The degree of extent was assessed as being more of medium quality, due to the absence of participation by the national level¹⁶ and lack of farmers' participation in the actors' network. The role of the national level has been partly taken over by EU regulations and directives and, because they are quite demanding in support of concrete protective actions, no additional national policies are required: "Protection is guaranteed by different level regulations and it is rather enough" (It Fryske Gea respondent).

Regarding the scales, the relevant ecological scale is larger than park boundaries, but the hydrological scale is too narrow, as only an area of a Frisian water system is considered. Moreover, the Nature 2000 area is smaller than the whole national park. In the actor and networks dimension, farmers are only formally represented in the Overlegorgaan and are seen more as a target, rather than a part of the network. The farmers' organization (LTO) is not strongly supported by its member farmers. Not all farmers are members of the farmers' organization; those that are members do not always agree on issues (Alde Feanen management respondent). LTO is not always recognized as a negotiator on behalf of farmers. Thus, they have no real power. This aspect was regarded as a drawback because farmers are landowners in the area and they should be more involved if the area is to be extended; especially in the case of the waterway, as alternative routes will require purchasing large parts of agricultural land. The problem perceptions and goals dimension were not scored as high, because ecosystem resilience is not addressed as a common goal, and the provision of ecosystem services was not considered as a function for the area; although other problems and issues are considered and emphasized: the term resilience itself is too complex for decision-makers, they do not understand what it is, certainly do not understand its importance; for them it is just a measure (It Fryske Gea respondent).

The strategies and instruments were also not scored high, but rather medium. This was due to a lack of monitoring and enforcement instruments in certain situations, such as preventing the discharge of sewage from boats, which affects the water quality. The extent of responsibilities and resources

¹⁶ By then, the Dutch Ministry of Agriculture, Nature and Food Quality (LNV) and after October 2010 it became a Ministry of Economic Affairs, Agriculture and Innovation.

was scored as low. The responsibilities were not aligned with the extent of the problem perceptions of different actors. This prevents pooling those responsibilities and resources. Although the responsibilities are assigned, there are insufficient resources to protect the area and responsible actors largely depend on outside resources and funds need to be sought to have desirable solutions in the case of the waterway. An assumption is that, if the area is extended, more resources can be obtained if one adopts a long-term perspective.

The degree of coherence tends to be of lower quality, even though actors of relevant levels institutionalized in the Overlegorgaan are inclined to cooperate and work together (except, perhaps, in the case of the waterway issue). However, there is a certain level of hierarchy in the process of decision-making; with the province being the main decision maker, but sometimes not in accordance with other actors. In general, a lot of talking is going on among the stakeholders, they all provide their arguments on board, they also have their lobby in the province, but stakeholders have no power to make final decisions (Overlegorgaan respondent).

In terms of problems and goals, there was also a big clash of interests between actors (for example, between the actors around the waterway issue; between water transport and recreation, agriculture and nature, with the plan to extend the area and to include all farmers' lands around the national park, not for the purpose of more recreation, but rather for more biodiversity). Absence of a common purpose, rather than conflicts, weakens the coherence quality. A common goal for the management could enable coherency (Brown 2008). There was a clear fragmentation of the policy instruments with regard to the waterway issue, and with regard to the water levels in the entire park area and beyond. The aim of the province to have similar water levels across the seasons makes natural circumstances unnatural, which proves the incoherency of the strategies and instruments. For example, the water board attempts to provide the preferred water level to agriculture, but in dry periods, due to a lack of surface water, the ground water level decreases, also affecting water levels for agriculture (Water board respondent). In addition, there is a competence struggle due to

fragmentation of the responsibilities (with no common goals) and resources that are linked to those responsibilities. This lowers the coherence quality. The actors involved only account for their own jurisdiction and everything that falls outside their authority is not of their concern. The strategies and instruments dimension also showed low coherence, due to the fragmentation of policy instruments in relation to nature and agriculture. However, involved actors were motivated and willing to collaborate to make optimal decisions. While this worked for the short-term measures, it also contributed to a stalemate outcome for the long-term measures.

The degree of flexibility is of medium quality towards low; but it shows medium to high in the dimensions of levels and scales and actors and networks, as the Overlegorgaan and steering group (in charge of waterway)¹⁷ provided the collaborative environment between levels/actors and networks and provided possibilities to include new actors by establishing working groups. The positive side was that the actors concerned for resilience have the ability to take the issues up to the provincial level for decision-making.

In the case of the waterway, the position of the companies is more prominent, with the province playing the role of a mediator. The nature organization It Fryske Gea and water board (Wetterskip) have made a coalition by linking their goals and taking a lead every now and then to get things done in a flexible way and to have actor network modifiers as a team. For the waterway, this move depends on the position of the province, which has been reluctant to invest a large amount in an alternative route and wants to integrate this decision in long-term socio-economic plans at a regional level. Although some flexibility was observed in the relationships between different levels and actors, multiple goals could not be optimized in package deals, as there was no common long-term perspective for the future of the park. Inflexibility was observed in the dimension of the strategies and instruments, due to a lack of combined instruments for environmental conditions and towards resilience; “To release the subsidies

¹⁷ The steering group consists of two municipalities of Smallerland and Tytsjerksteradiel, Water board Friesland, It Fryske Gea, the Alde Feanen national park, Business Association Drachten and Province of Friesland (Nationaal Park De Alde Feanen 2016).

for the park, the Province requires broader and innovative plans and measures on a wider geographical scale” (It Fryske Gea respondent). Inflexibility was also observed in the dimension of the responsibilities and resources, since responsibilities of most involved stakeholders were accounted for within their own authority and what falls outside their domain was often overlooked. Institutional inertia that deals traditionally with the issues weakens flexibility and prevents pooling of those assigned responsibilities and resources for the common goal.

Finally, the degree of intensity also shows a low quality. Pressure from EU (Nature 2000, Birds/Habitat directives, SPA-Special Protected Area status) and global regulations (Ramsar Convention on wetlands) were seen as the only drivers that fostered resilience, but no other levels were interested or concerned to make changes in that direction. These regulations mean that the pressure can also come from the legal system should these measures ever be taken against nature and which end up being challenged in an administrative court. These were observed as supportive factors in favour of resilience measures and that would contribute to a supportive context in the case of preventing the widening of the waterway. However, actors, such as municipalities and industries, see no threat to the park by widening the waterway. It seemed obvious that the shipping route should be limited in the park and eventually removed. However, due to a lack of actions and support from those actors, it has been an on-going issue for the last decade. It Fryske Gea and the water board cannot decide and mobilize resources, as they depend on the province. The province delays the decision, as it evaluates the issue at a larger scale in the socio-economic context and is seeking the best investment outcome: *Industries like to upgrade the existing waterway and this will cause even bigger problem for nature values and for tourism, so there is a political discussion in the coming years about that, whether to upgrade or to find alternative way which costs a lot of money* (It Fryske Gea respondent).

Economic interest seems to outweigh the ecological factors, and this creates no pressure from some actors to embrace measures to account for, or increase, resilience. Such pressure mostly resides within EU and global regulations. The lack of intensity is also attributable to the different

priorities in the dimension of problems and goals with the long-term perspective for decisions. It is also due to the absence of a central focus and common goal for the management of the area. For instance, to have ecosystem resilience as a goal on the future agenda could enforce and motivate changes from the current practices. To remove the waterway out of the park could also be an important resilience measure: *we will be against the widening of the waterway as regulations support us; an alternative option is to remove companies from the city of Drachten (which are far from the water) and place them closer to the water, but nobody talks about that, because it is costly to move companies from Drachten. The cheapest alternative is widening the canal* (It Fryske Gea respondent).

Responsibilities and resources also reflect a mismatch and there are insufficient resources to implement measures for intended changes; especially not for a long-term perspective. Rerouting of the waterway and ideas about expansion of the area are projected into the future, but, as yet, have no available resources. *"If there is an alternative route it costs lots of money and for that, cooperation with the national government is needed and even search for European money"* (Overlegorgaan respondent).

To deal with these issues, the province will probably develop projects at a bigger (beyond the natural resources) scale and connect the issues to economic development. The position of the province is less supportive towards the coalition of It Fryske Gea and Wetterskip, which could push towards enhancing the resilience of the park. Although the province has the resources needed, it prioritises strategies other than resilience. This resource dependency means the province could become the dominant actor at the geographical scale that potentially could be highly beneficial for the resilience of the park. Without the resources of the province, It Fryske Gea and Wetterskip cannot pursue their resilience strategy for the park.

3.6.3 Discussion on the results analysis

The analysis and judgements made during the assessment raise several points of concern in the governance context of the Alde Feanen for further discussion and where interventions and improvements could be made. We have compared and highlighted the results with aspects of other assessment

frameworks. We can also emphasize our contribution to the literature related to governance assessment of conservation areas.

The analysis of the extent quality revealed an incompleteness of the regime in terms of the involvement of relevant stakeholders. This quality can be compared with the inclusiveness principle used by Lockwood (2009). This principle gives opportunities to all stakeholders to participate in, and influence, decision-making processes and actions. The fact that farmers are not fully involved needs to be tackled, especially if the area is extended. The withdrawal of the national level, as a consequence of decentralization of nature policy, brings more challenges to the lower level authorities in terms of their allocation of sufficient resources and for the new arrangements to work effectively for decentralisation. Another concept to compare with the extent quality is a fit-for-purpose concept with institutional diagnosis method (Clement, Moore, and Lockwood 2016). This assesses whether institutions do fit the functional aspect (Boyd and Folke 2011) and whether they have the capacity to deal with issues at hand and the complex situations (Clement, Moore, and Lockwood 2016). Sometimes, they may not be fit-for-purpose to involve actors from all levels, as this depends on the context, and may require only relevant actors to be involved.

In the coherence quality, some elements of the governance dimensions weaken each other, although actors and networks of different levels tend to cooperate. Coherence quality can be compared with the connectivity principle used by Lockwood (2009). This highlights the critical need for well-connected governance systems in which actors of different levels have mutual respect, trust and cohesion to work through conflicts and difficulties. In the challenging environment of the Alde Feanen with all the diversity of perspectives for the area, the clash of interests between different level actors is inevitable. The important question is how governance arrangements deal with the clash of interests. Well-connected actors can tackle this to some extent, but fragmentation of instruments and responsibilities creates a step backwards. To deal with these issues, a decision about priorities should be made by stakeholders. Overlegorgaan needs to bring these issues up to the board to strengthen the coherence of the governance context.

Regarding flexibility, a regime is more flexible when the relationship between levels and scales is based more on decentralisation of power, but without upper levels withdrawing their support (De Boer and Bressers 2011). In a highly dynamic environment and in complex processes, such as in the Alde Feanen, a certain degree of coherence is needed for flexibility to be built upon. Otherwise, a fragmented and a weak form of implementation would occur (De Boer and Bressers 2011). Flexibility can be comparable with the concept of adaptiveness used by Lockwood (2009), which relies on the ability of actors to deal with changing internal or external circumstances. In this case, although there is an adaptive atmosphere between levels and scales, fragmentation in the coherence quality, and lack of common interest, influences the flexibility of actors to pool resources and make changes towards resilience.

Regarding the intensity quality, there is not enough pressure from actors to make changes in the status quo. In policy implementation terms, intensity is related to the size of the task to create new dynamics by creative cooperation or conflict. Subsequently, this urges change of motivation, changing cognitions, including widening of boundary judgements for the issues and developing new availability and combinations of resources (De Boer and Bressers 2011). With more intensity, the urge to use sound adaptive strategies to deal with, and change the setting of, the process increases. Intensity is the greater whenever the upper levels and powerful actors are more deeply involved in the relevant networks for the issue and resources and when these are made available to make changes in the current development (De Boer and Bressers 2011). In the case of the Alde Feanen, given the considerable extent of the levels and actors' involvement, powerful actors have prioritized strategies other than resilience and have delayed with the decisions on the issues at stake. They project the way forward in ways they combine with issues on a broader regional scale linked with economic goals and when resources can be made available within a long-term perspective. This quality can be comparable with the growing notion of governance vitality that is being explored by the International Union for Conservation of Nature (IUCN), which entails governance setting to be integrated and connected, adaptive and reflective, innovative and

creative and able to take on responsibilities in effective ways (Borrini-Feyerabend and Hill 2015).

The contribution of our framework to the broader governance literature is that it provides a synthesis of the available frameworks and focuses on the implementation processes to understand key aspects of the relationships between the governance context and resilience.

3.7 Findings and conclusions

3.7.1 Supporting or hindering governance factors

Interactions between key actors have been analysed to answer the research question and to reveal governance influences and factors that support or hamper resilience. Although the Alde Feanen National Park belongs to the Nature 2000 network, some human interventions have diminished its natural values. The park has a potential to function as an ecosystem resilient area and governance processes may have a leading role to make the area more resilient. However, a number of factors make implementation of resilience measures challenging. The governance dimensions of instruments and resources especially were revealed as weak qualities and, overall, the intensity of the governance context was observed as weak. Some resilience measures have been undertaken within the limitations imposed by these conditions, but only those framed by externally funded projects, such as EU Life+. For further far-reaching and more ambitious measures, such as extending the park area, or removing the shipping route from the park, the governance context also proves to be weak. The dimension of problem perceptions and goal ambitions lacks sufficient coherence and intensity for that.

The overall picture that emerges from the analysis has shown a governance context that is insufficiently supportive and displays more concerns than positive qualities. Extent and coherence revealed that the majority of actors, whilst well connected in dealing with issues with having a fair degree of collaboration in their interactions, also reveal low qualities for specific issues. Flexibility and intensity are also revealed to be restrictive; despite the motivation of the actors involved to collaborate and seek consensus in decision-making. Given the research question (*what*

governance aspects support or hamper implementation of measures to foster resilience in the Alde Feanen National Park?), the analyses shed light on the degree to which the governance context is supportive and restrictive. It also identified the aspects that support or hamper the implementation of measures to foster resilience in the studied area. Institutional complexity is exposed as a hindrance in an effort to increase the resilience of the area. Specifically, the wide extent of stakeholder involvement in the governance makes the governance context more complex to deal with issues and contributes to the complicated and longer decision-making process. Institutional inertia, that involves certain traditional practices that shape how problems are dealt with, is another factor that, combined with institutional complexity, weakens flexibility and does not provide enough intensity to change the current situation and any meaningful behaviour in support of resilience.

3.7.2 Conclusions

Conclusions have been reached from the interpretation of the data analysis obtained from interviews, workshop and secondary sources. Our article focused on the governance assessment of the Alde Feanen National Park with the purpose to appreciate how the governance context affects system resilience. Our research contributes to the literature by seeing resilience operational through the case study approach and by using a governance assessment framework to analyse the governance context of the national park. The findings from the case study underscore the ways in which governance aspects can impact the feasibility of the implementation of resilience measures. According to Clement, Moore, and Lockwood (2016), institutional complexity is the norm for protected area governance. However, in this particular case, this aspect was revealed as a hindrance to the governance context of the park. The results suggest that priorities should be clearly stated where there are differing views and conflicts. Strategies and instruments should be combined and directed to a common purpose for the area. A compelling vision of the future of the park is definitely needed to increase the likelihood that instruments and resources for resilience will improve. Otherwise, there will be a continuation of small-scale short-term measures wherever some resources are found, and

oppositions can be avoided. The study highlights that a lack of a long-term integrated vision is a key in making the governance context less supportive. Such a long-term vision for the park would be not only about protection, but also focused on improvements to enhance the resilience of the park's nature and increase the provision of ecosystem services that the park can offer. Such measures will need to motivate actors to make them more enthusiastic, to overcome differences in opinions and to work on a common future for the area. Only in this way can a bandwagon effect be created that might improve, rather than restrict the governance context one sees today. Thus, coming back to the relationship between resilience and governance, it is not only governance that restricts resilience in this case, but a more widely understood concept of resilience could also help fuel a vision of the park that might improve governance conditions in the future.

The framework we used complements other available governance assessment frameworks by the way it added the focus on the implementation process to help build understanding of the circumstances in the process of the implementation of measures. The proposed framework emphasizes that the mechanisms and results of a policy process fundamentally depend on actors' characteristics and these characteristics help to shed light upon multi-level, multi-actor processes. The framework also draws connections between actor characteristics and degree of cooperation in an implementation situation (De Boer and Bressers 2011).

The usefulness of this assessment framework is apparent in the ways that it enables users to focus in on the key issues, as demonstrated by the assessment of the four quality criteria, which guides one to identify important points of intervention. Our results can be used to build further research and, specifically, to concentrate on the motivation of the actors in regard to the future vision for the park. The results can be also used for policymakers, researchers and managers for their governance analysis, management, policy planning and implementation.

The practical usefulness can be enhanced by applying the GAT framework more interactively with the practitioners, as demonstrated in this study, by not only conducting interviews, but also interactive workshops and, consequently, reviewing the analysis by interviewees.

Workshops could then help to establish a programme of action leading towards resolution of conflicts, or an integrated long-term vision for the park. Future studies could even go beyond that and make the analysis a co-production between practitioners and scientists. Apart from the novelty of using a governance assessment framework to study a feasibility of measures to enhance system resilience, this research highlights the importance of the governance context in complex and dynamic governance processes. Moreover, application of the governance assessment to the Alde Feanen demonstrates the potential for future application of this framework to explore other cases and enrich insight and understanding of the complex governance processes.

Disclosure statement

No potential conflict of interest was reported by the authors.

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CHAPTER 4:

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Assessing governance context to increase drought resilience: The case of the Drents-Friese Wold National Park

Abstract

The paper explores the connection between governance and the resilience of the Drents-Friese Wold National Park in the Netherlands. We assess the governance context that affects the implementation of measures to increase drought resilience in the Park. The Oude Willem area restoration project within the Park is studied more explicitly as one of the measures applied towards managing an area eroded due to long agricultural land use. The focus is on the governance context and process under which measures are taken rather than on the results of the implementation of the measures. The case shows that context is changing over time as the priorities of stakeholders change from economic to nature development and vice versa, making it a complex process to implement measures. The Governance Assessment Tool is used to analyse the governance context in the restoration project. The observations signify the qualities of the governance dimensions in the process of enhancing the resilience of the area. Though the assessment reveals some weaknesses, the overall picture shows the governance context to be relatively supportive with high involvement of multilevel actors dealing with adaptive measures. The transition to a more decentralized governance system and the recognition of multi-

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level/scale approach, as a response to changes, has created a new context for the protected area management.

Keywords: Governance, Drought resilience, Adaptive measures, National park, Climate change

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4.1 Introduction

Concerns about the resilience of ecosystems to climate change have created significant challenges that require a change in policies and governance (Organisation for Economic Co-operation and Development, 2014). Protected areas are recognized for their ability to protect various ecosystems and to help biodiversity and people adjust to climate change. However, concrete measures to increase resilience of protected areas face a multiplicity of governance context conditions that can have positive or negative impacts on the feasibility of such measures. This article sheds light on how the governance context influences the feasibility of measures to increase drought resilience. To begin, the governance assessment tool (GAT) is presented and then a case study in which this tool is applied to illustrate the importance of the governance qualities for enabling the resilient regime. This sheds light on the importance of the governance and resilience relationship.

Many scholars acknowledge that maintaining resilience within protected areas is necessary to achieve long-term conservation goals in light of climate change impacts (Baron et al., 2009; Lebel et al., 2006; Parker & Murphy, 2013). The governance of these areas addresses various important biodiversity and social concerns in terms of decision-making and planning of the land and resource use, as well as financial and other relevant matters to the protected areas (Borrini-Feyerabend, Johnston, & Pansky, 2006; Eagles et al., 2012; Graham, Amos, & Plumptre, 2003). Smith et al. (2003) showed a firm relationship between the quality of biodiversity conservation and the quality of the governance, emphasizing an important role of governance in enhancing protected area management and the long-term sustainability of those areas. Therefore, looking at the resilience of

protected areas through the lens of governance is a useful approach for understanding the resilience problem.

Governance is an evolving concept, especially in relation to protected areas. Scholarly literature on governance of protected areas is relatively recent and limited (Balloffet & Martin, 2007; Eagles, 2008, 2009; Eagles et al., 2012; Hannah, 2006; Lockwood, 2010). We address this by using the example of the Drents-Friese Wold National Park to examine the ecological resilience of the area in relation to the governance arrangements for its management. The GAT is applied to better understand the governance context as it provides a systematic assessment of all relevant elements and qualities of governance. The transition from the classic top-down model of protected area governance, to the decentralized one, which is nowadays the main trend in environmental governance, is a reflection of some political, social and environmental changes creating a new context for the protected area management (Eagles et al., 2012; Lemos & Agrawal, 2006; Lockwood, 2010). However, the relationship between the decentralization of the governance and the impact of hazards has not been much addressed in the literature (Vaillancourt, 2013). Decentralization may thus have a positive and/or negative influence on the governance of protected areas. It is argued that delegating the tasks to the local level, brings nature governance closer to people. Decentralization may increase government responsiveness to local needs; however, decreased budgets that are characteristic of decentralization may cause slower implementation of resilience measures (Haasnoot, 2012).

It is also argued that engagement of multiple institutions in protected area governance can safeguard the system against failure (Borrini-Feyerabend et al., 2013), hence increasing its resilience. The recognition of new governance models, like multi-level approaches, is a response to the failure of the traditional top-down model that in some cases led to a reduction in biodiversity. This led to the opening up of protected areas' decision-making process to a wider number of stakeholders. Moreover, new economic opportunities for protected areas, such as tourism, brought new pressures to park management and new stakeholders with evolving and complex governance systems (Bramwell & Lane, 2011; Lockwood, 2010).

4.1.1 Problem description

This paper addresses the problem of governance complexity in protecting significant natural areas in order to enhance the ability to increase drought resilience in those areas. This is done by contributing to the knowledge of what supportive and obstructive governance conditions look like.

In drought resilience, the concept of water scarcity and drought are considered as different matters: “water scarcity, referring to the average water imbalances between supply and demand, whereas droughts, as natural phenomenon referring to natural deviation from the average levels of natural water availability” (European Commission, 2007). In the Netherlands, drought resilience refers to both the supply and demand of water that is of sufficiently good quality. Water shortages during the summer are a common phenomenon in the Netherlands. Terrestrial ecosystems may be affected by low ground water levels and are vulnerable to droughts, as they are adapted to man-made conditions. The impact of droughts on more natural ecosystems would be less severe than in the present situation (Centre for Climate Adaptation, 2015).

Nature has suffered considerable losses in the Netherlands. High population density resulted in sacrificing nature areas for agriculture, housing, roads and industry. In the 1990s the new Dutch nature policy adopted a concept of ‘nature development’ that is regarded as ecological restoration. Previously, nature policy in the Netherlands had mainly focused on nature preservation (Verduijn, Ploegmakers, Meijerink, & Leroy, 2015). In 1969 the Netherlands joined the IUCN and assured the protection of important ecosystems by establishing National Parks (Ministry of Agriculture, Nature and Food Quality, 2005).

The case of this paper is related to the Oude Willem area within the Drents-Friese Wold National Park, which is one of the largest coherent nature reserves in the North-East of the Netherlands, and the second largest area of woodland and heathland in the Netherlands. The landscape of the Drents-Friese Wold has been eroded over several centuries of human activity. The forests were cut, and agriculture intensified which led to nutrient poor soils, wind erosion and sand dunes. This resulted in a new landscape that is culturally valued and distinct, however it also resulted in

a decreased resilience of the area making ecosystems and their services more vulnerable to climate change.

4.1.2 Objective and research questions

The objective is to assess whether the governance context of the Drents-Friese Wold National Park supports or hinders the implementation of measures to increase drought resilience in the Park. The use of GAT in relation to resilience helps to identify factors for establishing better ecological resilience within the governance context. It allows us to explore and explain how governance of the study area is realized through the governance arrangements. The Oude Willem area restoration project is examined as one of the primary measures for managing the eroded area and to increase the resilience of the Park.

The research questions addressed are: 1) what is the present situation in the Drent- Friese Wold National Park in terms of the drought resilience, and what threats are currently observed? 2) What measures are applied to increase resilience of the Park? What difficulties have been observed in the implementation process? 3) What governance factors support or obstruct implementation of such measures?

Addressing those questions will help to draw links to the broader concerns in the literature related to the resilience, adaptive measures and the governance of protected areas, showing their relationship and reflecting the reality of governance in a highly complex context. This will contribute to better understanding of the governance context conditions that influences the feasibility of measures in an effort to foster drought resilient.

Moreover, the objective and research questions will provide insight into the governance of resilience of the studied area by exploring how the governance context has changed over time in terms of priorities of actors (determined by the processes of institutional arrangement), and the ways in which decisions are made (Borrini-Feyerabend et al., 2006; Graham et al., 2003). They provide the means to display a logical connection between more conceptual governance frameworks and ideas, concrete adaptive implementation actions and measurable resilience results.

In the following section 4.2 the research framework and the relevance of the GAT for resilience is outlined. In section 4.3 the methodology is

presented. Further, in section 4.4 the case of the Drents-Friese Wold National Park and Oude Willem area are explored in terms of the ecological and institutional background, and measures implemented, elaborating on the Oude Willem restoration project as one of the applied measures. Findings and analyses are presented in section 4.5 elaborating on the resilience state of the park and on national policy context. The first and the second research questions are addressed in this section. Observations in the framework of GAT regarding the Oude Willem restoration project and analyses of the GAT application are also presented in this section and the last research question is addressed. Discussion and conclusions are drawn in the last section 4.6.

4.2 Research framework

The study is presented in the frame of three main concepts: (1) resilience, as a capacity of nature areas to serve as a basis for human and ecosystem services and their vulnerability to climate conditions; (2) adaptive measures, to enhance the resilience of nature areas; and (3) governance, as an actor interaction process and as a context that influences this process. Though the governance context and process are seen as related, they are separated to be able to study the impact of the governance conditions on the process. The GAT (Bressers et al., 2013) helps the analysis as it is targeted specifically at assessing the governance context.

(1) The concept of resilience has been interpreted in various fields of study (Carpenter, Walker, Anderies, & Abel, 2001; Djalante, Holley, & Thomalla, 2011; Folke et al., 2010; Lebel et al., 2006; Walker & Salt, 2006). Originally, it was developed in the field of ecology (Holling, 1973), and defined as the amount of disturbance that an ecosystem could tolerate without changing self-organized processes and structures, maintaining the same function. The ecological approach to the concept of resilience has more recently been applied to policy as well. Enhancing the resilience of ecosystem services require specific governance and management policies (Biggs et al., 2012). Various studies have pointed out the importance of participation and collaboration of different stakeholders at different stages of the planning and management of stresses (Berke, Kartez, & Wenger,

1993; Tran, Shaw, Chantry, & Norton, 2009; Warner, 2008; Warner, Waalewijn, & Hilhost, 2002). Thus, resilience can be viewed as a process that includes the involvement of multilevel governance actors focusing on common problems with the capacity to adapt and influence resilience.

(2) Adaptive measures cover a wide range of ecosystem management activities, such as establishing and managing protected areas, or restoring degraded lands that can increase the resilience to droughts and floods (Colls, Ash, & Ikkala, 2009). In this paper, the restoration of the degraded agricultural land within the National Park is observed as one of the measures for restoring the natural condition of the area and to increase the drought resilience of the Park.

(3) Like resilience, the concept of governance has a broad variety of meanings and definitions (De Boer, et al., 2013). The characteristics of governance, such as participation and collaboration of the multilayered institutions and networks that are mentioned in the literature, relate to understanding the interlinkages of adaptive governance and increasing resilience (Djalante et al., 2011; Fung, 2006; Gunderson & Light, 2006). In this paper, governance is described as a “combination of the relevant multiplicity of responsibilities and resources, instrumental strategies, goals, actor-networks and scales that forms a context that to some degree restricts and to some degree enables actions and interactions” (Bressers, et al., 2013). The GAT elaborates a simple concept of policy with goals and means and describes all relevant aspects of the governance context. It consists of a matrix of five governance dimensions (*levels & scales, actors & networks, problem perspective & goal ambitions, strategies & instruments, and resources & responsibilities*) and four quality criteria. These five dimensions can be used to systematically describe the contents of a governance context in a certain area concerning a certain issue. The four criteria are: *extent* (considering if all relevant aspects for the concerned issue are taken into account); *coherence* (whether elements of the governance dimensions strengthen rather than contradict each other), *flexibility* (to what degree the governance regime allows and facilitates multiple adaptive strategies/goals) and *intensity* (how intensely do the elements of the governance context urge and support changes in current developments) (Bressers & Kuks, 2004).

Generally, governance approaches mix elements of descriptive and normative nature. The approach taken in this study separates the descriptive (the five dimensions of governance) and normative aspects (the four criteria) of governance. Furthermore, the approach derives the normative criteria from a specific goal, namely the feasibility and likelihood of realization of a certain category of measures or projects, in this case the promotion of drought resilience. Moreover, our approach makes a clear separation between the conditions and the activities. In many approaches, governance is used for both the process and the context conditions for the process; in this approach governance concerns only the context.

4.2.1. Relevance of the GAT for enabling resilience

The qualities and dimensions of governance show the interactions of multi-level actors through the processes and actions that influence the context in which those actors make decisions to enable resilient governance for protected areas. According to the resilience principles (Biggs et al., 2012), active participation of all relevant stakeholders or promotion of polycentric governance to achieve collective actions in the face of disturbance or change, are considered fundamental in building trust and relationships during decision making processes that help to build resilience. Additionally, the resilience literature recognizes the multi-scale and multi-component nature of resilience (Berkes & Folke, 1998; Carpenter et al., 2001; Resilience Alliance, 2014). Therefore, the framework proposed to assess resilience allows for integrating this multi-component nature of resilience (Béné, 2013). Since resilience principles are interlinked with the governance attributes, GAT is an appropriate analytical tool for understanding governance for resilience.

4.3 Methodology

The case study methodology used in this research is well suited to answer the research questions. “It is based on direct observations, documents and systematic interviewing” having in mind that the focus and interactions around the research are in a real-life context surrounding a contemporary phenomenon (Yin, 2003). The questions addressed are “what” oriented, yet

they have no control over the events and focus on current actions. Although they are exploratory by nature they are explanatory as well in terms of how and why multiple actors interact to provide in-depth understanding and insight concerning their behaviour towards reaching the goals. The unit of analyses is the restoration project within the studied area that aims at increasing resilience. The processes and interactions of actors, involved in the implementation of the adaptive measures for better resilience, are assessed.

The relationship between the results of the GAT and resilience has not previously been explored. This paper investigates whether the GAT can contribute to the governance assessment process for enhancing the resilience of nature areas. The ranking of high, medium and low is used when the governance context is assessed according to the qualities and dimensions of the GAT. These judgments were made through discussions between at least two observers to prevent that the assessment overlooks important aspects (Bressers, et al., 2013).

Table 8 Evaluative questions of the GAT (Bressers, et al., 2013)

Governance dimensions	Quality of the governance context			
	Extent	Coherence	Flexibility	Intensity
Levels & scales	How many levels are involved and dealing with an issue? Are there any important gaps or missing levels?	Do these levels work together, and do they trust each other between levels? To what degree is the mutual dependence among levels recognised?	Is it possible to move up and down levels (up scaling and downscaling) given the issue at stake?	Is there a strong impact from a certain level towards behavioural change or management reform?
Actors & networks	Are all relevant stakeholders involved? Are there any stakeholders not involved or even excluded?	What is the strength of interactions between stakeholders? In what ways are these interactions institutionalised in stable structures? Do the stakeholders have experience in working together? Do they trust and respect each other?	Is it possible that new actors are included or even that the lead shifts from one actor to another when there are pragmatic reasons for this? Do the actors share in 'social capital' allowing them to support each other's tasks?	Is there a strong pressure from an actor or actor coalition towards behavioural change or management reform?
Problem perspectives & goal ambitions	To what extent are the various problem perspectives taken into account?	To what extent do the various perspectives and goals support each other, or are they in competition or conflict?	Are there opportunities to re-assess goals? Can multiple goals be optimized in package deals?	How different are the goal ambitions from the status quo or business as usual?
Strategies & instruments	What types of instruments are included in the policy strategy? Are there any excluded types? Are monitoring and enforcement instruments included?	To what extent is the incentive system based on synergy? Are trade-offs in cost benefits and distributional effects considered? Are there any overlaps or conflicts of incentives created by the included policy instruments?	Are there opportunities to combine or make use of different types of instruments? Is there a choice?	What is the implied behavioural deviation from current practice and how strongly do the instruments require and enforce this?

Responsibilities & resources	Are all responsibilities clearly assigned and facilitated with resources?	To what extent do the assigned responsibilities create competence struggles or cooperation within or across institutions? Are they considered legitimate by the main stakeholders?	To what extent is it possible to pool the assigned responsibilities and resources as long as accountability and transparency are not compromised?	Is the amount of allocated resources sufficient to implement the measures needed for the intended change?
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The evaluative questions of the GAT that cover the governance qualities and dimensions (Table 8) were asked during in-depth interviews with representatives of the main stakeholder organisations who are directly involved in the case study: the Province of Drenthe (involved in developing specific regulations for the Park and as a partial funder of the Oude Willem project); Statsbosbeheer (National Forest Service, responsible for maintaining vitality of ecosystems for nature and people); Water Board 'Reest en Wieden' (the main water managers); the Dienst Landelijk Gebied (DLG, coordinator of the Oude Willem project); and Institute for Nature Education and Sustainability (IVN, responsible for education about nature, environment and landscape). For data collection, a combination of methods has been used. The conceptual data have been obtained from the academic literature and from the reports and documents published by organisations involved in the case study. Reliable internet sources have been utilized; keywords, including 'resilience, protected areas, governance and resilience, governance of protected areas' have been used in the search for secondary literature. Moreover, data has been collected during the 'Case study course' (2014) alongside Master students in the frame of the Master's in Environmental and Energy Management program at the University of Twente in the Netherlands. Interview transcripts and notes have been relied upon for the analyses.

4.4 Case study

4.4.1 Ecological background

The Drents-Friese Wold is a National Park (since 2000) that stretches over the borders of the Provinces of Drenthe and Friesland and covers more

than 61 km². Historically, the area was mainly utilized for agriculture, sheep grazing and forestry. Currently, the park consists of forests, heath lands and sand drifts and its characteristics are strongly influenced by the 'esdorp culture'¹⁹ which originated in the Middle Ages (Drents-Friese Wold National Park, 2014).

Dutch land-use changes over time have shown forests disappearing in favour of fields and heathlands. Only some small fragmented areas of forests remained and only recently have some areas been reforested. Peat from the heath was mixed with manure to improve the fertility of the fields. After introducing artificial fertilizers, grazing on the heath lands became less necessary, and led farmers to more intensively drain the whole area for other agricultural uses. Due to these agricultural activities the Drents-Friese Wold began to face serious problems with regard to drought and soil eutrophication (The Global Partnership on Forest and Landscape Restoration, 2013). The Vledder Aa and the Tilgrup, the two streams and the grasslands associated with them, traditionally formed the heart of Drents-Friese Wold landscape. However, in the previous century most of the Vledder Aa and its branch the Tilgrup were canalized and ditches were cut in the grassland to intensify agriculture. In addition, during the dry summers eutrophic water from the River IJssel was let into the area. The hydrological management of the district was directed entirely at effective drainage.

The long-term use of the Oude Willem for agriculture (Bos & de Vries, 2013) led the area to be deforested and drained by stream canalization, completely altering the hydrology of the area and its wider surroundings. Since the Drents-Friese Wold area has become a National Park, the Oude Willem has been designated as a future nature development area, under the Netherlands' National Nature Policy. The National Park is one of the appointed areas to the National Ecological Network (EHS)²⁰ and functions as a corridor for animals (Figure 2).

¹⁹ villages with farms centered around a square or church, surrounded by fields on the inside and heathland on the outside

²⁰ EHS (Ecological Hoofdstructuur)-ecological corridors connecting important nature areas in the Netherlands were introduced in 1990 by the National Nature Policy Plan

Figure 2 Drents-Friese Wold National Park

Source: licensed under the Creative Commons Attribution-ShareAlike 2.0 license (CC-BY-SA 2.0) http://nl.wikipedia.org/wiki/Nationaal_Park_Drents-Friese_Wold

4.4.2 Institutional background and goals

Main stakeholders involved in the ownership and management of the National Park have different perspectives towards the goals of the Park (Table 13). The National Park has an advisory committee represented by Staatsbosbeheer, Natuurmonumenten, Drents Landschap and Maatschappij van Weldadigheid. Together with other stakeholders they cooperate on the conservation, development and design of the park. The involved stakeholders focus on enhancing ecological integrity, in order to reverse the processes that degraded the area and to create a diversity of animals and vegetation.

Table 13 The ownership and management of the Drenths-Friese Wold
(based on Drents-Friese Wold National Park, 2014)

Stakeholders	Land area responsibility	Management approach
Staatsbosbeheer (National Forest Service)- Owns/ manages the largest part- 4150 hectare of the Park	Ecological integrity, but also accepts recreation that suits the area	Maintenance of the park (cutting trees); maintenance of the dolmen and pathways; making recreation accessible, creating scenic view throughout the forest; making parts of the area open for public
Natuurmonumenten (Nature Monuments)- Owns/manages 950 ha	Stronger focus on ecological integrity Nature management	Prefers non-human altered natural cycles
Drents Landschap owns and manages 450 hectares	How parks fit into the overall landscape	Incorporates cultural heritage
Maatschappij van Weldadigheid (Benevolent Society) owns 200 hectares	Preservation and development of the historical heritage	Conservation through development; restoring authentic features of landscape
80 private owners manage 400 hectares	Recreation	
Water board Reest and Wieden	Responsible for hydrology of the area	Cooperates on conservation, development and design of the park.

The Oude Willem restoration project fits well into the overall goal of the Park and also provides functions such as recreation, cultural heritage and to a lesser extent, wood production (Li et al., 2010). Combining functions is in the best interest of all the stakeholders, however, trade-offs may take place between agriculture and nature goals. Farmers in the area prefer a low ground water table, rich soil and well levelled fields, which contradict with

the nature goals of the National Park. In some special cases farmers have been involved in the maintenance of the Park.²¹

The secondary stakeholders, such as village inhabitants, use the available nature for recreational purposes.²² All recreational activities will eventually be relocated to the edge of the Park, leaving the centre for 'wild' nature development.

4.4.3 Restoration of Oude Willem area as a measure to increase drought resilience

A restoration plan for the area was developed by the nature organization 'Natuurmonumenten' in the early 1990s. In cooperation with local and national authorities land was purchased and leased and the preconditions for restoring the river and grassland ecosystem were created. However, the soil of the grassland was still heavily eutrophic, and the streams were unable to perform their natural hydrological functions. In 2007, different groups of relevant stakeholders agreed to integrate the agricultural area into the National Park. The objectives of the agreement were to (1) regain as many natural processes as possible within the area, (2) recover the hydrological system, using the Oude Willem area to serve as the upper reaches of the stream Vledder Aa, (3) recovery of the natural hydrologic system as a precondition for nature development, and (4) enhance the unique wilderness in connection with recreational use and restoration of nature (Bos and de Vries, 2013). In addition, the Dienst Landelijk Gebied²³ (2012) proposed the following measures to be taken for groundwater recharge: (1) terminating or limiting the groundwater abstraction activities in Terwisscha²⁴, (2) the establishment of the creek valley of the Vledder Aa's middle course, and (3) large scale shifting from conifers to deciduous trees. In their design proposal they point out that a sustainable restoration of the

²¹ Staatsbosbeheer has hired some farmers with cattle to graze in the Park and restore the heath land, while Natuurmonumenten and Drents Landschap own cattle themselves for this purpose.

²² About million tourists visit the Park (National Parks in the Netherlands, 2010).

²³ This organization stopped functioning in March 2015

²⁴ Small village in the municipality Ooststellingwerf in the Province of Friesland; It is located south of Appelscha village, where it officially belongs. In Terwisscha is the visitor center of the National Park. There is also a water pumping station of Vitens (drinking water company)

hydrological system is the crucial factor for turning the Oude Willem back into the healthy headwaters of the Vledder Aa stream system (Bos and de Vries, 2013).

4.5 Findings and analyses

4.5.1 Resilience of the Drents-Friese Wold

The state of resilience for the Drents-Friese Wold has been affected through several land use changes from nature to farmland. The previous phase of the re- naturalization of the Oude Willem area focused on supporting efficient agriculture rather than on nature development. Focusing on the economic interests instead of the ecology, led the Province of Drenthe, the land owner at that time, to decide to sell the natural land to the farmers within the National Park. It was not until a decade later that they realized the complications and complexity that this would cause in the re-naturalization process. When Oude Willem began to be realized, the focus on nature and its values were primary and were enabled via subsidies. Currently the economic issues are becoming more prominent. Stakeholders now need to find new ways to enable future investments for nature development, because governments have retracted previous funding mechanisms. The cyclic nature of the discussion regarding how to balance economic and nature needs shows the importance of interlinking the ecosystem services with economics and their benefits.

A number of measures have been undertaken to restore natural hydrological system and natural conditions in the Park. To restore a more natural water environment, canals, which were used once for drainage for agricultural means, have been blocked. The straight high banks of the canals have been removed to let the streams flow more naturally and allow the stream to meander again. Moreover, to restore the wetland identity of the area, small channels have been dug. Future measures include filling in ditches and the canal to increase the water table to a level that supports recovery of the natural processes, affecting the wider watershed area as well. To support nature development, measures to be applied are the prohibition of fertilizers and pesticides in the area, change of land use from agriculture to nature development, technical measures in the stream profile

restoration, gradual replacement of coniferous vegetation with deciduous, and grazing and mowing as natural heath land maintenance measures. Ecosystem services are seen rather as a consequence than as a primary aim.

6.5.1.1. National Policy context

In the recent years, the main focus of Dutch national nature policy has been to conserve and rehabilitate nature and landscape through implementing programs such as Natura 2000 and the National Ecological Networks. Lately, this focus has shifted to include social values as well (Buijs, 2009). In 2000 the nature policy expanded to include the social values of nature (LNV, 2000) and to increase public support for long-term nature conservation. Decentralization of nature policy jurisdiction to the provinces was implemented to increase social support and bring nature policy closer to people. The provinces are now responsible for nature protection at the local level, and this is expected to be more cost effective for executing decentralized tasks compared to the national government²⁵ (Haasnoot, 2012).

While decentralization is seen to be beneficial in some instances (such as in the case of national landscapes or the responsibility for the management plans for Natura 2000 sites), in other aspects it could have harmful effects, especially regarding National Parks and Natura 2000 sites. Decentralization of these internationally important resources can lead to fragmentation of international nature policy tasks and responsibilities, which can have a negative effect on Dutch nature. Also, the most important threat of decentralization comes from the lack of financial resources at the provincial level which could lead to a degradation of Dutch nature (Haasnoot, 2012). The decentralization of Dutch nature policy can be a potential threat to the Oude Willem project implementation as well. In Table 14, the timeline of major developments of policy initiatives around the case study is presented.

²⁵ Decentralization accompanied considerable budget cuts of 600 mln euros to the Investment Budget for Rural Areas (ILG- Investeringsbudget Landelijk Gebied) (Haasnoot, 2012).

Table 14 The timeline of major relevant policy developments

1990	The Dutch nature policy adopted a new policy concept of 'nature development' regarded as ecological restoration
Early 1990s	Oude Willem restoration plan was developed by Natuurmonumenten
Since 1990s	Nature policy has been undergoing decentralization
2000	The nature policy document 'People for Nature, Nature for People' expanded nature policy from an ecological focus to include the social values of nature (LNV, 2000)
2000	Drents-Friese Wold area became a National Park
2007	Agreement of stakeholders to integrate Oude Willem area into the Drents-Friese Wold
2013	Steering committee for Drents-Friese Wold is initiated by Province of Drenthe in agreement with Province of Friesland
March 2015	DLG has been terminated as an agency; Province of Drenthe took over the leading role in the realization of the Oude Willem project

4.5.2 Observations made in the framework of the GAT regarding Oude Willem restoration project

At the end of 2013 the Steering Committee for the Drents-Friese Wold was initiated by the Province of Drenthe. The Committee is responsible for the cooperation and communication of all parties in the region. Together with the Steering Committee, the Project Group Oude Willem is involved in the organization and management of the restoration project, with the DLG as an official secretary of the Steering Committee. However, another result of policy decentralization in the Netherlands has been the termination of the DLG as an agency²⁶, delegating parts of its services to the Provinces. The DLG had been a neutral stakeholder, and therefore, capable of providing a

²⁶ DLG has officially stopped functioning on March 1, 2015, transferring the majority of tasks to the Provinces and to a lesser extent to the Netherlands Enterprise Agency (Rijksdienst voor Ondernemend Nederland; <http://www.rvo.nl/>). In relation to the Drents-Friese Wold, all actions related to planning and management, are supervised by the Province of Drenthe and Prolander- the provincial organization for implementing policies in rural areas in the provinces of Drenthe and Groningen (<http://www.dienstlandelijkgebied.nl/>; <http://www.prolander.nl/>).

mediating role. The Province of Drenthe is now in charge of the project coordination.

The following sections are the results of the application of the GAT to the Oude Willem restoration case. The results show what governance factors may have enabled or restricted the success of the process. Evaluative questions providing the basis for the analyses of each governance component are presented in Table 8. The five dimensions presented in the next section form a descriptive model of all relevant aspects of the governance context. The results are a systematic description of the content of the governance regime with regard to the restoration project.

4.5.2.1. Levels and scales

The governance dimension of levels and scales assessed whether all relevant levels of governance are involved in the project. The restoration of Oude Willem area operates in a context with diverse interests of multiple stakeholders, involved at different levels of authority with different perspectives and interests in the project. In the project all levels of authorities are represented ranging from the local level to the EU level.

At the project implementation level there are two levels of authorities: the Steering Committee for the Drents-Friese Wold (consisting of the directors of the main official stakeholder organisations that are in charge of major decisions) and Project Group Oude Willem, as the project operational body, under the Steering Committee. Table 15 presents the organization of the Oude Willem restoration project.

These levels are interconnected horizontally and vertically; Provinces and municipalities can act independently on local issues but in implementation of strategic plans, such as National Nature Policy, the decisions are made at higher national administrative levels. Water authorities are in charge of all water related issues and are relatively independent of other levels. On the project level, there is clear vertical interaction between the Steering Committee and Project Group Oude Willem. High level decisions are made by the Steering Committee. Dependences are fully recognized between administrative and project levels and there is a strong commitment of all levels involved.

Table 15 Organization of the Oude Willem restoration project

<i>DLG and now Province of Drenthe</i> Coordinator/secretary of the Steering Committee
<i>Steering Committee</i> Responsible for the vision/Strategic planning/for cooperation of all parties
<i>Project Group Oude Willem</i> Operationalizing/implementing the decisions of the Steering Committee

4.5.2.2. Actors and networks

This dimension assessed the multi-actor involvement in the project. Table 16 presents the formal and informal involvement of multiple actors in the restoration project, each with its own roles and responsibilities. Stakeholders interact and cooperate on all relevant matters in the frame of the Steering Committee (2-3 meetings/year) and also in the frame of the Project Group Oude Willem (with monthly meetings), which is less formal and more flexible setting. New actors can be involved and there is no pressure from the managing actors towards management reform, which means that they are strongly committed to the project implementation.

The informal actors have more passive and indirect roles. They were involved in the decision-making process related to project planning through the Dutch polder model and Sketch & Match methods, but do not have a direct influence on project implementation and management. The mentioned polder model is applied to facilitate participation of a wide range of actors through consultations with the local community. Farmers, as affected actors, were negotiated with and agreements were made to buy their land. One remaining farmer is still reluctant to sell his property, though the negotiation process is still on-going.

Table 16 Stakeholders in the Oude Willem restoration project

<i>Formal stakeholders</i>	<i>Roles and responsibilities</i>
National authorities	As general supporting stakeholders providing funding for the implementation of Dutch Nature Policy plan and allocating resources to provincial governments.
Province of Drenthe	Regional authority/providers of majority of financial resources; In charge of developing local nature policies/spatial development plans, and other instruments to implement National Nature Policy;
Province of Friesland	As land owners they designate the land managers to specific projects, allocating funds from National budget; Since 2015 province of Drenthe is a coordinator of the Oude Willem project, after the termination of DLG.
Municipality Westervel	Local authorities/provider of part of financial resources;
Municipality Ooststellingwerf	They ensure that the interests of the local community are taken into account in decision-making process.
Waterschap Reest & Wieden	Main water managers, providers of financial resources; Responsible for hydrology of the area; as owners of the water body such as Tilstrup, they are responsible for the maintenance of the water system, water table after the completion of the restoration project; Most of the area is under jurisdiction of Waterschap Reest en Weiden.
Waterskip Fryslân	
Recreatieschap Drenthe	Advisor to municipalities and province/s, and to informal actors, such as recreation entrepreneurs, plan developers, field coordinators, etc. on all matters related to recreation and tourism.
Staatsbosbeheer	Manages land/nature elements of the Oude Willem area; responsible for maintaining the vitality of ecosystems for nature and people; runs one camping site within the Park, is involved in a capacity of recreational business owners.
Natuurmonumenten	Responsible of nature management in the Drents-Friese Wold
Drents-Friese Wold NP	Park manager
DLG	Mediator, coordinator and project leader, involved in the development of draft plans, communication with stakeholders and coordination of various aspects of the project; leading negotiator in farmland acquisitions
<i>Informal stakeholder</i>	
Local inhabitants	Enjoying the nature of the Park.

Farmers	One farm is privately owned; others are owned by Province of Drenthe and are temporarily rented.
Local entrepreneurs	Run their businesses in connection to tourism/recreation; do not participate in project implementation.
Park visitors	Visit park for various reasons, expect different services from the area; after the realization of the Oude Willem more visitors are expected.

4.5.2.3. Problem perceptions and goal ambitions

This dimension assumes a multi-aspect character of problem perception and goal ambitions and thus assessed various goals and perspectives of the involved stakeholders. The current focus of the restoration is on nature development, however there are some contradictory goals integrated within the project. On the one hand, nature development and the goals of Natura 2000 (ecological goals) are pursued and, on the other hand, development of Dutch cultural landscape are desired which includes certain human activities, which inhibit nature as well. The Dutch cultural landscape was developed by the strong influence of traditional agriculture. Nature preservation then would entail restoration of habitats and landscapes such as heath, grasslands and ditches (Verduijn et al., 2015).

Other (inter)nationally relevant goals include drought resilience, reducing flood risks, improving recreation and tourism for local economy, and protection of biodiversity (Natura 2000, 2014). Due to long standing agricultural uses, there is an excess of phosphate content in the soil. The phosphate will be mobilized with the increased levels of ground water. To address this issue, Park management plans to use new crops as a means of phosphate extraction (Bos & de Vries, 2013). Special crops will absorb the phosphate in their biomass, while grazing and mowing will be used to remove the biomass from the fields. It is expected that the process will take 10-15 years to reduce the content of phosphate to normal.

Another conflict is related to the Oude Willem road that runs through the Park. The Staatsbosbeheer wants to remove the road to turn the whole area into nature. The municipalities feel that the road is important for local inhabitants as a necessity for emergency situations. However, even the local inhabitants themselves have different perspectives on the road issue.

Though they see it as a necessity, the road is also unsafe for walking or biking, since people often drive very quickly. Consensus has been achieved that the road will remain temporarily and that outside traffic will be discouraged. To gather ideas about possible solutions, the *Beeldenboek oplossingsrichtingen* (Picture Book of Solutions) was commissioned (Grontmij, 2013). However, in the long-run, the road will likely no longer be needed and eventually be removed.

Another major conflict is the single remaining private farm. Project managers are confident that they will eventually decide to sell, but if not, a land sale can be enforced under the Rural Areas Development Act (WILG) of 2007. This would require a political decision, made on the regional provincial level, and could have wider political implications in the future. Thus, politicians in charge are reluctant to deploy this instrument and are still trying to negotiate.

One last conflict observed is related to the expected water table rise and the possible effects on the houses and properties of the local inhabitants. This was a major concern of the local community and to address it, additional hydrology research was carried out by water board Reest en Wieden. This led them to adapt their designs for waterway profiles and ensure that people are protected from flooding risks.

4.5.2.4 Strategies and instruments

This dimension assessed the multi-instrumental character of the strategies of the actors involved. Different policy instruments have been applied for the restoration of the Oude Willem area (Table 17).

Even though there are many regulatory instruments involved, the whole process of project development was realized on a rather communicative, cooperative basis. Interviewed stakeholders described the decision-making process as based on cooperation and good communication of the actors about common goals. This approach was applied throughout the whole project development process. A good example is the negotiation process with farmers over the land acquisition. Despite the provinces, as the main stakeholders, having a direct regulatory instrument (WILG) which gives the power to enforce the sale upon farmers, all pieces of land were acquired through a negotiation/communication process. The only farmer

left in the area is still being negotiated with. Therefore, the implementation of direct regulatory instruments is more of a mutual steering approach. However, some instruments such as Natura 2000 or the provincial spatial development plans pose clear requirements which need to be met and cannot be negotiated. Economic instruments in the form of subsidies or taxes were not found to be used.

Table 17 Policy instruments applied for the restoration of the Oude Willem

Regulatory instruments	International: Nature 2000; WFD (2000), Flora and Fauna Act (2002); EU Nitrates Directive (1999); Dutch national regulatory instruments, such as Nature Policy Plan, National Ecological Network legislation, The Rural Areas Development Act (WILG) (2007).
Negotiated agreements	Applied in the process of farmland acquisition.
Management & planning	Zoning, land use planning resulting in Ruimtelijke Ontwerp Oude Willem.
Education & information	Visitor centre, websites, newsletters.

4.5.2.5 Responsibilities and resources

This governance dimension assessed a multiple resource basis for implementation of the project. Table 16 introduced roles and responsibilities of the involved actors. Provinces have the authority to both negotiate and enforce the land acquisitions upon land owners. They also appoint land and nature managers. Water boards have the authority to manage the maintenance of private water bodies, and also to collect taxes for their services. Local communities are represented through their municipal councils, which have the legal authority to represent their communities' interests, and also have the right to present their case in court. Responsibilities are clearly assigned; however financial resources are scarce in some instances. For example, maintenance of the touristic and recreational infrastructure is costly, yet local business owners do not contribute. Assigned responsibilities have led to full cooperation between stakeholders.

4.5.3 Analyses of the results of GAT application to the Oude Willem case

Based on the observations made in the previous section according to the dimensions of the governance, the evaluation criteria are analysed to assess the capacity of the governance context.

4.5.3.1. Extent: high, though business sector is excluded

This quality criterion enquires to what extent all relevant aspects of the governance dimensions are taken into account. There is a highly multi-level character of the government involvement, though the national government is becoming less involved through decentralization. Many relevant informal and formal actors are involved, though there is one important group of actors that has been left out - business owners. Park visitors were also not extensively included, but this did not influence project development or later implementation in a negative way. However, business owners are an important group of beneficiaries, since they are running their businesses directly on services provided by the Park.

The goals and various perspectives of the majority of the actors are integrated and taken into account. The Water Board Reest en Wieden and Staatsbosbeheer have different perspectives on the project, yet their goals remain coherent. For example, the perspective for the Water Board is hydrological but Staatsbosbeheer prioritizes nature and both are taken into consideration in the final plans.

There is a lack of economic instruments to encourage all involved actors to observe ecosystem services not as a common good but rather as something that needs to be produced and maintained in a sustainable way. However, development of these mechanisms is in the hands of higher-level authorities. Actors involved in Oude Willem restoration can only indirectly influence creation of economic instruments through their provincial and national representatives. Responsibilities are clearly assigned, however, financial resources are scarce in some instances, such as for maintenance of the touristic and recreational infrastructure. This could be an obstacle in maintaining the constant output of ecosystem services.

4.5.3.2. Coherence: medium- need to prioritize benefits of ecosystem services

Coherence highlights to what degree various factors of governance dimensions are strengthening rather than contradicting each other. In general, cooperation, common goals, communication and consensus were mentioned by stakeholders when describing the management structure. Close interactions and cooperation between stakeholders on relevant matters shows that coherence is positive. All levels were observed to work together. The dependence between both administrative and hydrological levels is fully recognized. However, interdependencies between the different ecosystem levels are not well recognized.

Integration of some goals in the project, in terms of Dutch cultural landscape and nature development goals, is in some ways a collision with the Nature Policy Plan adopted in the 1990s. Nature development is a mean to create an ecological network of large connected nature areas, while Dutch cultural landscape development includes aspects of human activities as well.

In terms of interactions, the Steering Committee is an important stable structure with 2-3 regular meetings a year. Another framework for interaction of relevant stakeholders is the Project Group, which is a less formal and more flexible setting. They have regular monthly meetings with all stakeholders. However, to deal with current issues they also meet outside of this schedule, involving actors relevant to the issue at hand. The funding model for project implementation is based on mutual consent of all involved actors. Since the majority of actors have common goals, it could be concluded that the funding model is based on synergy. However, the ecosystem services were not the focus of the project, and consequently the future provision of benefits, such as recreation, is in question. Funding from the national budget is provided only for nature maintenance and not for other functions of the area, such as recreation or tourism.

Assigned responsibilities have enabled full cooperation between stakeholders, with one exception related to the attitude of the Province of Friesland. They believe that the land and nature manager should be chosen through tender procedure and that the current organization performing this task, Staatsbosbeheer, should not be the only possible choice.

Therefore, the role of one of the main actors, Staatsbosbeheer, is not fully considered legitimate by one of the main stakeholders, the Province of Friesland.

4.5.3.3. Flexibility: medium- room to engage new actors

The flexibility of a governance regime refers to what degree multiple adaptive strategies and goals are facilitated. The decentralization efforts seen in this case enabled the involvement of new actors. With the Provinces in charge of nature management, these tasks are assigned adequately. The Province of Drenthe considers Staatsbosbeheer as the one competent actor, which should be in charge of nature and land management. However, part of the area is in the Province of Friesland and, according to interviewees, this Province considers that nature can be managed by other actors as well and could therefore include new actors through a tender process. Also, some current roles are to be shifted from one actor to another: the role of DLG has been delegated to the Province of Drenthe.

Most of the issues that arise can be solved at the level of the Project Group. However, when problems of greater significance appear, which may have political consequences, involvement of the Steering Committee is required. There is certain flexibility in the interactions of the Steering Committee as well, since a chairman of the Committee can be consulted about issues outside the Project Group authority. Goals were re-assessed through the entire plan development and were adapted accordingly. Some goals are left to be reassessed in the future, depending on the circumstances. This occurred on the conflicting issue of removing the Oude Willemsweg. Working together to achieve a common goal is a culture that is strongly encouraged within the restoration project. For example, the interviewees stated that the amount of money given by each stakeholder does not determine the say or the power they have in decision making process.

4.5.3.4. Intensity: low – but with the potential to increase with needed resources

Intensity looks at how strongly the elements of the governance context urge and support changes in current developments. It was observed that there is a strong commitment of all levels involved to carry out this project. There is no pressure from any of the managing actors towards management change.

With respect to beneficiaries there is no pressure towards behavioural change either (though the current stakeholders recognize that this would be beneficial). The expected behavioural change of the beneficiaries would imply that they start contributing to the sustainable management of ecosystem services through a Payment for Ecosystem Services (PES) scheme. This would, however, require a change in general attitude and development of different incentive instruments on higher levels of authority.

At this point, there are no instruments to provide this kind of change. Resources allocated for the implementation phase of the project are sufficient. However, resources needed for later maintenance of the area are less secure. To address this problem, the Province of Drenthe applied for EU LIFE funding to buffer this uncertainty. The application was successful and both Provinces of Drenthe and Friesland collectively received the LIFE grant (2,935,381 euros) from the European Commission, for implementation of measures in the heart of Drents-Friese Wold National Park (Drents-Friese Wold National Park, 2014). It is seen as a proactive approach, increasing intensity, with a positive assurance of the future ability to successfully facilitate their responsibilities with the needed resources.

4.6 Discussion and conclusions

In this paper, the problem of governance complexity in protecting significant nature areas has been elaborated, emphasizing the link between the quality of governance and resilience. The paper reflected the reality of the governance for drought resilience contributing to the knowledge of what supportive and hindering governance conditions are. By illustrating the reality of governing the multiple water uses and the importance of the governance qualities in the process to enhance drought resilience, the research offers an insight into a broader water governance scholarship.

The paper assessed the governance circumstances surrounding measures to improve the drought resilience in the Drents-Friese Wold National Park. The restoration of the degraded agricultural land, the Oude Willem area, has been studied explicitly among the measures applied in the Drents-Friese Wold. We addressed the problem of governance complexity by examining the ecological resilience of the studied area. Adaptive measures that are implemented are to contribute to drought resilience of

the area and to the potential of the Park to support ecosystem services for resilience. The restoration of stream valley hydrology can change the water table in the entire National Park. This will increase drought resilience and provide favourable conditions for the vegetation in the Park.

The governance regime has been observed as a context under which the measures are taken and emphasized the involvement of multilevel actors and their interactions in the implementation process. The GAT applied to the Oude Willem project showed which governance factors were supportive or hindering in the implementation of the adaptive measures in the studied area.

The results of the GAT application revealed that the quality of *extent* is high but there is a need to involve the business sector. The lack of interest from the business sector in project implementation is believed to be because they do not see how they will directly benefit from the ecosystem services delivered after the realization of the project. Currently, due to decentralization, this becomes even more important as funding becomes more uncertain. The involvement of businesses in the process would be a proactive way of capitalizing on the economic benefits to the area. Since the DLG has been deconstructed and the national level involvement has become less, including businesses much earlier is an opportunity to increase social and economic support. The reason why this quality is not medium or low is due to the high involvement of multiple levels of authorities and actors in the project implementation, and that different perspectives of various stakeholders are taken into account, and responsibilities are clearly assigned.

Coherence is observed as medium when prioritizing the benefits of ecosystem services. It is not high because the interdependences between different ecosystem levels are not well recognized, meaning that interrelations and functions of the ecosystems are not known. No studies or strategic assessments were being conducted at the moment of writing regarding what ecosystem services could be made available. Actors are not concerned about prioritizing the provision of ecosystem services in terms of the resilience outputs. Since the ecosystem services are not in focus, the continued provision of benefits such as recreation is in question. All levels

working together on common goals with funding provided for nature maintenance, provides a solid base of coherence.

Flexibility is medium though there is room to engage more actors. This is a result of decentralization, and the resulting openness to engage new actors. It does not score high on flexibility because the engagement of new actors makes the context even more complex and it does not score low due to the culture of working together to achieve goals in complex circumstances.

Of the four qualities, only *intensity* is considered low with the potential to increase given the presence of the needed resources. While the commitment of all levels in realization of the project is present, there are no instruments provided to influence provision of ecosystem services for drought resilience as a goal. Additionally, there is no pressure from managing authorities towards behavior change of the beneficiaries to contribute to ecosystem services management through schemes, such PES.

In summary, the overall picture from the analyses shows a governance context that is relatively supportive, displaying in general the positive qualities of a governance context. *Extent* and *coherence* revealed the majority of actors to be well-connected with a long history of cooperation and with a great deal of flexibility in their interactions. *Flexibility* was assessed as positive, though there are always issues to be tackled at specific levels. *Intensity* was revealed to be low despite the strong commitment of all levels to carry out the project.

Enhanced drought resilience is expected to occur following the re-naturalization of the Oude Willem, enabling nature development and the provision of additional ecosystem services. A higher water level will recover the capacity of the area for nature development and stimulate favourable conditions for recreation and tourism benefits in the area. In order to better support the implementation processes and future management of the area, the weaknesses observed in each quality need to be taken into account in cooperation with all the actors involved, making use of the high extent of actors involved.

The decentralization of Dutch nature policy could have major impacts on the implementation of the Oude Willem project. Decentralization

prompted significant changes in the governance processes in terms of increasing co-operation between provinces and regional/local authorities in the field. However, decentralization could have also harmful effects regarding National Parks with Natura2000 sites. Fragmentation of international nature policy tasks and responsibilities could have a negative effect on the overall resilience of Dutch nature. Another threat comes from the lack of financial resources at the provincial level. Decentralization does provide the opportunity to involve the economic sector in a proactive way by laying out more clearly the benefits that businesses can get from the Park. Further, the recent successful application for EU LIFE funding (“More water for wet habitats in Drenths-Friese Wold & Leggelderveld”) will enable significant improvements in the nature restoration and development issues in the Park. They have now secured the resources needed for later maintenance of the area.

The results show the influences that decentralized governance can have on protected areas. This study shows the complex impacts that such a process can have on integrated protected area governance systems. Further, this study shows that the multi-level and multi-scale approach for governing the resilience of protected areas can increase the resilience of the governance itself when it is sufficiently flexible and intense to adapt to changing political and natural circumstances.

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CHAPTER 5:

This chapter is based on:

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Towards a new model for the governance of the Weerribben-Wieden National Park

Abstract

The paper focuses on the governance of the Dutch national park Weerribben-Wieden and its ability to foster ecological resilience in the face of climate change and human disturbances. The study highlights the role of various characteristics of the institutional context of governance in which resilience-relevant decisions are prepared, taken and implemented as referenced by an assessment of the governance context. The relevance of such an assessment is found in the frequent institutional changes in nature policy. This paper examines how care for the resilience in an area is supported by the governance context, given the major recent restructurings. The drastic changes in nature policy in the Netherlands include national government withdrawing from their central role and decentralising the authority for nature tasks to the provinces. Subsequently, the province has also withdrawn itself in the Weerribben-Wieden case and decentralised nature tasks to the municipality. So, in our research case, the 'take home message' relates to the impacts of decentralization in different 'sizes'. Institutional change by decentralisation does not come in 'one size', but rather in a multiform phenomenon of layers and aspects. The governance assessment tool was used to analyse the consequences of this decentralization for the processes in which resilience measures are

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implemented in various degrees and interactions. Decentralisation without balanced problem perspectives and goals, without an integral approach towards the park's resilience, and without adequate strategies and instruments, most likely leads to a lengthy transition process with uncertain outcomes. The study concludes that institutional changes in this case restricted adaptiveness of governance towards resilience and has diminished a sense of responsibility for the maintenance of the national park resources.

Keywords: resilience, protected area, management, ecosystem services

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HIGHLIGHTS

- Institutional context has a significant influence on the governance for resilience.
- Institutional change by decentralisation comes in a multiform of layers and aspects.
- Decentralisation may lead to a lengthy transition process with uncertain outcomes.
- Institutional change restricted adaptiveness of the governance context towards resilience.

GRAPHICAL ABSTRACT

5.1 Introduction

5.1.1 Trends in protected area governance

An emerging trend in biodiversity policies links ecological resilience to governance processes (Carpenter and Folke, 2006) creating resilience-based governance as a new approach in ecological knowledge. Governance is recognised as critical to effective conservation by the Convention on Biological Diversity (Dearden et al., 2005). It is a relatively new field of research for protected area resilience (Hannah, 2006; Lockwood, 2010; Eagles et al., 2013). This paper intends to illustrate the relationship between governance and resilience through an assessment of the governance of the Dutch national park Weerribben-Wieden to enhance ecosystem resilience. Fostering ecosystem resilience uses processes where decisions are prepared, taken and implemented. We refer to the institutional setting as the governance context.

Policy changes in nature conservation have influenced the governance of protected areas. The commonly applied protectionist model was challenged by new policy approaches that gave importance to economic

consideration for nature conservation. Protected areas became seen as more complex in concept and more complicated in management (Dudley et al., 2014). Moreover, with the approval of the European Biodiversity Strategy 2020, the European Union encourages to develop markets that capture the economic value of biodiversity and develop partnerships for biodiversity with a wide variety of stakeholders (Kamphorst and Coninx, 2016: 1; European Commission, 2011). Thus, protected area governance has tended to become a more multi-level system, empowering and engaging a wider variety of participants (Lockwood, 2010).

5.1.2 Nature policy changes in the Netherlands

A comparable evolution is taking place in nature policy in the Netherlands. National government has implemented major changes in nature policy formerly associated with a strong top-down approach where national government led, while the provinces' role was implementation. For some decades this was a stable policy strategy based on the National Ecological Network concept which envisioned larger nature areas as being interconnected by ecological zones (Kamphorst and Coninx, 2016). Recently, national government has withdrawn from their central role, but still coordinates with European and international commitments in nature policy (Buijs et al., 2014). Authority for nature policy-making and implementation is now decentralised to the provinces, who have also faced severe budget cuts. The argument for decentralisation assumes that on a smaller scale, policies and actors can better take into account local circumstances and variations. This might have some truth, but the political arguments varied as the reduced governmental role is built on a belief in a market-oriented approach and individual responsibility and involvement.

5.1.3 The challenge addressed

The challenges addressed in this paper are related to the described institutional changes in the governance of nature policy to protect and enhance the resilience of nature areas. These are particularly challenging for biodiversity and resilience that require coherent, multi-scale approaches. Local measures may well not harm but must be coherent across a whole relevant ecosystem. Whether institutions are actually committed to

biodiversity and resilience relies on the nature of their practices and procedures (McLean and Guha-Sapir, 2013). Moreover, a range of governance context conditions (such as available resources and finances) influence the feasibility of measures to improve resilience of nature areas.

Nowadays, the challenge for the Weerribben-Wieden is to maintain and improve the quality and resilience of the area characterised by its special nature values and cultural history, and to deal with the changing governance of nature policy. A strengthened leisure economy is one future challenge. The argument to decentralise presents a double challenge: fostering resilience and maintaining ecosystem services; two foci that in a perfect world would be highly related.

Currently, the park is transitioning towards a new style of organisation for governance and management involving local partners led by a local municipality. This major challenge is the focus of research for this study. The quality of the nature experiences is a core idea of this new style. This follows on from the withdrawal of the national authorities and, later, the provincial authorities and their implications for the coordination, vision and resources for park management.

5.1.5 Objective and research questions

The main objective is to assess the governance context of the concerned area and to highlight factors influencing enhanced resilience. The Weerribben-Wieden is a unique natural area of local, national and international importance for maintaining biodiversity, ecosystem functions and flow of those services. This stresses the importance of enhancing resilience here. We analysed the factors using the governance assessment tool (GAT) (Bressers et al., 2016), with its basis in contextual interaction theory (CIT) (Bressers, 2004). The tool helps explore relationships between resilience and governance and the interactions among relevant governance features. Is the governance context still a part of the support system for resilience, or has it become the major challenge itself (given the governance context changes since 2011 with the two steps of decentralisation and withdrawal of governmental support)?

The research question addressed is: *To what extent do governance factors support or hamper implementation of measures to foster resilience of*

the park? Implementation means “the processes that concern the application of relevant policy instruments, including the realization of projects to achieve physical changes” (Bressers, 2004: 284).

This research question will provide insights into the governance of the resilience of the studied area by exploring the processes and conditions that influence decision-making; demonstrating a connection between the conceptual governance tool and adaptive actions to achieve resilient results. This study will add to the literature in this relatively new field of study and the literature on decentralisation. In Section 5.2 main concepts for the study are defined. Section 5.3 presents the governance assessment framework. Section 5.4 describes the methodology. Section 5.5 presents the case of the Weerribben-Wieden National Park, observing the threats to the area and changes in the governance structure. Section 5.6 presents the application of the governance assessment framework, analysing the governance context according to GAT. Finally, the conclusions are drawn in Section 5.7.

5.2 Defining the main concepts

5.2.1 Resilience

The meaning and the use of resilience is interpreted in different ways across disciplines (Holling, 1973; Carpenter et al., 2001; Folke, 2006; Béné et al., 2014). The exact definition of resilience remains a subject of discussion (De Bruijn et al., 2017). Our study defines it as: “the ability of ecosystems to absorb changes and still persist and adapt in the face of disruptions and maintain relationships within a system” (Holling, 1973; Adger, 2003, 1; Folke et al., 2010; Davoudi, 2012). This derives from understanding natural systems as being dynamic (Davidson et al., 2013) and incorporating positive adaptation within the context of human or natural threats (Folke et al., 2010). Next to absorptive and adaptive capacities of a system, transformability also is seen as an important characteristic of resilience thinking (Folke et al., 2010). It helps “to create a new system when ecological, economic, or social structures make the existing system untenable” (Walker et al., 2004: 5).

The resilience concept has been adopted and interpreted in policy contexts as well (De Bruijn et al., 2017). Moreover, resilience has been

viewed as complex system being context-dependent and as a process of learning lessons from governance failures (Chandler, 2014; Joseph, 2016). It also depends on the legal and regulatory environment that gives control over natural resources to its users (Bahadur et al., 2010: 10). In order to maintain or increase resilience, managers and policy makers must understand what qualities of a focal system (study area) enhance the system resilience (De Bruijn et al., 2017). However, for policy makers, it is often unclear how resilience thinking can be operationalised in practice (De Bruijn et al., 2017). This research offers a case study approach to operationalise resilience.

5.2.2 Defining governance

Governance is a broad term used with a variety of meanings. This paper defines governance as: “a combination of the relevant multiplicity of responsibilities and resources, instrumental strategies, goals, actor networks and scales that forms a context that to some degree restricts and to some degree enables actions and interactions” (Bressers et al., 2016: 6). The characteristics of governance, such as participation and collaboration of the multi-layered institutions and networks, are mentioned in literature on understanding of interlinkages of adaptive governance and increasing resilience (Gunderson and Light, 2006; Djalante et al., 2011; Fung, 2006); much of which calls for adaptive governance to achieve resilience (Folke et al., 2005; Huitema et al., 2009). Adaptive governance requires the capacity to learn to manage for resilience (Hennessey, 1994; Garmestani and Benson, 2013). Local knowledge of ecological and social conditions is often critical to managing resilience. Polycentric systems can allow this knowledge to shape governance, and facilitate decentralisation, or at least include local actors and knowledge, to be productive (Janssen et al., 2007; Ostrom, 2010; Garmestani and Benson, 2013). Polycentric systems are characterised by multiple governance units at multiple scales, with each unit having some capacity to govern at its scale (Ostrom, 2010; Garmestani and Benson, 2013). According to Andersson and Ostrom (2008), fostering good environmental governance is context-specific, and requires learning and adaptive capacity to manage for resilience (Hennessey, 1994; Garmestani and Benson, 2013).

5.3 Governance assessment framework

Various assessment frameworks in the literature analyze governance systems (Lockwood, 2009; Ostrom, 2009; Borrini-Feyerabend and Hill, 2015; Potts et al., 2016; Clement et al., 2016; Wyborn, 2015). However, no widely accepted framework identifies the requirements of an appropriate governance regime for protected areas or those aspects that need to be targeted for improvement (Lockwood, 2009; Eklund and Cabeza, 2016). Some frameworks are tailored to the requirements of environmental problems or needs (Clement et al., 2016), or are based on the principals of good governance (Lockwood, 2009). Others are related to the approach of institutional diagnosis or institutional fit (Young, 2008; Cox, 2012; Clement et al., 2016; Potts et al., 2016). However, these evaluative frameworks do not consider the degree of influence of the interactions between policies, programmes and relationships within governance systems as a whole and are considered rather vague (Potts et al., 2016; Cox, 2012).

Governance assessment framework used in this study consists of a contextual interaction theory (CIT) and governance assessment tool (GAT) as part of the theory (Bressers et al., 2016) (Fig. 9). The GAT derives from CIT which is rooted in implementation analysis (Bressers, 2004; Bressers et al., 2016). The framework used provides a synthesis of other available frameworks focusing on implementation processes. CIT has developed and been further elaborated in the 'instrumental theory' to enable comparison of instruments (Bressers et al., 2016), adding network analysis, multiple scale issues and other governance regime aspects as context.

CIT focuses on actors and their interaction processes and explains the dynamics of social interaction processes. It assumes multi-actor processes can be understood from characteristics of different stakeholders involved in the process, such as: motivations (which drive their actions), cognitions (information with which the situation is interpreted), and resources (providing capacity and power) (Bressers et al., 2016). These characteristics shape the process and are influenced by experiences that can change during the process. The three characteristics are intrinsic to the actors and influenced by the process. They are also influenced by many external factors from a multi-layered context that is partly case-specific.

These factors include the local geography (Kotzebue et al., 2010) and the history of previous decision-making and framing. This history affects the institutional arena and the extent to which actors participate and with what legal resources and expectations (De Boer and Bressers, 2011).

GAT elaborates a simple concept of policy with actors striving for goals with means and expands this to the governance context. It consists of a matrix of five governance dimensions and four quality criteria. The five dimensions are: levels & scales (assuming a general multi-level character for all scales, e.g. administrative, spatial, hydrological or political); actors & networks (assuming a multi-actor character of relevant network/s); problem perspectives & goal ambitions (assuming a multi-faceted character for problems and ambitions); strategies & instruments (assuming a multi-instrumental character for strategies of the actors involved); and, resources & responsibilities (assuming a complex multi-resource basis for implementation) (Bressers and Kuks, 2004).

These five dimensions can be used to describe systematically the contents of a governance context for certain issues in a particular area. The four quality criteria are: extent (enquiring if all relevant aspects of the governance dimensions are taken into account); coherence (whether elements of the governance dimensions strengthen, rather than contradict each other), flexibility (the degree to which the governance regime allows and facilitates multiple adaptive strategies to reach the goals); and, intensity (how much the elements of the governance context urge and support changes in current developments). This tool provides a systematic assessment of all relevant elements and qualities of the governance context. It helps understand the circumstances for the implementation of measures. The GAT enables the assessment of four core qualities of governance by applying them to the distinguished dimensions of governance. It also enables assessment of circumstances that are supportive, restrictive or neutral for the implementation of measures. GAT has been applied mostly in the field of water management (De Boer and Bressers, 2011; Casiano, 2017; Vinke de Kruijf et al., 2015). However, applying GAT to protected areas is new.

Figure 9 GAT within CIT as an assessment framework for the case
(based on Bressers and Lulofs, 2010)

The method reveals the hindrances in the quality of the governance context where improvements and policy interventions are needed to increase resilience. The assessment framework complements other governance assessment frameworks for implementation processes. It emphasises the mechanisms and results of a policy process that depend on actors' characteristics that help understand multi-level, multi-actor processes. This framework was chosen over others because it builds upon explicit relations between actor characteristics and degree of cooperation in the process and outcomes of the process, while taking into account the layers and specifics of the (institutional) governance context. It facilitates the assessment of changes in the institutional context (e.g. decentralisation) related to the specific context, the process and the outcomes (resilience). Furthermore, this framework facilitates in-depth case study research in a structured manner in a longitudinal perspective.

5.4 Methodology

The methodology uses a case study approach with in-depth exploration of complex issues in their actual setting. The research question is 'what' and 'process' oriented. It is exploratory, as well as explanatory, by nature in

terms of how and why multiple actors interact to provide insight concerning their behaviour in reaching the goals (Yin, 2003). It is “based on direct observations, documents and systematic interviewing”.

The focus and interactions around the research are in a real-life context surrounding a contemporary phenomenon (Yin, 2003). A case study approach enables operationalising resilience by identifying the current threats and identifying governance aspects that deliberate resilience (Davidson et al., 2013; López-Angarita et al., 2009). It can support understanding of the current state of resilience by identifying the components of resilience of the focal system. In Resilience Alliance assessment workbook (2010: 25) “understanding resilience of a system involves describing its current state with its historical and potential future states”. Key components that describe the current state might include, for example, the biophysical properties of the park and the social properties. Identifying the focal system (the case study area) and scale and main issues are essential to understand the current state of resilience (Resilience Alliance, 2010; Davidson et al., 2013; López-Angarita et al., 2009). The case study approach provides insight into the interactions and interdependencies between social and ecological systems threatened by climate change or human impacts (Davidson et al., 2013).

The unit of the analyses focuses on the transition process from an old to the new model of governance for the park and on stakeholder interactions around resilience issues. The local authorities expressed the need to improve environmental conditions to respond to the institutional changes in the governance of nature policy. The research addresses this need. Combined methods have been used for data collection. Conceptual data was obtained from the literature and reports and documents published by relevant organisations. The evaluative questions of the governance assessment tool (presented in Table 8) cover the governance dimensions and qualities and asked during in-depth interviews with representatives of the organisations. Stakeholders interviewed included: the local authorities (municipality of Steenwijkerland), the Research Group Marine Wetland Studies, and Natuurmonumenten (Society for preservation of nature monuments). Furthermore, an interactive workshop on the theme related to climate resilience measures and governance analyses of the Dutch

National Parks,²⁸ was organised with stakeholders to discuss and deepen data and analysis. The goal was to discuss issues and developments with various actors. The main questions asked were: What are the main challenges and threats observed in the area? To what extent is resilience embedded within practices and procedures of the management agendas?

A ranking of supportive (+), neutral (0) and restrictive (-) was used when assessing the governance context according to the qualities and dimensions of the GAT. These judgments were made through discussions between at least two of the observers to prevent the assessment overlooks important aspects (Bressers et al., 2013) and to check for the consistency. The analysis relied on the discussions between the interviewer and the interviewees, interview transcripts and notes. This paper investigates whether the governance assessment tool can contribute to the governance assessment process for enhancing the resilience of nature areas.

²⁸ The workshop was organised in the frame of the Summer School "Working on innovative solutions for our future challenges" by the University of Groningen/Campus Fryslân, 6–8 June 2016. The theme of the workshop was "Resilience and governance of natural landscapes: climate resilience measures and governance analyses of the Dutch National Parks".

Table 8 Evaluative questions of the governance assessment tool (Bressers et al., 2016)

Governance dimension	Quality of the governance context			
	Extent	Coherence	Flexibility	Intensity
Levels & scales	Are all relevant levels (EU, national, regional, local) involved in dealing with an issue? Are there any gaps or missing levels?	Do these levels work together, trust each other between levels? Is mutual dependence among levels recognised?	Is it possible to move up and down levels (up scaling and downscaling) given the issue at stake?	Is there a strong impact from a certain level towards behavioural change or management reform?
Actors & networks	Are all relevant stakeholders involved? Are any not involved or excluded?	Do the stakeholders work together? Do they trust and respect each other?	Is it possible that new actors are included or even shifts from one actor to another? Do the actors share and support each other's tasks?	Is there a strong pressure from an actor or actor coalition towards behavioural change or management reform?
Problem perspectives & goal ambitions	To what extent are the various problem perspectives taken into account?	To what extent the governance arrangements in place manage the clash of interests?	Are there opportunities to re-assess goals? Can multiple goals be optimized in package deals?	How different are the goal ambitions from the status quo or business as usual?
Strategies & instruments	What types of instruments are included in the policy strategy? Are there any excluded types? Are monitoring and enforcement included?	To what extent is the incentive system based on synergy? Are trade-offs between different objectives considered? Are there any overlaps or conflicts of incentives created by the included policy instruments?	Are there opportunities to combine or make use of different types of instruments? Is there a choice?	What is the implied behavioural deviation from current practice and how strongly do the instruments require and enforce this?
Responsibilities & resources	Are all responsibilities clearly	To what extent do the assigned responsibilities	To what extent is it possible to pool the	Is the amount of allocated resources

	assigned and facilitated with resources?	create competence struggles or cooperation within or across institutions? Are they considered legitimate by the main stakeholders?	assigned responsibilities and resources as long as accountability and transparency are not compromised?	sufficient to implement the measures needed for the intended change?
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5.5 The case study: The Weerribben-Wieden National Park

The Weerribben National Park was established in 1992 and is included in the Ramsar list of wetlands in 1980.²⁹ In 2009, the neighbouring nature reserve, the Wieden, was added. Together, they form the Weerribben-Wieden National Park (Fig. 11), which is a unique and the largest freshwater wetland in northwest Europe. It covers 10,500 ha, of which the Weerribben is 3500 ha and the Wieden is 7000 ha. The Weerribben is owned and managed by Staatsbosbeheer (Dutch Forest Service)³⁰ and the Wieden by Natuurmonumenten (Society for conservation of natural monuments).

²⁹ The Netherlands is rich in wetlands, out of the total area (41,864 km²) 16% is regarded as internationally important wetland and 7% of it is on the Ramsar list of wetlands (Wolff, 1993; Best et al., 1993; Bakecura, 2015).

³⁰ Staatsbosbeheer is commissioned by the Dutch government to strengthen the position of nature in the Netherlands. It is a leading national public body and land owner and manager of a sizeable amount of nature reserves to conserve and develop the Netherlands' green heritage.

Figure 11 Weerribben-Wieden National Park in a country map

Legend: 20 National Parks of the Netherlands - By JrPol - Own work, CC BY-SA 3.0,

<https://commons.wikimedia.org/wiki/File:NL-Nationaleparken.svg>

Weerribben-Wieden map- By OpenStreetMap contributors openstreetmap.org, CC BY-SA 2.0, <https://commons.wikimedia.org/w/index.php?curid=9965609>

5.5.1 Landscape formation and threats observed

Over many centuries, peat excavations have created a linear pattern of ridges where the peat was dried and open ditches were cut. These patterns remain and are a characteristic feature of the area (Fig. 12). Aquatic plants have gradually taken hold in the ditches and evolved into reedbeds, quaking bogs and marshy woodland (In the Wieden, in particular, the vegetation succession from open water to reedlands to wetlands, hay-land and bog woodland can be experienced). The result is a varied landscape rich in flora and fauna. However, in the second half of the last century, this ecosystem was threatened, mainly as a result of intensive farming. The water table in the surrounding polders was lowered. This resulted in the low-lying bog areas drying up, while the reed beds became acidified and, in many places, nitrate rich water drained from the polder into the peat ditches. This accelerated the natural process changing rich low-lying bog biotopes into marshy woodland with poor biodiversity (Natuur en Milieu, 2017).

Figure 12 Weerribben-Wieden: Ditches in reed beds during peat cutting in earlier years.

Source: By Dominicus Johannes Bergsma - Own work, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=37556461>

Nowadays, environmental pressures include insufficient water quality and high phosphate content (due to intensive farming), even though phosphate levels have reduced through some measures. However, in isolated waters total phosphate levels are still high. Nitrogen deposition is also a problem, and this accelerates succession, making peat moss reedlands transition faster to forest or to species-poor trunk communities. Consequently, environmental quality is an issue that has resulted, for example, in disturbance to some bird species (black tern) that breeds in the park. During the breeding season (especially in chick phase), disturbance caused by recreation or agricultural activities can be disastrous. The surface

of natural breeding biotope is decreasing due to succession. The intensification of agriculture also leads to a loss of foraging area. Thus, recovery of the water quality is of great importance (Natuur en Milieu, 2017).

The park is rich in biodiversity and provides a wide range of ecosystem services³¹ (van der Heide et al., 2016). A conflict of interests exists between different stakeholders due to the demand for those services with differing opinions as to how to best manage the area. Although the Weerribben-Wieden is protected area, it is easily accessible for recreation by water or by road (Fig.13). The major conflicts lie between conservation and recreation/tourism activities. These activities most affect biodiversity (Bakecura, 2015). These issues make the context of the Weerribben-Wieden management challenging.

Figure 13 National park Weerribben-Wieden, location De Wieden popular for recreation.

Source: By Dominicus Johannes Bergsma - Own work, CC BY-SA 3.0 nl, <https://commons.wikimedia.org/w/index.php?curid=33258339>

³¹ For example, the area produces reeds, peat and fish; it captures carbon and provides protection against flooding; it purifies water and offers opportunities for both daytime and longer-term recreation (both on the water and on land) and it offers a wealth of natural beauty and heritage landscapes (van der Heide et al., 2016).

5.5.2 Transition of governance from an old to a new style as an effect of nature policy changes

After the Dutch government transferred its tasks for nature conservation to the provinces, a Consultative Body (Overlegorgaan) was created to govern the Weerribben-Wieden involving different actors from many levels (from the province, municipalities, the owners and managers in the region, reed cutters and recreation entrepreneurs). The management and development plan was drafted in cooperation with the local population, with regular quarterly meetings. From January 2015, Overlegorgaan ceased functioning, and the organisation of the national park changed. The Province of Overijssel transferred the responsibility for the park to the municipality of Steenwijkerland, reflecting a second phase of decentralisation. The province was still responsible to a lesser extent, but delegated tasks to the municipality level. The municipality took an initiative, together with other parties in the region, to offer a new development perspective. At the time of writing, the Weerribben-Wieden was transitioning to the new independent organisational structure with a core group to take responsibility, consisting of:

- Local Government: Municipality Steenwijkerland
- The land management organizations: Nature Monuments (Natuurmonumenten) and Forestry Commission (Staatsbosbeheer)
- Entrepreneurs Platform Steenwijkerland (Ondernemersplatform Steenwijkerland)
- Entrepreneurs: KOPTOP (the association of recreation entrepreneurs in the WaterReijk Weerribben-Wieden region.),
- Royal Catering Netherlands (Koninklijke Horeca Nederland afdeling Steenwijkerland),
- LTO- farmers organization
- Inhabitants: Local Interest from Wieden and from the Weerribben

The core group, under the direction of municipality, is expected to present a draft proposal of a new independent organisational structure to the Board of Mayor and Aldermen (Het College van Burgemeester en Wethouders, B&W) and to the City Council (Gemeente Steenwijkerland, 2015). While this

implies that the new governance situation is still in transition, the contours of the new model are sufficiently clear to assess the support or restriction they give to implementing resilience-oriented measures.

5.6 Application of the governance assessment framework to the case

5.6.1 Results of the governance context analysis

The governance context for resilience measures and aspects in a transition phase is analysed according to the governance assessment tool's five dimensions that take account of the four qualities of extent, coherence, flexibility and intensity. The information comes from interviews, an interactive workshop with stakeholders, and relevant documents and reports (Gemeente Steenwijkerland, 2015; van der Heide et al., 2016; Natuur en Milieu, 2017; Eindadvies Kernteam NPWW, 2017). Two stages of the analyses were performed: first, the interview data were collected according to the five governance dimensions to identify the issues and describe the context; then, the acquired data were analysed according to the four evaluative criteria to assess the quality and ability of the governance context to deal with the concerned issues. The GAT questions were used as a checklist to ensure that all issues were covered during the interviews or meetings. Each of the twenty cells of the GAT matrix was assessed by a brief statement and given a judgment of 'supportive', 'neutral' or 'restrictive' in discussions between observers. The statements are visualised in Table 18 with colours and scores.

5.6.2 Discussion on the results analysis

5.6.2.1 Extent

The degree of *extent* was observed as being verging towards *restrictive*, due to the absence of national and regional levels. After the decentralisation in most Dutch national parks, the national level roles were transferred to the provincial level. However, in this case, since 2014, the provincial level also withdrew itself from nature tasks and its role taken over by the municipality level. This new perspective was a challenge for Weerribben-Wieden. The ecological scale of nature is bigger than the park itself. The boundary is an

influence zone of a strict nature conservation area, tourism and social economic dimensions. The *actors* and *networks* are mostly local authorities, tourism organisations, horeca, entrepreneurs, farmers, community and nature protection organisations. The missing actors are the water board and the Province of Overijssel. The Province observes from a distance unless good opportunities arise to contribute to provincial goals when it is then willing to step in. The water board involvement is passive, which is unfavourable as some water-related issues fall under their jurisdiction. There is a wide range of *problem perspectives and goals* from various actors, but a relevant perspective towards (system) resilience is missing. *Strategies and instruments* towards promoting resilience are also vague. For instance, no proper zoning system exists to prevent visitors accessing certain places. This leads to damage in essential sub-systems. For example, *“strategies and instruments promoting electric boating in the area are lacking. Although local government decides which boats are allowed, and bans the use of motor boats, but due to lack of political support the use is not fully banned* (Municipal authority respondent).” Responsibilities and resources are also restrictive to realise resilience goals. Responsibilities for implementing resilience measures are assigned, but with no clear allocation and/or insufficient resources for implementation. Responsibility for changing the governance context is mainly allocated to a local municipality Steenwijkerland, which leads the core group in developing the new brand development. The new transition process is part-funded by the province, but with no responsibility for resilience goals; although some resources are provided by local authority and by private funds. Responsibilities for conservation are assigned to nature organisations (Staatsbosbeheer and Natuurmonumenten), but with insufficient resources due to budget cuts. Insufficient resources have led nature organisations to combine their functions with other sectors, such as recreation, agriculture and water management. Less funding from government and the new structure means that people who profit from the area can and ought to take a responsibility for its protection and development. However, this is complicated and is met with resistance. Regional stakeholders are hesitant to give interviews or attend organised meetings.

5.6.2.2 Coherence

The degree of coherence is assessed as *restrictive*; decentralisation of tasks to the municipal level with the transition to the new governance model has weakened coherence of *levels and scales*. The ecological corridors connecting areas of special value through National Ecological Networks are no longer actively strived for. In spite of collaboration in a core group on a new governance perspective, the decision-making is still dependant on higher levels outside the core group. Although the interactions within a core group are on a regular basis, the interests of actors do not support each other. The core group facilitates interactions between actors, with a leading role of the local municipality. Outside the core group, the interactions are weaker. There is also incoherence of various perspectives and interests for the dimension of problem perceptions and goals. It was said *“The core group's intention is to organise a situation where, for example, farmers do not oppose but on the contrary admit that there is a strong interaction between the farmer's land and strict national park, as traditionally farming community and nature conservation always oppose each other. But in a new situation the goal is to find a common ground where both farmers and nature benefit from each other (e.g. farmers can benefit from visitors and recreation, selling the local produce, and making the area attractive for visitors) (Municipal authority respondent).”*

There is a conflict of interests between the ecological resilience of the national park and the businesses in and around the park as well. This makes realization and achievement of planned goals challenging. The decreasing quality of natural conditions is not regarded as an urgent problem by some actors. Coherence of strategies and instruments is also restrictive; mainly when it concerns the instruments related to the ecosystem service, such as recreation. Sound recreation is an important strategy for resilience in terms of zoning strategies and informed visitors. However, various actors involved in the management have no coherent strategies and instruments to promote for visitors. *“Visitors are insufficiently informed about the places they visit. There is no code of conduct and no markers that indicate that one is in the national park area”. “Although the region attracts plenty of visitors, there is insufficient cooperation between the various tourism sectors. The villages in the area have different attitude to the Weerribben-Wieden.*

Multitude of names, different themes and logos are presented depending on the interests of actors (Municipal authority respondent/member of a core group)." This, points to more competition and conflicts rather than cooperation among stakeholders. This influences coherence negatively. This also shows a lack of incentives for actors towards resilience goals for the park.

Cooperation of assigned responsibilities for conservation and development of the area is weak, which makes coherence of responsibilities and resources to be rather restrictive. Businesses and users who profit mostly from the area are not really willing to take responsibility for the management of the area on which their main activities rely, especially when it concerns the contributions expected from them. The threat of the decline of the natural conditions in the area is not seen as an urgent problem as well. Although, stakeholders in business, recreation and other sectors are well aware of the economic importance of the Weerribben-Wieden, they fear being presented with the bill. It would help if entrepreneurs could contribute to the management of the area, if not in financial terms, at least in promotional terms, but they lack incentives and motivation for this.

5.6.2.3 Flexibility

The degree of flexibility was observed as *neutral*. In *levels and scales*, it is challenging given the missing higher national and regional levels. Downscaling tasks to the municipal level and the transition process provides some room for flexibility. In *actors and networks* dimension, flexibility was observed to be supportive as new actors can be involved through the project groups established on specific issues to be addressed. These groups relate to marketing and promotion, new brand development, and boundary groups. The position of the Municipality of Steenwijkerland is more prominent. They act as a mediator as well being a leading actor. It takes much discussion to persuade other actors about a need of a new brand organisation as they want to know what benefits, they can obtain. Actors with more interest in certain issues can take a lead in an issue. For example, not to allow the introduction of activities that do not fit well with the area.

In terms of *problems and goals*, there are opportunities to reassess goals in the transition process, but not yet to optimise multiple goals in one

package deal due to a lack of a common goal. For example, “*introduction of the water jet ski business by an entrepreneur on one of the lakes in the park was not reconsidered by local actors (and declined) as this type of recreational activity was unfavourable for the area and was not fitting in a common image for the park* (Municipal authority respondent).”

There is an opportunity for *strategies and instruments* to combine different types of instruments, but in the transition process it is unclear. The actors in the core group are quite flexible with regard to the instruments; the strategic plan is in the development process. *Responsibilities and resources* were observed as neutral. Flexibility to pool the assigned resources was thought to depend on the type of new organisation. The discussion was to organise a cooperative or foundation. A cooperative was not favoured as it would tend to have too many members with no clear direction or aim. Thus, a foundation was considered more favourable.

5.6.2.4 Intensity

The degree of intensity was observed as *restrictive*. By withdrawing, the province had removed its contribution to the intensity of governance towards resilience goals. Also, under Nature 2000, and having important wetland area status, additional pressure comes from EU regulations and the Ramsar convention to maintain the quality of the area. The practical responsibilities for these regulations shifted to the province, but the Province of Overijssel withdrew itself from that. Moreover, budget cuts left authorities to question the feasibility of the implementation of the National Ecological Networks, which is currently implemented on a voluntary basis.

In *actors and networks*, the withdrawal of provincial level makes the actors intensity quite low; municipality has limited means for such a big national park management. Pressure from an actor coalition towards resilience, (which is represented by a core group) is weak due to withdrawal of provincial support.

Regarding *problems and goals*, intensity towards resilience goal is restrictive. The new core group has not yet developed strong ambitious goals towards increasing resilience of the park. As for *strategies and instruments*, the intensity to change from current practices also verges towards restrictive. The national park is the main attraction of the area but

is not perceived that way and is not promoted as a resilient area. There is hardly any information in the village itself about the park and village entrepreneurs are not promoting the national park, seemingly, in order not to have to share the customers and visitors with the national park.

The *responsibilities and resources* dimension was observed as restrictive as well. Although some resources were made available for the transition period, what happens after this is not clear as was pointed out “*The national programme expires in early 2018 and the financial commitment of central government is gone afterwards. And the mentioned funding is by far not enough to implement substantial measures in 2018 onwards* (Municipal authority respondent).” Even though national government is no longer involved, an agreement with IUCN from the 1990s remains in force that makes national government still responsible. However, with no financial terms, this depends on resources from EU-level programmes.

The observations visualised in Table 18 revealed several concerns for governance in all qualities of the regime, and where improvements can be made.

It was observed that the degree of *extent* verges towards restrictive. Mostly local levels are involved. So, with various actors directly concerned with the park, this gives potential to strengthen this quality. Actors, such as Staatsbosbeheer (Forestry Commission), endeavour to maintain effective relationships with provincial authorities, members of the public, the business community and other organisations involved in managing conservation areas. *Coherence* is also restrictive as various perspectives and interests of stakeholders do not support each other. Only *flexibility* was regarded as being neutral but is still challenged given the missing higher levels. However, the transition process provides some room for new actors to be included through the project groups, to reassess goals and to allow actors concerned with certain issues to take a lead. *Intensity* to change is restrictive in all dimensions, with lack of pressure from actors towards resilience goals. Moreover, responsibilities are not supported with enough resources, and the allocation of resources to implement measures needed for intended change is not clear after the transition period.

Table 18 Visualization of the governance context analysis

Dimensions	Quality criteria			
	Extent	Coherence	Flexibility	Intensity
Levels & scales	(-) restrictive; <i>lack of multi-level involvement</i>	(-) restrictive; <i>interactions are limited to the local level</i>	(0) neutral; <i>challenged due to the missing higher levels</i>	(-) restrictive; <i>lack of pressure in support of resilience goals</i>
Actors & networks	(0) neutral; <i>with majority of local actors.</i>	(0) neutral; <i>actors work together but their interests do not support each other.</i>	(+) supportive; <i>new actors can be included</i>	(-) restrictive; <i>with a weak pressure from actors</i>
Problems & goals	(0) neutral; <i>wide range of perspectives but with missing the relevant to resilience one.</i>	(-) restrictive; <i>various perspectives of actors are in conflict.</i>	(0) neutral; <i>lack of common goal for the area</i>	(-) restrictive; <i>goal ambitions are different from resilience goals</i>
Strategies & instruments	(-) restrictive; <i>lack of instruments and vague strategies</i>	(-) restrictive; <i>no coherent strategies and instruments to promote the park</i>	(0) neutral; <i>opportunities not yet identified</i>	(-) restrictive; <i>no common strategy for resilience to deviate from current practices.</i>
Responsibilities & resources	(-) restrictive; <i>no clear allocations of resources</i>	(-) restrictive; <i>lack of motivation from businesses to take responsibility for the area</i>	(0) neutral, <i>depending on a new type of organization so far</i>	(-) restrictive; <i>allocation of funds is not clear after transition</i>
	(+) Green-supportive; (0) Yellow-neutral; (-) Red-restrictive			

5.7 Discussion and conclusions

This article focused on a governance assessment of the Weerribben-Wieden national park facing a challenge related to institutional changes in the governance of nature policy. The purpose was to reveal supporting and/or hindering governance factors to support the resilience of the area in a transition process towards a new governance model. The research question (*To what extent governance factors support or hamper implementation of measures to foster resilience of the park?*) intended to identify which aspects support or hamper the governance context to foster resilience in the area. It was found that the institutional changes do restrict resilience of the area with respect to qualities such as extent, coherence and intensity. Only with

regard to flexibility does the new situation offer advantages. The quality of the governance context can be described as moderately flexible with restrictive intensity towards resilience goals. Incoherence of problems and goals among the stakeholders influences resilience negatively and challenges reaching a resilience goal. Although stakeholders agree that park governance has to change, there is a diminished sense of responsibility to maintain the park's resources. The case study focused also on ecosystem services, such as recreation. The biggest hindrance to the utilisation of this service was competition, rather than cooperation, among actors. In particular, there was insufficient cooperation between the various tourism sectors.

With regards to decentralisation of nature policy and resilience of the natural park, the main insight of the study was that a change in the institutional context has significant influence on governance for resilience. We learnt that for governance to manage resilience, not only are legal frameworks and institutions essential, but also collaboration and cooperation across different levels of government and actors (Cosens, 2010; Garmestani and Benson, 2013). Of course, in principle, decentralisation of the governance of national park offers advantages. Decentralisation to the province was based on a belief of a market-oriented approach and the uptake of individual responsibility and involvement. We cannot conclude whether that might work at the provincial level. The research of this case only communicates that further decentralisation to the municipality is not delivering the expected individual responsibility and involvement. On the other hand, decentralised actors and policies might also improve taking local circumstances and variations into account. But this also did not happen. This leads us to our core observation: decentralisation without balanced problem perspectives and goal ambitions, without an integral approach towards the park's resilience (embraced by local politics and local stakeholders), and without capacities for developing adequate strategies and instruments, most likely will lead to a lengthy transition process with uncertain outcomes.

Regarding the future governance of the transition process at local level, we have the following observation: the current governance of the

Weerribben-Wieden is on a lower (local) level, with the municipality taking responsibility as opposed to former provincial level of administration. Since the cancellation of the former governing body (Overlegorgaan), the emergence of the new core group has evolved a new perspective and new developments for the area. In this new perspective, the quality of the natural resources is linked to factors that go well beyond the strict boundaries of the national park, although the park remains the main attraction of the area. However, the national park is not perceived as such and is not represented as a main attraction by local entrepreneurs, but rather as an activity to be undertaken after visiting a popular village Giethoorn (Fig. 14) within the Weerribben-Wieden.

The potential strength of the new governance arrangement is that it has included various stakeholders (on a lower level) who are directly concerned with the park but have fewer concerns about the resilience of the park. This can be improved after the transition process by focusing on resilience goals as a common future strategy for the management. This can overcome existing conflicts for a resilient future of the park. Moreover, the situation can be improved by better cooperation with stakeholders on higher levels and by obtaining adequate funding for the area.

Figure 14 Popular village Giethoorn within the Weerribben-Wieden.

Source: By Gouwenaar - Own work, Public Domain,
<https://commons.wikimedia.org/w/index.php?curid=10381272>

The research contributes to the understanding of protected area resilience from a governance perspective. This focus on governance and resilience matches the need identified both by academia and practitioners, including IUCN (Borrini-Feyerabend et al., 2013). It also matches a well-identified need for published case studies of resilience operationalisation in practice (Davidson et al., 2013). The study enriches the limited scholarly literature on the governance for resilience in protected areas by using a governance assessment framework for analysis of the governance context of the national park. The relevance of this assessment framework is that it enables us to understand the key characteristics of the stakeholders involved in the governance processes and the dynamics of the processes over time. The results could be beneficial for policy makers and practitioners, and also researchers for governance analysis, policy planning, and implementation. The research is useful for other protected areas by providing a practical example of the operationalisation of resilience and the

governance assessment of a national park. This improves the understanding of the relationship between the governance context, governance processes and ecosystem resilience.

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CHAPTER 6:

Comparative analysis of the governance systems of protected areas

This chapter compares the five cases studied in this research. Three are presented in the previous chapters³² and the last two are stemming from an international research project DROP (Benefits of Governance in Drought Adaptation) in which the main author participated. To avoid repetition with other chapters, sections, such as review of the theoretical concepts on governance and resilience and the assessment framework for the cases including CIT and GAT, are not included in this chapter, but are referred to some extent. However, some details of the cases, such as background and methodology are still mentioned briefly where necessary for the sake of the clarity of the analysis.

6.1 Introduction

Trends in biodiversity policies recognize the key role of the governance context for ecosystem management and link ecological resilience to governance processes (Carpenter and Folke 2006). In the literature on ecosystem management of protected areas, governance is an evolving concept that addresses a broad range of issues, such as policies, decision-making and planning, land and resource use, and other relevant aspects. Governance is assumed to be able to influence the achievement of protected area objectives (Borrini-Feyerabend, Johnston, and Pansky, 2006; Eagles et al., 2012). The governance context assessment uses the governance assessment tool to understand the influencing factors and process helping to achieve resilience goals. Governance in this research is defined as a “combination of the relevant multiplicity of responsibilities and resources, instrumental strategies, goals, actor-networks and scales that forms a context that to some degree restricts and to some degree enables actions and interactions” (Bressers et al. 2016: 6).

Protected areas have often been regarded “as ‘islands’ of conservation in a ‘sea’ of development” (Borrini-Feyerabend and Hill 2015: 194). Recent

³² Alde Feanen, Drents-Friese Wold and Weerribben-Wieden national parks

trends in protected area governance embrace inclusive governance models and multi-level stakeholder involvement (Lockwood, 2009). A historical perspective and the overall social, political and cultural context of a protected area need to be taken into account for governance to be effective (Borrini-Feyerabend, Johnston, and Pansky, 2006).

In most scholarly literature on resilience, authors often include the social and governance factors as part of resilience, rather than factors influencing resilience. In this research, governance is perceived as a significant separate aspect affecting resilience in order to enable the study to assess the impacts of governance qualities on resilience.

The concept of resilience was introduced by Holling (1973) as “a measure of the ability of ecosystems to persist in the face of disturbances and maintain relationships within a system” and the “ability of these systems to absorb changes and still persist” and adapt (Adger 2003: 1; Davoudi 2012: 300; Bahadur, Ibrahim, and Tanner 2010: 7; Folke et al. 2010). Adaptive capacity reflects the learning aspect of system behaviour in response to disturbances (Gunderson, 2000).

A comparative analysis of the governance systems of each area is conducted to understand the adaptive capacity of these systems in response to outside changes or disturbances. Therefore, the focus is on the governance context in relation to resilience measures in water and nature management. The purpose of this comparative study is to understand and explain how aspects within the governance context influence the success of policy initiatives or how the measures help achieve resilience goals for the five case studies. The main question addressed is:

What are the key characteristics of the governance context that influence the resilience of selected natural areas?

To help elaborate on this main question, the following sub-question is formulated as: *What creates a process in which: all relevant aspects are taken into account, all perspectives and interests are balanced, hindrances are navigated, and urgency to take action and improve is taken into account?*

The aspects and the impacts of governance on resilience and what remedies look like are all discussed later. Appropriate governance of protected areas implies a continuous process in which: (1) institutional

arrangements for developing measures and taking decisions are realized in an integral manner, taking relevant aspects into account; (2) programs and measures are prepared and decided upon in a balanced way, taking short- and long-term perspectives and interests into account; (3) actors are capable to navigate hindrances that obviously will occur in such an ambitious approach, both in planning and implementation; and (4) there is an urgency to move forward and take decisions to improve sustainability and resilience of the protected area. These aspects are argued further in the chapter.

6.2 Methodology

The hierarchic method is used as the methodology for comparison. This is carried out in two stages. In the first stage, the separate cases are examined and studied independently from each other. The results from the first stage can be used as an input for comparative analysis in the second stage (Verschuren and Doorewaard, 2010). Two or more cases are included in a comparative study, in order to produce more generalizable knowledge about how and why particular policies work or fail. Comparative case studies qualify as a research design option when an understanding of the context is seen as being important to understand the success or failure of an intervention or policy (Goodrick, 2014).

Often, a theoretical framework is applied to help understand the context that includes a series of relevant factors. Being explicit on this is important, it defines a rationale for the selection of cases and gives guidance on how the case study process can best be conducted (e.g. using leading questions per case to give more depth to the analysis in the comparison) and to identify how cases are analysed and synthesised (Goodrick, 2014). Comparative case studies involve analysis of similarities and differences between the cases that share a common focus or goal. An understanding of each case is essential to establish the foundation for applying the assessment framework that is used in the cross-case comparison (Goodrick, 2014).

Contextual Interaction Theory and its related Governance Assessment Tool are used as a framework (as described in Section 2.8). The unit of the analysis is the context formed by governance dimensions and

qualities of each case study. In total five case studies were conducted. A paper was produced for each case³³ with three forming *chapters 3, 4 and 5*. These papers elaborate *the effectiveness of the governance processes towards resilience in each area, together with the decision-making processes and the context for these processes*. These were compared to assess the influencing factors in the governance contexts.

Data collection methods used fieldwork visits, observations, interviews and document analysis (as described in Chapter 1). For primary data, interviews were conducted with relevant stakeholders per case study, and for some cases, workshops were organized as well. For secondary data, secondary sources were used, including academic literature, relevant reports and documents. The evaluative GAT questions (Table 8 in Section 2.8) were used to guide individual interviewees, as well as workshop participants. The main questions asked during the workshop sought to identify the main challenges and threats observed in the area, and to what extent resilience was embedded within the practices and procedures of the management agendas. The analysis relied on open discussions between the interviewees and the interviewer. The ranking of ‘supportive’, ‘neutral and ‘restrictive or hindering’ (as scores) was used when the governance contexts were assessed according to the qualities and dimensions of the GAT. These judgments were made through discussions between at least two persons of the research team to ensure that the assessment did not overlook any important aspects and to check for consistency in the analysis.

6.2.1 Rationale for case selection and resilience characteristics

The rationale for choosing the cases was based on various criteria, such as significance of each area for its region, its location, their characteristics and their governance in relation to water and nature management. The comparative focus started with the province of Friesland that sponsored the study as one case sits entirely in that province. The second is a case that crosses boundaries with a neighbouring province. The third is in another

³³ Lordkipanidze, Bressers and Lulofs (2018); Lordkipanidze, de Boer and Bressers (2015); Lordkipanidze, Lulofs and Bressers (2018); Bressers et al. (2016); Browne et al. (2016)

neighbouring province. Meanwhile, the fourth is in that same province, but without the status of national park (it is just a national landscape). The last case has a similar status, but sits in another EU country, the UK. This sequence allows a comparison that follows step-by-step changes in the governance systems.

The first case study area, Alde Feanen National Park (Figure 1 in Section 1.5.2) is located in the Province of Friesland where the whole research project was based and by whom the project was funded. The area was selected in response to an expressed need from the regional authorities for improvement of the declining environmental quality due to identified threats.

The second case study area, Drents-Friese Wold National Park (Figure 2 in Section 1.5.2), was chosen, as it is a cross border park, located partly in the province of Friesland and partly in the neighbouring province of Drenthe. These two areas share a regional authority which is Province of Friesland, but the second also has to reckon with the other provincial authority.

The third case, the Weerribben-Wieden National Park (Figure 3 in Section 1.5.2), is in the neighbouring Province of Overijssel (a pure wetland landscape similar to the first case). In this case, the province had delegated most of its authorities even further to municipality level.

The fourth case, Northeast of Twente region (Figure 4 in Section 1.5.2) is also within the authority of the province of Overijssel but has no official park status where the role of the province is different, and the regional water board takes the lead in the governance processes.

In the fifth case, Somerset County Levels and Moors (Figure 5 in Section 1.5.2) in the UK, this area has no decentralized nature protection. It has a different institutional setup and a quite different division of responsibilities compared to the cases in the Netherlands. However, the same EU directives apply that are important in all cases.

6.2.2 Characteristics of the cases

Characteristics of the selected areas, such as their status, type of landscape, biodiversity threats, governing authority and type of measures implemented per case are presented in Table 1 of Section 1.5.1. The areas

have varied landscapes that comprise of agricultural land and/or protected nature areas affected by climate change and/or man-made conditions. Two of the three national parks chosen, have more or less similar types of landscapes, i.e. fresh water wetlands (Alde Feanen and Weerribben-Wieden), and one has land characteristics consisting of forests and heath lands deeply drained in the past (Drents-Friese Wold). The Northeast of Twente region is also a dry area vulnerable to water scarcity and droughts, but also includes some important wetlands, while the Somerset County landscape is regarded as a wetland environment sensitive to floods and droughts; part of which is recognized as a Special Protected Area. The case studies shed light on how the governance contexts influence the feasibility of measures to enhance resilience in those areas.

6.2.3 Resilience in the selected areas

The state of resilience state was observed in all areas. In *Alde Feanen*, resilience has been threatened by the challenging context and different contributing factors (such as on-going acidification causing the decline of fen meadows and the disappearance of peat bog reeds. This threatens the diversity of animals and plants as they do not renew themselves). Also, some human interventions, such as a waterway for commercial purposes and recreational boats in summer time, have potentially deteriorated the water quality and the natural values of the park.

The resilience of the *Drents-Friese Wold* National Park has been affected by several land use changes from nature land to farmland and vice versa. Previously, the area was made considerably dryer by the application of deep drainage. Dutch land-use changes over time have shown forests disappearing in favour of fields and heathlands. Only some small fragmented area of forests has remained and, only recently, have some areas been reforested and deeply drained forests returned into wetter forests. Agricultural activities in the Drents-Friese Wold area have led to serious problems with regard to droughts and soil eutrophication.

The *Weerribben-Wieden* National Park's ecosystem has been threatened mainly as a result of intensive farming. The water table in the

surrounding polders was lowered, thus drying up low-laying bog³⁴. This considerably accelerated the natural process whereby rich low-laying bog biotopes changed into marshy woodland with poor biodiversity. Nowadays, threats to resilience are observed in terms of insufficient water quality and, in particular, the high phosphate content (due to intensive farming), though the phosphate levels are already reduced in the past through some measures. The poor quality of environmental conditions in Weerribben-Wieden is still among the current issues; because of that, for example, disturbance of some bird species (black tern) that breed in the park is observed.

Resilience in the ***Northeast of Twente*** region has been threatened by droughts³⁵ and water scarcity problems that have affected both nature and agriculture. The majority of the small creeks run dry in summer and this tends to increase with climate change and if no measures are applied. Flora and fauna in the creeks die, and surrounding nature suffers. This has caused complaints from nature organizations and farmers. These problems are caused partly by earlier measures undertaken by the water board itself, fighting water problems in wet periods by ‘improving’ the drainage capacity of the water system. The challenge is to create neither too much, nor too little water, but more resilience towards both ends.

Somerset County is one of the UK’s most significant peat wetland natural environments that emerged by the co-existence of agriculture and water/environmental management (Browne, et al., 2016; Natural England, 2013). The area is sensitive to serious floods³⁶ and droughts. Resilience in the area is threatened by shifts between extreme events within one year, e.g. shift from drought to flood events, such as the great winter floods of 2013-2014.

³⁴ The reed beds became acidified and in many places nitrate rich water drained from the polder came into contact with peat ditches.

³⁵ Extraordinary dry years were for instance 2003, 2006, 2009, 2010 and 2013; but already before in the period from 1994-1996 an irrigation ban had to be announced.

³⁶ A series of three floods occurred between April 2012 and March 2014 – with the flooding event of December 2013 to March 2014 being particularly devastating (Browne, et al., 2016; Natural England, 2013)

6.3 Comparing the governance contexts of the case studies

The governance assessment of each case has been conducted using GAT. Table 19 compares the governance contexts of the selected cases categorized according to the four qualities and taking into consideration the five governance dimensions of the GAT. The main influencing factors are mentioned per quality for each case.

Table 19 Comparison of the governance contexts according to the qualities of the GAT

Case	Extent	Coherence	Flexibility	Intensity
Alde Feanen NP	Medium - Responsibilities are not in line with the extent of the problem perceptions of different actors which prevents to pool those responsibilities and resources.	Low - big clash of interests among actors and fragmentation of the responsibilities & resources	Low - lack of combined instruments to environmental conditions and towards resilience.	Low - economic interest overweighs the ecological factors, making no pressure from actors towards resilience outcomes.
Drents-Friese Wold NP	High - though business sector is excluded	Medium - need to prioritize benefits of ecosystem services	Medium - room to engage new actors and reassess the goals	Low - but with the potential to increase with needed resources
Weerrib-Wieden NP	Low - mostly local levels involved	Low - various perspectives and interests of actors do not support each other	Medium - but still challenged due to the missing higher levels. Transition process provides some room to include new actors and reassess goals	Low - with lack of pressure from actors towards resilience goals

Case	Extent	Coherence	Flexibility	Intensity
North-East Twente	High - but withdrawal of the national level from relevant policies impacts the quality; Province remained active but just as a partner	Medium - fragmentation-coherence paradox. Actors coherence compensates fragmentation of 'responsibilities & resources' and also other dimensions	High - with fair degree of adaptive capacity, but with restriction to voluntary approaches for preventive measures	Medium - with slow integration of the draught resilience awareness, and with only external pressure (EU) to make water system more resilient.
Somerset county	High – with stakeholders' strong and positive involvement in the drought management	Medium – positive across different levels and actors but is limited in strategies and instruments and lacks about the future of the region	Medium – increasing in terms of implementing adaptation plans but limited with regard to responsibilities and resources	Medium - funds and resources do not always reflect the intensity of responsibilities identified

The assessment shows that governance qualities of '*extent*' and '*flexibility*' have restrictive, neutral and supportive scores, while the qualities of '*coherence*' and '*intensity*' have only low and medium scores. The colour red does not imply that actors perform negatively towards improving the resilience of the park; rather, it implies that the mixture of elements of governance in practice hinders actors to choose actions that safeguard or improve resilience of the park or makes it more difficult to realize them. The colour yellow implies that that element is 'neutral' in supporting or restricting such actions. Green indicates supportiveness; sometimes even a good use of such supporting elements can compensate for the hindrances from other aspects of the governance context and to influence the institutional regime for the better.

6.3.1 Alde Feanen

The main issue analysed in this case concerned human interventions that affected the ecosystem resilience of the park. A relatively large waterway crosses the park, and a controversial decision to be made is whether to

widen the waterway to facilitate large transport vessels, or to close the park for those vessels altogether. The overall picture from the analyses shows a governance context not being supportive enough and displaying more concerns, rather than positive qualities. In regard to the *extent* and *coherence* qualities, the majority of actors are well-connected in dealing with issues with a fair degree of collaboration in their interactions; although the analysis also revealed low qualities for specific issues. The qualities of *flexibility* and *intensity* revealed to be of low quality as well, despite the motivation of the involved actors to collaborate and seek consensus in decision-making. Institutional complexity was revealed as a hindrance in an effort to increase the resilience of the area. Institutional complexity is considered a norm for protected area governance (Clement, Moore, and Lockwood, 2016). However, in this particular case, this aspect was revealed as a hindrance to the governance context of the park. Specifically, the wide extent of stakeholder involvement in the governance makes this context too complex when dealing with issues of high rivalry and contributes to the complicated and lengthy decision-making process. Moreover, institutional inertia - meaning that there are certain traditional practices that shape how problems are dealt with - is another factor that, combined with institutional complexity, weakens *flexibility* and does not provide enough *intensity* to change the current situation and behaviour in support of more resilient outcomes. Also, too many actors can easily lead to inertia and, thus, to low *flexibility* and low *intensity*.

Some themes emerged from the analysis of the governance context and processes. *The question is whether it is a multi-institutional network organization or a type of hierarchical authority that is guiding the process in this case.* First, despite a network based multi-level form of organisation of the governing body (overlegorgaan), hierarchy is still noticed in the decision-making, with the province being a main decision-maker and, sometimes, not being in accordance with other actors. Another issue is that resilience concerns are not fully considered, as only higher EU and global regulations are observed to be the drivers towards resilience, but no other levels push for change in that direction. Economic interests outweigh the resilience factors, and this created no pressure from the main actors

towards resilience. Formal involvement of farmers is also identified as a concern. Farmers are landowners and important actors and, especially if the area is to be extended (one of the alternatives that is discussed), their interests need to be taken into account.

6.3.2 Drents-Friese Wold

The main issue analysed here is related to the restoration of degraded agricultural land, the Oude Willem area, within the *Drents-Friese Wold* National Park. This is one of the primary measures to manage the drought prone area and to increase the resilience of the park. The overall picture that emerges from the analyses shows a governance context that is relatively supportive, displaying, in general, the positive qualities of a governance context. *Extent* and *coherence* revealed the majority of actors to be well-connected, with a long history of cooperation in their interactions. Only a lack of involvement of businesses in the *extent* of actors was assessed as a drawback. *Flexibility* was found to be medium/neutral, although there are always issues to be tackled at specific levels. *Intensity* was revealed to be low, despite the strong commitment of all levels to carry out the project. This is because the provision of ecosystem services was not prioritized, thus resilience as such was not a focus in their agenda. Stakeholders also needed to find new ways to enable future investments for nature development, because governments had retracted previous funding mechanisms.

The Drents-Friese Wold case differs from other cases, as the national park is situated in two provinces, Drenthe and Friesland. *The question is whether authorities are shared or coordinated in a productive manner and (in comparison with the first case) whether the cooperation of two provinces is supportive or restrictive when dealing with the Oude Willem area restoration project.* This is important as it is a complex process considering multiple pressures and with the need to accommodate the diverse interests and concerns of multiple stakeholders from two provinces, Friesland and Drenthe. Cooperation of these provinces proved to be rather supportive, as these provinces are together the major providers of financial resources and responsible for developing local nature and spatial plans to implement national nature policy. Also, two water boards, Wetterskip Fryslan and Reest en Wieden (later merged with the water board Groot Salland to

become Drents Overijsselse Delta), were the main water managers and partial providers of funds, but Reest en Wieden had a higher interest and level of involvement, as most of the area is under their territory. One point of note is that the Province of Drenthe considers Staatsbosbeheer (National Forest Service) to be in charge of nature and land management. However, the Province of Friesland considers that nature can be managed by other actors as well and, therefore, would include new actors in any tender process. It is important to emphasize that the administrative units share the idea that management of the national park should be coherent on the scale of the whole park and not only for just their territory.

6.3.3 Weerribben-Wieden

The main issue for the *Weerribben-Wieden* National Park was its transition process from an old to the new model of governance. The governance context has been subject to major challenges and restructurings in the recent past. After the drastic changes in nature policy in the Netherlands, as national government withdrew from their central role and decentralized the authority for nature tasks to the provinces, the province, in turn, also withdrew from a leading position, and decentralized all the way down to the municipality. *The question is whether this provincial policy created any governance problems compared to the previous cases.* Under the lead of the municipality, a core group, consisting mostly of local partners, was created and took responsibility for developing a new governance model for the national park.

The overall picture of the quality of governance can be described as being moderately *flexible* with restrictive *intensity* and incoherence of problems and goals among actors towards resilience goals. The observations revealed more concerns on all qualities of the governance regime. For example, the degree of *extent* is towards restrictive, with mostly local levels involved and with various actors directly concerned, even though it is a national park with wetland characteristics important for large parts of northwest Europe. To strengthen this quality is a challenge. *Coherence* is also restrictive, as various perspectives and interests of stakeholders do not support each other. Only *flexibility* is towards neutral,

but this is still challenging given the missing higher levels. However, the transition process provided some room for new actors to be included through various project groups to reassess goals and to allow actors to take a lead in certain issues. *Intensity* to change is restrictive in all dimensions, with lack of pressure from actors towards resilience goals. Moreover, responsibilities are not supported with enough resources, and allocation of resources to implement measures needed for intended change is not clear after the transition period when the province withdrew. Although there is an agreement among stakeholders that park governance had to change, there is a diminished sense of responsibility for maintenance of the natural resources of the national park.

6.3.4 Northeast of Twente

The main issue analysed in the Northeast of Twente region was drought governance and drought resilience policies and measures. The area is a former national landscape situated in the same province of Overijssel as the Weerribben-Wieden national park. The Twente area analysis found the province was represented in the multi-stakeholder committee, but never as a leading party, so others were not so much dependent on them, as in the Weerribben-Wieden case. However, the good connection with the province made sure that it contributed when needed. *The question is whether this arrangement (with a different role of the province and a stronger role of the water board) succeeded to create successful cooperation compared to the previous cases.*

The overall picture shows the governance context for drought resilience policies and measures as moderately supportive. For the *extent* quality, only levels and scales are not restrictive, as a result of the withdrawal of the national level from the relevant policies. As the province remained active as a partner and albeit not as a leader, the contribution by the province remained more substantial than in the previous case study, where the province transferred its responsibilities to the lower municipality level. For *coherence*, a 'fragmentation-coherence paradox' was observed as, while normally the observed fragmentation of instruments, responsibilities and resources would lead to stalemates and ultimately disinterest in the topic, in a context of positive experiences with mutual

cooperation among actors, it has led to a recognition that the various parties did need each other with no fear that one of them would become too dominant. While fragmentation was presented in almost all dimensions, especially in the responsibilities and resources dimension, this did not lead to stalemates as might be expected. The close collaboration of the stakeholders at multiple levels of administration and project managers was a great advantage that provided coherence and enabled successful implementation of measures. The supportive actors and networks coherence saved the situation. *Flexibility* was quite supportive, although the low degree of alternative sources of income next to market-oriented farming in the dimension of 'problem perceptions and goal ambitions' and, sometimes the rigid land use planning in the 'strategies and instrument' are a bit less supportive. Finally, the *intensity* was the weakest quality; especially the slow increase of the drought resilience awareness and the resulting reliance on voluntary preventive measures only created the risk that the ultimate goals would be difficult to achieve (Bressers et al., 2016: Ch. 9).

6.3.5 Somerset County

In the only non-Dutch case, the assessment focused on the governance of drought for the Somerset region, but in the context of flooding as witnessed in recent history. This history has shown Somerset to be vulnerable to shifts between extreme events, even within one year, for example, a sudden shift from drought to flood in 2012. Meanwhile, more drought periods have occurred. Climate change increases the risk of flooding and drought in Somerset. Flooding is still a significant agenda for the region with a series of three floods occurring between April 2012 and March 2014 - with the flooding event of December 2013 to March 2014 being particularly devastating (McEwen et al., 2014; Natural England 2013; Thorne, 2014). Droughts are projected to be more severe and will affect larger areas of the county in the future. Flash flooding could also become more frequent, as extreme rainfall events are predicted to become more severe (Browne et al., 2016).

In comparison to the previous Dutch cases, the unique manmade wetland landscape of international importance, that is the Somerset County Levels and Moors, has a different governance system that, nevertheless, is still regulated by the same water and nature EU directives and global agreements (i.e. Ramsar) as in the Dutch cases. It has no water boards, but the County itself holds this responsibility. It had to mediate between different types of interests, among which, after the 2013-2014 floods, interests of wetlands were completely subsumed under that of preventing the floods and improving drainage around them.

The area is designated as a Special Protected Area and a Ramsar site. Water resources are managed differently across the country, while the UK has a complex, multi-layered and multi-actor regulatory and governance system. Drought governance relates to management of drinking water, agricultural water, and water for nature and biodiversity. Drought is regarded as influencing all of these (Environment Agency 2015). At the national level, there is an existing emergency management hierarchy of national, regional and local decision-making for drought governance around emerging periods of crisis (Browne et al., 2016).

The overall quality of the *Somerset* governance context of drought and water scarcity management can be described as somewhat supportive with increasing positive tendencies and with a positive sense of *flexibility* and moderately strong *intensity* in some governance qualities. The *extent* of involvement of levels and stakeholders is large and positive with preventive approach to drought management. However, there is uncertainty over funding and governmental responsibilities. Generally, the roles and responsibilities are clearly defined, but in a reduced funding environment, and with the governance focused on neoliberalism of risks and responsibilities, there has been a reconfiguration of responsibilities and resources for drought and water scarcity issues. There is a positive sense of *coherence* across different levels and different actors in dealing with water scarcity and drought. However, incoherence potentially exists between the strategies and instruments for flooding, and those for drought and water scarcity in the region. This was especially dominant after the seismic shock of the great 2013-2014 floods. There is also a lack of *coherence* about the future of the region e.g. intensive farming versus nature conservation. There

is supportive *flexibility* of the levels and scales involved in drinking water scarcity, but less for environmental droughts. In terms of actors and networks, there is mostly a clear institutionally-defined approach for drought management and process. However, there was some inconsistency between the formal plans and the experiences of being supported in various tasks. This possibly leads the system to feel less flexible for some actors in the process. There was *flexibility* in the responsibilities, but lack of it in the sharing of resources with uncertainty in the context of neoliberal governments. In terms of *intensity*, there is a strong sense of responsibility from all actors to deal with drought and water scarcity. However, the funds and resources do not always reflect the intensity of the responsibilities identified (Browne et al., 2016).

The assessment has shown the water management to be unique and complex. The Somerset case provides an insight into how governance failures affected multiple areas of water management across England. The fragmented nature of the English water sector splits multiple responsibilities for different aspects across multiple actors. The long-term adaptation plans, and crisis management strategies and instruments emerging in each of these boundaries of responsibilities for water management are strong and becoming increasingly clear (e.g. Environment Agency 2015).

The events in Somerset reflect a deeper political failure to maintain strategies and instruments that support water management for new climate change extremes (drought and flood), and a failure to adapt connected forms of policy and planning (such as land use planning) (Browne et al., 2016). *The question is whether the observations on governance-resilience relations around flood-drought issues still hold under such different institutional conditions.*

Since the last extreme flooding of 2013-2014, the change in the governance context was observed by the adding of an extra layer of governance around the flooding issues to realise the 20-year flood action plan; the Somerset Rivers Authority (SRA)³⁷ being a key actor in this

³⁷ SRA which is a partnership between Somerset's existing flood risk management authorities, with the responsibility for surface water management, is launched on January

process. Coherence seemed to be improved after the big flooding, but there are still lots of disagreements between farmers and conservationists, so this coherence is not fully resolved.

One aspect that has been particularly undertaken in the land management stream of the action plan relates to natural flood management. This specifically relates to naturally slowing down water flow and storing water, rather than using engineered solutions (creating leaky ponds on farms, such as small reservoirs, to store water and gradually releasing when needed). This approach is starting to become popular in England now. These systems are good for flood risk, but also are good for drought management to use water in dry summer times for irrigation or other purposes. After the great floods, the popular sentiment was very much in favour of one-sided drainage measures that would have made any future drought much more serious. Luckily, the fact that there was already a much more balanced action plan developed, helped to use the emergency resources for a more resilience-oriented approach.

Water governance is still very fragmented, so there are not many opportunities to combine instruments and strategies due to fragmentation. There are three types of water management: drought and water scarcity, then flooding, and then water pollution and water quality, for which there is separate governance. Also, an issue of intensive farming versus nature conservation remains in question.

The answer as to what will happen after Brexit is unclear. The whole system of farming subsidies through the common agricultural policy is a European subsidy that will be lost after the final shape of Brexit. However, one of the few positive things that could come out of Brexit is shaking up the national farming subsidies, which could become dependent, not only on the farm land size and crops, as it was before, but also on other types of ecosystem services that the land can provide.

31, 2015 as a response to the floods of winter 2013/14 which caused such misery and devastation to Somerset's people and communities; at <http://www.somersettriversauthority.org.uk/>

6.4 Discussion and conclusions

This comparative analysis has demonstrated the results of the five case studies with regard to the governance context influences on resilience. While the cases were selected to graduate institutional differences, the geophysical situation and the overriding EU regulations were similar. The findings emphasize the ways in which governance aspects can impact the feasibility of resilience measures. They also highlight whether an institutional organisation, or the type of authority that is guiding a process, makes a difference, as in the graduated sequence of our cases.

Given the main research question (*what are the key characteristics of the governance context that influence the resilience of the selected protected areas?*) and the sub-question addressed, it was observed that all four qualities (extent, coherence, flexibility and intensity) of the governance context have shown a certain degree of supportiveness or restrictiveness when dealing with resilience threats or issues. However, given the assessment framework, the specific context and the wider context in all cases also play a role. Therefore, it is difficult to assess only features of the structural context and to expect that one can end up with unambiguous results.

What creates a process in which all relevant aspects are taken into account is reflected by *extent* quality. The main factor that makes this quality only medium in the case of the Alde Feanen is that responsibilities are not in line with the extent of the problem perceptions by different actors. This, in turn, prevents from pooling those responsibilities and resources. In Drents-Friese Wold, the lack of interest from local businesses in the project implementation was believed to exist because they did not see any direct benefits arising from the ecosystem services delivered after the realization of the restoration project Oude Willem. For Weerribben-Wieden, the involvement of mostly local levels negatively influenced the extent quality. In the Northeast Twente region, the extent was positive, but the withdrawal of the national level from relevant policies impacted the quality as well, even though the province remained active, albeit just as a partner. In the Somerset County case, the extent was also high, with stakeholders

having a strong and positive involvement in drought management but facing a reduced funding environment.

Resulting from these outcomes, in Alde Feanen, the responsibilities of actors and their problem perceptions need to be better aligned. Meanwhile, in Drents-Friese Wold the benefits that ecosystem services provide need to be better explained in order to increase the interest and involvement of actors, such as businesses, in targeting resilience goals. In Weerribben-Wieden, the extent of higher-level involvement needs improvement, as it is only local level actors who are unable to make significant changes. The same is true to a lesser extent for Northeast Twente, given the absence of the national level and the passive role of the province, but where the water board is in a stronger role. In the case of Somerset, the funding environment needs improvement.

What creates a process in which all perspectives and interests are aligned is reflected by the *coherence* quality. The main factor affecting this quality in the first case study was a big clash of interests among actors and the fragmentation of the responsibilities and resources. For the Drents-Friese Wold area, actors did not prioritise the benefits of ecosystem services expected after the restoration project of Oude Willem. Various perspectives and interests of actors in Weerribben-Wieden did not support each other. Meanwhile, in Northeast Twente, actors' coherence compensated somewhat for the fragmentation of responsibilities and resources and also other governance dimensions. In the Somerset case, coherence was positive across different levels and actors but was limited in the strategies and instruments and lacked an integrated vision about the future of the region.

What creates a process in which hindrances can be navigated is reflected by the *flexibility* quality. In Alde Feanen, there was a lack of combined instruments to improve environmental conditions and move towards resilience. In Drents-Friese Wold, there was room to engage new actors and reassess the goals as a result of decentralization, but the engagement of new actors made the context even more complex. However, the culture of working together helped to achieve goals in complex circumstances. For Weerribben-Wieden, the situation was challenged due to the missing higher levels. However, the transition process to the new type of organisation for the national park provided circumstances to reassess

goals, although hardly in the direction of making them more ambitious. In Northeast Twente, there was a fair degree of adaptive capacity in the flexibility quality, but with some restriction to voluntary approaches for preventive measures. In the Somerset County case, flexibility was increasing to implement adaptation plans, but was limited with regard to responsibilities and resources.

What creates a process in which urgency to take actions and to improve is taken into account is reflected by the *intensity* quality. In Alde Feanen, economic interests overweighed the ecological factors, meaning there was no pressure from actors towards resilience goals. Intensity was low in Drents-Friese Wold, but with the potential to increase with needed resources. In Weerribben-Wieden, similar to the first case, there was a lack of pressure from actors towards resilience goals. In Northeast Twente, there was a slow integration of the drought resilience awareness, and with only external pressure from the EU to make the water system more resilient. In Somerset, there was a strong sense of intensity for drought issues from all levels and scales. A strong intensity was seen in the use of instruments and measures (a constant renewal of the plans for drought in the region), but intensity of the issue decreased in the sharing of resources associated with the tasks of adaptation, and funds and resources did not always reflect the intensity of responsibilities identified. There was an issue of problem definition for drought, which needs to be seen as complementary to that of flooding. Even the ability of different actors and stakeholders to define drought as a problem for the region became very awkward, politically and socially, as a result of the 2013-2014 floods (Browne et al., 2016).

6.4.1 Discussion on the impacts of external circumstances on the governance context

The assessment observed that governance elements and resulting qualities did create some sort of a setting for improving the resilience. However, it was also seen that every case had its own unique history and no single solution could be applied to all cases, given these different circumstances. Evidently, certain characteristics of the governance context can lead to

improved management, but whether governance is capable of dealing with unexpected circumstances is a matter of concern.

The expectation was that the single province leading the process would make an appropriate setup for resilience but, in fact, the impacts of external circumstances appeared to have a crucial influence on the governance context's degree of success. These external factors influence the elements of the governance in a wider context (e.g. political, economic, cultural, technological), structural context (elements of GAT) and specific case context (e.g. case history, previous decisions) as shown in Figure 8 of Chapter 2. In the Alde Feanen case, it was mainly the economic pressure of the waterway that complicated the situation. The province, instead of taking the lead in protecting the Nature 2000 area, decided to protect its economic interests, while in Drents-Friese Wold, the complicating factor was a shared responsibility with another province and whether two provinces could cooperate when dealing with issues. In Weerribben-Widen, the province created difficulties for itself due to its withdrawal and decentralisation of its responsibilities further down to the lower level authorities that had insufficient capabilities and little administrative and financial strength to really carry this responsibility. In Northeast Twente, which is in the same province, the situation was better because the province had not completely disconnected itself and had remained a part of the team as a partner, but not as a coordinator. This situation, with a lot of fragmentation of responsibilities and resources, was remedied by a very close partnership of the actors involved (coherence). Finally, in the Somerset case, with a very different set up compared to the Netherlands, there was a huge outside impact of, first, drought and then, a huge flood, that had affected the whole situation.

The observations suggest that it is not only the four qualities of the GAT that influence the capacity of the governance context, but also external factors that affect the success of governing natural areas. Indeed, the level of governance quality and the level of quality of protection influence each other, while the governance circumstances also impact the capacity of the area to protect and improve its situation. These big challenges across a number of situations call for the governance to be resilient as well, but not

as a part of ecological resilience, but as governance context resilience to cope with such unexpected circumstances.

6.4.2 Influence of the governance system layers on the adaptiveness of the governance context

An overarching view on the results of this research observed that the governance context always sits in a wider context of situations and includes part of the specific context (referred to as complexity of the governance context). It is difficult to give a real content without referring to the case-specific context. Even when concentrating on just the governance aspects, the story leads them to relate to the wider context and back to the specific context for more depth about the case. Elements of the specific and wider context influence the structural context. For instance, a history behind the issues, such as canal in Alde Feanen that needs to be broadened becomes important in the structural context, as it is part of the history, as well as part of the wider context.

Thus governance (structural) context, as represented by GAT, is not a separate set of aspects influencing resilience. It is just one layer in the whole governance system, which is a dynamic part that needs to be relevant and needs to be maintained. As a consequence, the research strategy of a stepwise case selection idea that moved from a pure Frisian case to more and more distant institutional settings did not provide a strong dimension in the case comparison. The reason being, that this possible influence was outweighed by the many other factors that impacted the resilience and governance of the cases.

In conclusion, one of the lessons learnt is that there is a continuous interaction between the layers of the governance system that influences the structural governance context, whilst there are also differences in the structural context. Some of the differences were discussed, e.g. related to the criteria for the case selection, geographical characteristics or previous decisions, or effects of decentralisation. In the Northeast Twente case, decentralisation had a less negative effect (as the province was still there as a partner and, secondly, the water board was a substantial organisation with lots of capacity and finances) than in other cases, such as in the

Weerribben-Wieden, where decentralisation was pushed down to the level of the municipality which has little or no capacity to lead the national park.

Another lesson learnt is related to the effects of decentralisation of nature policy in the Dutch cases while in the UK case it is related to very fragmented water governance system which made it challenge to combine strategies and instruments for resilience.

The Dutch cases showed that governance suffered much when the province withdrew from its responsibilities and it had not yet fully recovered its strength and/or faced other challenges. For example, in Alde Feanen, they still have to compete with economic interest, or in Northeast Twente, the governance was not really supportive, bringing up the coherence between actors to compensate for other restrictive qualities.

Resilience is hampered by different interests of various actors that are not bringing one province in the position but in fact having internal competition between different aspects of provincial government. Decentralisation which is about transferring responsibilities can go too far down to a level that cannot properly handle its given responsibilities. The resources for nature tasks can be pulled up to certain level, but not if decentralisation is pushed too far, as was the case in Weerribben-Wieden where province did not take its own legal responsibility to care for nature. The new transition situation in Werribben-Wieden emerged in response to the decentralisation of the management of the park to the level of municipality. Decentralisation had a major influence on the change of the governance system for the concerned area.

Thus, to sum up, if all levels and actors acknowledged the right level of decentralisation, recognised the need to lead the functioning of the whole park and not only a part of the park, arrange to connect levels and scales to problem perceptions and goals in a right way, and do realise the strategies and instruments applied, these can avoid hindrances and lead to the improved quality of the governance context to realise resilience goals.

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CHAPTER 7: Discussion and conclusions

The concluding chapter includes five sub-sections. The research questions are answered in the *first* section. The *second* section reflects on separating the concepts of resilience and governance to study the impacts of governance on resilience, reflects on the assessment framework used, and emphasises suggestions for future research. The *third* section reflects on the relationship between governance and resilience and how this relationship was observed in the case studies. The *fourth* section presents the contribution of the research. Finally, the *fifth* section draws implications of the research for the Province of Friesland who sponsored the research.

7.1 Answering the research questions

The case studies conducted in this research sought to answer the main research questions, which were to identify:

- (1) How resilience is observed in the selected natural areas, and what are the threats?
- (2) What measures are envisaged to increase resilience in those areas?
- (3) What governance factors support or hamper implementation of adaptive measures to increase resilience of the areas?

The answers are summarised from the prior chapters dedicated to case studies.

(1) The first research question helped to evaluate the present resilience situation in the studied areas. In the comparative analysis of Chapter 6, the resilience of each case is described, but some highlights are presented here. The research areas have been analysed viewing resilience from a governance perspective by applying a case study approach that emphasised the relationship between governance conditions and the measures for each case study. It was presumed that each area is likely to develop resilience or at least reduce any decline in resilience.

The case studies illustrated some differences in their case-specific situations and institutional arrangements to deal with their challenges. The areas shared some common characteristics as well, regarding the types of nature and their threats. The contributing factors to resilience were related

to human-induced and climate change threats, with more influence from human interventions. Droughts were identified in all cases. In the Netherlands, this was as a result of intensive farming in the past that required deep drainages of the areas. In the UK, it was as a result of afforestation, commercial peat extraction and agricultural intensification. In Somerset Levels and Moors, areas with exposed peat soils are particularly vulnerable to droughts that damage peat soils and have impact on the natural and historic environment (Browne et al., 2016). In Alde Feanen, the disappearance of the peat bog reed is experienced, as it does not renew itself. Another reason for droughts was dry summer periods affecting both nature and agriculture.³⁸

The factors identified as threats to biodiversity contributed to insufficient water quality and poor environmental conditions, diminishing the natural values of the areas and affecting resilience.³⁹

(2) The second research question sheds light on the measures envisaged to increase resilience in the studied areas. This includes various measures undertaken in response to the new Dutch and EU legislations regarding nature conservation and restoration, to restore natural hydrological systems and natural conditions in those areas.

In Alde Feanen, measures were used for nature restoration to increase the area and amount of surface water by digging new peat holes, and by making nature-friendly shores of the canals to improve the quality for increased biodiversity. Further far-reaching and more ambitious measures, such as extending the park area, or removing the shipping route from the park, are projected and are in the process of decision-making.

In Drents-Friese Wold, there are measures to restore a more natural environment (besides the Oude Willem restoration project) where drainage canals were blocked. Further measures were undertaken to let the stream-

³⁸ For example, in the Netherlands (and in central and northern Europe) this year summer of 2018 has been considered the driest (with the biggest precipitation shortage since record year 1976), described as “an extensive and severe anomaly” (EDO Analytical Report, 2018)

³⁹ ‘As ecosystems in the Netherlands are adapted to man-made conditions, vulnerability to droughts is high; under the more natural conditions the impact of droughts to ecosystems would be less’ (Droughts: the Netherlands, 2018)

flow move more naturally and to support recovery of the natural processes on a wider watershed scale.

In Weerribben-Wieden, measures were directed to preserve the wetland environment threatened by human and natural processes with interventions such as, for instance, annual cutting of reeds, creation of hay meadows and floating fens. Removal of swamp wood and digging ditches were among the large-scale measures to halt development of woodland.

Several implementation projects were carried out in Northeast Twente under the programme “Water Collective Twente” where drainage systems were removed, ditches were muted, and water storage areas were constructed to encourage groundwater level to rise and to create a water buffer for dry periods (Bressers et al., 2016: 187-188).

In the UK, measures were applied on the Somerset Levels and Moors to make the vulnerable habitat more drought resilient: reed beds were restored by cutting channels and installing structures to allow better water circulation; works were undertaken to improve the habitat’s resilience by tree removal, scrub clearance or improved ditch network, and to restore raised bogs lost to peat extraction and agricultural intensification. The remaining fragments of bogs, which are now within nature reserves, are raised above the surrounding peat holes and are very difficult to keep wet. These actions will increase the drought resilience of both these habitats (Browne et al., 2016). As the Somerset case shows, there is also certainly a need for an increased integration of flood and drought management.

(3) Regarding the third research question on governance, interaction processes between the actors have been studied to identify the hampering or supporting governance factors for adaptive resilience measures. The institutional situation was found to have a significant influence on the governance context influencing the implementation of measures for resilience. The main insight was that implementation involves an array of actors, each with their own interest in the issues. This makes the coherence of all five dimensions of the governance context rather vulnerable. Institutional complexity and institutional inertia were revealed as hindering factors. From the literature, institutional complexity is considered as a norm for protected area governance. In the governance

assessment, this was related to the idea that the extent needs to be sufficiently wide. However, in the case of Alde Feanen, wide extent was an impeding factor. This suggests that the priorities of the actors should be clearly specified in the face of conflicting interests and used to overcome such fragmentation. In a fragmented governance context, institutional inertia, as well as traditional practices to deal with issues, was identified as a hindrance to resilient outcomes. In the Alde Feanen case, institutional inertia was associated with the economic interest, which has a long tradition in the area. Furthermore, measures were hampered due to uncertainty about new developments and new governance setups. To overcome inertia requires changes in behaviour and management reforms to change the priorities of the actors to more resilient ones and to provide the means to discuss and overcome remaining differences.

Moreover, decentralisation had a complex impact on the governance systems of the studied areas. This was first, due to the fragmentation of the international nature policy tasks and responsibilities and, second, due to a lack of resources and uncertain funds in the context of budget cuts (e.g. as in the case of the Oude Willem restoration project in Drents-Friese Wold). Decentralization implied significant changes in the interaction processes in terms of increasing co-operation between provinces and regional/local authorities in the field and engaging new actors in the processes. This, in turn, also contributed to more complex governance context that was also vulnerable to fragmentation. As an argument for decentralisation, some assumed that, on a smaller scale, policies and actors could better take into account the local circumstances. From a neo-liberal political perspective, arguments for decentralisation and reduced governmental role assume a market-oriented approach and individual responsibility and involvement. However, these did not show any potential yet. Institutional change due to decentralisation restricted the supportiveness of the governance context towards resilience.

7.2 Governance and resilience as separate concepts

This thesis intended to separate the governance and resilience concepts in order to study the impacts of governance on resilience. Resilience was

studied with a case study approach to understand which factors threaten or support resilience. The case areas recognised the need to foster resilience, as the identified climate and human-made threats tend to affect these areas in the long run. The resilience concept (Rist et al., 2014) which focuses on aspects such as adaptability and transformability and considers interaction of people and nature in the face of disturbances, should be integrated into the future agendas of the areas to deliberately foster the improvement in the degree of resilience they achieve.

Interactions and processes for implementation of some relevant measures have been examined using an assessment framework of which CIT and GAT are a part. Governance was operationalised by using the governance assessment tool to address the structural context of CIT (Figure 8 in Ch. 2.8). The tool contributed to the assessment of the governance context and provided insights into impact of the institutional arrangements on the implementation processes. The layers of context for implementation processes as presented in the CIT influence the adaptiveness of the governance context.

It is difficult to assess and score the elements of the governance context without also referring to the specific and wider context elements. In the description of the cases, elements of the specific and the wider contexts of CIT were involved (e.g. in the specific context geographical characteristics and previous decisions). Events evolve in the specific and wider contexts that influence the structural context, as the case studies analysis has shown. These identified that institutional change (e.g. the position of the provincial government in the network) had a major influence on the governance for resilience and on the adaptiveness of the governance towards resilience goals. The governance context became itself a major challenge, given the changes since the decentralisation of the nature policy. Moreover, impacts of external circumstances, as described in the case studies, appeared to have had a clear influence on the governance context and, thereby, on the degree of success of the management of the parks as well.

The case studies show the ecological systems in the parks as being dynamic and vulnerable to dramatic changes, for example, long summer droughts or sudden floods. These, in turn, also affected the governance context itself. The impacts of the governance on resilience were revealed in

the different combinations of governance qualities. But these did not lead to an unambiguous observation on any particular supporting institutional set up. This is due to the variety of outside challenges that affected each case.

The insight here is that having a more 'resilient' governance context is important because unexpected external changes will always occur, and the capacity of the governance context to deal with these challenges should be taken into account.

Although this research perceived governance as a separate aspect influencing resilience, the circumstances of the cases suggest that considering 'resilience', not only as a characteristic of the ecological system, but also as a quality of the governance itself is a relatively new aspect in this context. This is to suggest that 'governance' belongs to 'resilience' after all, as some authors have proposed (Booher and Innes, 2010; Djalante, Holley and Thomalla, 2011; Garmestani and Benson, 2013). In fact, the insight that resilience can be a quality of the governance context, as much as appropriate governance can also be an aspect of resilience, would never have been discovered had the two concepts been treated as one to begin with.

Given the governance assessment framework used, this 'resilient governance' is partly captured by the criteria of 'flexibility' and 'intensity'. 'Flexibility', in the governance assessment tool, is about allowing and supporting various ways and kinds of actions to reach the policy goals. Besides that, the governance context needs also to be 'resilient' to cope with and recover from 'seismic shocks', such as the vast impact of a sudden major flood as in Somerset, or the withdrawal of the province as a main actor in Weerribben-Wieden as an outcome effect of the decentralisation of the Dutch nature policy.

The perception of 'bouncing back' in the resilience concept can also relate to the 'flexibility', but it is not yet considered this way. The same is true of the 'intensity' criterion, which is a pressure to change or deviate from 'business as usual'. However, sudden outside impacts are very different from moving beyond 'business as usual' and 'as a goal' to be strived for. It can be added that 'intensity' is the strength or ability to recover or adapt to new situations. This also is not yet considered this way.

The 'resilience' aspect can also be assessed through the level of resources and responsibilities for implementation. These are the points that are not fully thought through in the present GAT and adding 'resilience' of the governance context, as an additional quality, could be considered. This idea is best demonstrated in the British case, first with severe droughts, followed by a huge winter flood that inundated a large part of the area. The governance system was able to cope with this extreme situation, first, with a top-down response to the floods and, thereafter, regaining the balance in the actual measures of the area based on local cooperation. This showed a good example of how governance can be, not only 'flexible', but also 'resilient', and can recover or adapt to cope with new extreme situations.

Returning to the approach of separating the resilience and governance concepts when analysing the impacts of the governance on resilience, the study revealed a new perspective that suggests considering 'resilience' as a new quality dimension for the governance context next to the 'extent', 'coherence', 'flexibility' and 'intensity'. In so doing, this could give research additional insight into the governance context analysis of future cases.

Further research is suggested to see how resilience as a new quality dimension of the governance context can help to understand the capacity of the governance context in coping with stresses and in better understanding the influencing factors of governance on resilience.

7.3 The governance - resilience relationship

The central relationship in this thesis is between resilience and the quality of the governance and in between there are measures that are supported or restricted by the governance conditions. This section reflects first on whether the governance assessment tool is comparable with other governance principles and, then, on the literature related to governance and resilience, and on how this relationship was observed in the case studies.

The qualities and dimensions of the GAT were used to assess the governance contexts and to explain the complexity of the implementation processes that lead to resilience. This implies multi-level and multi-scale actors to influence decision-making on important issues for the case under study. These qualities can be comparable with other governance

assessment framework principles. For example, the inclusiveness principle (Lockwood, 2009) which gives opportunities to all stakeholders to participate in and influence decision-making processes, can be comparable with the extent quality of the governance assessment tool that explores the opportunities of all stakeholders to influence decision-making processes. The connectivity principle (Lockwood, 2009) which highlights the need for well-connected actors in the governance systems to have mutual trust and cohesion to work together can be seen as comparable with the coherence quality of the governance assessment tool. Flexibility can be comparable with the adaptiveness principle (Lockwood, 2009) that relies on the ability of actors to deal with changing internal or external circumstances. Lastly, the intensity quality can be seen as comparable with the principle of the governance vitality explored by IUCN. This calls for the governance setting to be adaptive and creative and able to take responsibilities in an effective way (Borrini-Feyerabend and Hill, 2015).

Regarding governance-resilience relations in the literature, resilience is described as being a vague concept, but it is also viewed as a dynamic and adaptive system. Resilience is seen as a 'boundary object' (Biesbroek, Dupuis and Wellstead, 2017: 64) linking different scientific fields and disciplines or groups to collaborate on a common objective. As much as resilience is a broad concept, so is governance, but as soon as they are studied in the context of a particular case, they can be concrete and specific.

Much of the literature emphasizes that, to increase resilience of an ecological system, the governance needs to be adaptive and with an ability of actors to influence resilience (Folke, 2016). The characteristics of the governance context, such as participation and collaboration of the multi-layered institutions and networks, self-organisation, learning and innovation were emphasized in the literature to understand interlinkages of adaptive governance and increasing resilience (Gunderson and Light, 2006; Djalante et al., 2011; Fung, 2006). Biesbroek, Dupuis and Wellstead (2017) recently expressed the viewpoint that theoretical and empirical evidence that supports this causal relationship remains unclear. They stated that in the resilience literature "the role of governance is under theorized, implying that generalisation of a particular observation is based on a limited

number of related studies... and that studies should demonstrate a cause-effect relationship to operationalise and generalise the outcomes” (Idem 2017: 65).

In this research, this cause-effect relationship is demonstrated by the results of the case studies stressing the role of governance in a context of dynamic ecological processes to achieve resilience goals. The relationship between resilience and governance was studied by looking at the extent to which resilience was embedded in the implementation processes of the areas, and whether institutions were committed to a resilience-oriented strategy.

In Alde Feanen, although the park has the potential to function as climate resilient area, resilience is not prioritised as a strategy given its focus on more economic aspects. Most actors are not motivated to make decisions in favour of resilience (only nature organisations), as resilience is perceived as being complex and with no big importance attached. Thus, the effect of this is a long-lasting process of decision-making and no optimized perspective for the area in the long run.

In Drents-Friese Wold, the measures to improve the resilience face difficulties given the need to navigate a highly complex governance regime. There is a need for better understanding of this regime if efforts to enhance resilience of the area are to be successful.

In the case of Weerribben-Wieden, the governance is challenged by less emphasis on resilience and more on a neoliberal approach to governing nature and by a changing institutional background in which tasks and responsibilities were decentralized, causing further complexity.

In Northeast Twente, a high level of fragmentation in responsibilities and resources makes governance less supportive and requires continuous effort to keep excellent network relationships; but there is a slow improvement in drought resilience awareness with external pressure from the EU to make the water system more resilient.

In the Somerset Levels and Moors, the latest developments concerning the natural flood management action plan are in favour of a more resilient-oriented approach for both floods and droughts.

Besides the mentioned challenges, external circumstances affecting each case require governance to be adaptive to withstand and recover from

stresses. Aspects, such as a common vision for the area, conflict resolution, and joint decision-making, appear to be essential for the governance to be supportive and to help achieve resilience goals.

Whether institutions are committed to resilience was reflected in the decision-making process of actors in favour of resilience. Decision-making can be seen as an important link between governance and resilience, as decisions made for resilience point to resilience thinking. The degree of commitment to resilience can be viewed through the case studies.

The results of the assessment (Table 19 in Ch. 6.3) show a weak commitment to resilience in Alde Feanen and in Weerribben-Wieden. For Alde Feanen, the governance context is not enough supportive for resilience measures, whereas in Weerribben-Wieden the analysis revealed serious concerns on all qualities of the governance regime.

The Drents-Friese Wold case showed a stronger commitment to resilience than the two previous cases, as the governance was assessed as relatively supportive, with positive qualities of a governance context; the only one restrictive quality was its intensity.

The Northeast Twente region showed that its commitment to resilience was stronger than in Drents-Friese Wold indicating the governance context for resilience measures as moderately supportive with no restrictive governance qualities.

The same went for the Somerset case which also had a somewhat supportive governance context with increasingly positive tendencies, particularly after the huge winter floods caused a temporary and extremely one-sided orientation.

7.4 Contribution of the research

The research has highlighted the novelty of using the governance assessment tool in the field of governance for protected areas. The research has reflected on the actual circumstances of the governance context for resilience protection contributing to the knowledge of what supportive and hindering governance conditions are.

By illustrating the importance of the governance qualities in the process of fostering resilience, the research has offered an insight into a

broader area of water and nature governance knowledge. It also adds to the literature in a relatively new field of study that is the governance of protected areas, and to the literature on decentralization.

The framework used complements other available governance assessment frameworks by adding the focus onto the implementation process and to help build understanding of the circumstances in the process of the implementation of measures. Furthermore, this framework has facilitated the assessment of changes in the institutional context caused, for example, by decentralisation, and indicating the outcomes for resilience. The framework has enabled a focus on the main issues to identify important points of intervention. It has also revealed the hindrances in the quality of the governance context where improvements and policy interventions are needed to increase resilience.

However, it does not fully capture the effects of external circumstances that can occur in the case of sudden changes, and it does not reflect on the ability of the governance to recover or adapt to the new situations. These points can be added to the qualities of the governance assessment tool with additional questions that can enrich the analysis of the cases with the new insights and take into consideration the adaptive and transformative capacities of the governance itself. The analysis and circumstances from the cases suggest the governance context to be resilient to face sudden changes and external shocks.

7.5 Implications of the research for the Province of Friesland

As a provider of the main financial resources to realise this project, the Province of Friesland can benefit from the research by recognizing the significance of the governance processes and specific circumstances in their case. It can learn from the experiences of other cases used in the research.

Alde Feanen is a priority area for the province in terms of the challenges related to desiccation, water quality, maintaining water levels throughout the year and the challenges related to the waterway in the park. Resilience is not addressed as a strategy for the area. The research showcases the governance situation in the province and emphasizes that resilience should be considered as an important strategy for the area in the

long run, and in as much as economic interest currently outweighs ecological concerns. Balancing an economic focus with ecological significance and concentrating on ecosystem services in the policy planning can overcome this concern.

The governance analyses pinpoint that institutional complexity in the governance of the Alde Feanen is a hindering factor for the resilience of the area and priorities do need to be specified. The research enabled a focus on potential improvements by balancing institutional complexity and by addressing institutional inertia that hinders the implementation of adaptive measures to make the area more resilient.

Alde Feanen can be developed into a more climate resilient area and this should be considered as one of the important functions of the area in the future.

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Lordkipanidze, M., H. Bressers and K. Lulofs (2018): Governance assessment of a protected area: the case of the Alde Feanen National Park, **Journal of Environmental Planning and Management**, DOI: 10.1080/09640568.2018.1441014

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[The paper is also presented at the **Climate Change & Water 2018 Conference** in Tours, France on 5-7 Feb 2018]

Book chapters in the frame of the DROP project:

Bressers, H., K. Bleumink, N. Bressers, A. L. Browne, C. Larrue, S. Lijzenga, **M. Lordkipanidze**, G. Özerol and U. Stein (2016) *The Fragmentation-Coherence Paradox in Twente*; **Chapter 9**; In Governance for Drought Resilience: Land and Water Drought Management in Europe; Ed. by Hans Bressers, Nanny Bressers, and Corinne Larrue; 181-197; Springer Open Access, at: http://link.springer.com/chapter/10.1007%2F978-3-319-29671-5_3

Tröltzsch, J., Vidaurre, R., Bressers, H., Browne, A., La Jeunesse, I., **Lordkipanidze, M.**, Defloor, W., Maetens, W., and Cauwenberghs, K. (2016) *Flanders: Regional Organization of Water and Drought and Using Data as Driver for Change*; **Chapter 7**; In Governance for Drought Resilience: Land and Water Drought Management in Europe; Ed. by Hans Bressers, Nanny Bressers, and Corinne Larrue; 181-197; Springer Open Access, at: http://link.springer.com/chapter/10.1007%2F978-3-319-29671-5_3

Özerol, G., Troeltzsch, J., Larrue, C., **Lordkipanidze, M.**, Browne, A.L., de Boer, C. and Lems, P. (2016) *Drought Awareness Through Agricultural Policy: Multi-level Action in Salland, The Netherlands*; **Chapter 8**; In *Governance for Drought Resilience: Land and Water Drought Management in Europe*; Ed. by Hans Bressers, Nanny Bressers, and Corinne Larrue; 181-197; Springer Open Access, at:
http://link.springer.com/chapter/10.1007%2F978-3-319-29671-5_3

Appendices

➤ **List of interviewed organisations:**

Province of Friesland

Overlegorgaan (Consultative board of the Alde Feanen NP)

It Fryske Gea (Nature Conservation Organisation)

Friese Milieu Federatie (Frisian Environmental Federation)

Wetterskip Friesland (Regional water board)

IVN (Institute for Nature education and sustainability)

Alde Feanen NP Managers

Drents-Friese Wold National Park

Province of Drenthe

Water Board Reest en Wieden (former regional water board, merged with

Groot Salland in the Province of Overijssel to form The Drents Overijsselse

Delta Water Board)

Municipality of Steenwijkerland

Staatsbosbeheer (Forestry Commission)

Natuurmonumenten (Nature monuments)

DLG (Dienst Landelijk Gebied) then former Government Service for Land and Water Management;

Researcher specialized in Ecosystem services of the National Park Alde Feanen

Stenden University of Applied Science: Research Group Marine Wetland Studies

Somerset County Council, UK

➤ **List of interview questions:**

Questions to stakeholders related to specific case context of the selected case studies:

Could you briefly describe your role in relation to the national park/area?

How resilience is observed in the area? Is it an issue?

What is the main function of the park?

What are the main ecosystem services of the park?

What is the main problem in the park at the moment and are there any conflicts?

Are there any disturbances or threats in the area to be taken into consideration?

What measures were applied or are being applied for the resilience in the area?

Are there any projects completed or running in relation to the issues concerned?

How water shortage/drought issues are addressed in the park/area?

Questions related to the governance context of selected case studies:

Who are the main stakeholders involved in the management of the park?

What are their roles and relations to the park?

Are they equally involved in the decision-making?

What is the regulatory framework under which the park management is operating?

Are there any public-private partnerships in place?

How the park is funded?

Are there conflicts in interactions between actors?

Are there any tensions in the governance in relation to the specific issues?

Is there any tension between nature and recreation; farmers and nature/recreation?

Is resilience in the agenda of the park's development plan?

How governance supports implementation of measures to increase resilience?

What is the most important measure that can make the park resilient?

What is most crucial for the future of the park?

What is eventually the desired state for the park?

What value this research project can have for the park (and for the Province of Friesland being a main sponsor of the research?)

➤ **Workshop organisation**

The workshop with the focus on Dutch national parks organized on 8 June 2016, in the frame of the Summer School 2016 “*Working on innovative solutions for our future challenges*” by the University of Groningen/ Campus Fryslân, 6-8 June 2016 in Ecommunity Park, Oosterwolde. The theme of the workshop was “Resilience and governance of natural landscapes: climate and drought resilience measures and governance analyses of the Dutch National Parks”.

AGENDA

13:00-13:20	Introduction by Prof. dr. Hans Bressers: Governance and Governance Assessment Tool (GAT); plus, some questions and answers for clarification
13:20-13:45	Presentation by Maia Lordkipanidze (PhD researcher) on climate resilience measures and issues related to them
13:45-14:30	Discussion with the audience on climate and drought resilience measures and supportive or adverse governance conditions
14:30-15:00	Coffee break
15:00-15:30	Discussion with the audience on supportive or adverse governance conditions for climate and drought resilience measures in wetlands natural parks?
<i>Optional</i>	
15:30-15:45	Presentation by Maia Lordkipanidze on preliminary results of the two cases: Alde Feanen and Weerribben-Wieden National Parks
15:45-16:00	Presentation by Hans Bressers on governance analysis of the North-East Twente region (DROP case)
16:00	Closing the workshop

Summary

This research concerns the relationship between resilience of protected areas and the governance of these areas. Five case studies were analysed to understand the dynamics of the governance processes and to see how governance influences resilience. The main research questions that guided each case were: *How is resilience observed and what are the threats in the area? What measures are envisaged to increase resilience in the selected areas? And what governance factors support or hamper implementation of adaptive measures to increase resilience in the chosen areas?*

The case studies were chosen with an emphasis on the Dutch Province of Friesland, starting with the Alde Feanen national park which is a priority area for the province faced with challenges related to water quality and stability of water levels and the waterway that runs through the park. The second case is a national park Drents-Friese Wold that is partly in the neighbouring province of Drenthe crossing the boundary of Friesland. The third case, Weerribben-Wieden national park, is in another neighbouring province of Overijssel, while the fourth case, the Northeast Twente area, is in the same province but with no status of national park. And the last fifth case, the Somerset Levels and Moors, is in another EU country, which is an area designated as a special protected wetland in the UK and where the same European policies still apply. This selection of an international case was to provide deeper insight in the Dutch context. The shifts in the institutional contexts of the cases provided interesting backgrounds to compare the governance of each case.

The analytical framework used to study the cases in a comparative approach is the *contextual interaction theory* and the *governance assessment tool*. In the *contextual interaction theory*, the full complexity of the governance system is covered by a model in which the final outcomes, in this case the success of policy initiatives or measures towards resilience goals, is explained by the interaction process between involved actors in interaction with three layers of context. These layers of context are (1) the *specific context* shaped by previous decisions and case specific circumstances, (2) the *structural context*, consisting of five elements of governance and (3) a layer of *wider contexts* (problem, political, economic,

cultural and technological) context. The *governance assessment tool* outlines how the interactions between the five dimensions of governance support or impede the implementation of measures for resilience by the actors involved in the interaction process. This is done by assessing four qualities of the governance regime that are assumed to be of influence. These are (a) the *extent*, (b) the *coherence*, (c) the *flexibility* and (d) the *intensity* of the resulting governance regime in place. The dimensions distinguished in the *structural context* are (i) *Levels & scales*, (ii) *Networks & actors*, (iii) *Perspectives & goal ambitions*, (iv) *Strategies & instruments* and (v) *Responsibilities and resources for implementation*.

As such, the focus of analysis is on the relationships between one layer of context, the *structural context*, and the *interaction process and resulting measures*, though with a keen eye on what is assumed in the *contextual interaction theory* with regard to interaction between the three layers of context and the interaction process. So, the overall effort was on understanding how different patterns of interaction between the layers of the complex governance system influence the success of policy initiatives or measures towards resilience goals.

The patterns between *governance qualities* and process outcomes in the cases indicate that it is essential to monitor governance qualities and the constituting five dimensions of governance and their interactions. Governance regimes in the *structural context* can be more or less balanced and this influences initiatives and/or measures. This in order to foster the resilience of ecosystems in national parks. With regard to the *structural context*, there were indications in the case studies that certain specific institutional circumstances can have a significant impact on the governance qualities influencing the implementation of measures for resilience. The *level of decentralisation* in the studied areas is one of them, interdependencies in ecosystems of national parks and adjacent areas and safeguarding resources might require a certain scale, while manageable participation of actors in networks and inclusiveness of interests provide arguments to decentralise.

However, there were also clear indications that the *contextual interaction theory* rightfully assumes that there is more to take into account to fully understand and explain processes and outcomes; the *specific context* and the *wider context* in some cases did interact with the *structural context*. In a well-connected governance system, actors interact and have an ability to deal with changing external and internal circumstances and take responsibilities in effective ways. The *structural context* proved just one layer in the governance system, which is embedded in a *wider context* of circumstances and includes parts of a specific context that contribute to the complexity of the governance and specify outcomes. The cases show that there is a continuous interaction between the layers (wider, structural and specific) of the complex governance system: in the first case it was mainly an economic pressure outweighing ecological interest, while in the second case it was a shared responsibility between two provinces dealing with resilience measures; in the third case it was related to the decentralisation of nature tasks which went too far to the level that could not handle given responsibilities; while in the fourth case it was related to the fragmentation of responsibilities and resources but compensated by a close cooperation of partners; and in the fifth case it was a serious outside impact with first severe drought followed by huge winter flood affecting the case.

Although this research perceived governance as a separate aspect influencing resilience, the circumstances of the cases suggest considering 'resilience' as a quality for the governance itself which is relatively new aspect in this context. The observations indicate that it is worthwhile to assess whether governance arrangements in the *structural context* lead to a governance regime for governing natural areas that is resilient to such external events, not as part of *ecological resilience* but as *governance structural context resilience* to cope with such unexpected conditions. This new perspective in the analysis suggests considering 'resilience' as a new quality dimension for the governance context that can give additional insight into the governance context analysis of the future cases.

For the Province of Friesland, the research enables to focus on potential improvements by balancing institutional complexity and addressing institutional inertia that hinder implementation of adaptive measures to make the area more resilient. The findings from the research emphasized

that to balance institutional complexity and overcome inertia, a change in behaviour and a management reform could lead to change in the priorities of the actors to more resilient ones.

Samenvatting

Dit onderzoek betreft de relatie tussen veerkracht (resilience) van beschermde natuurgebieden en de governance van deze gebieden. Er werden vijf casestudy's geanalyseerd om de dynamiek van de governanceprocessen te begrijpen en om te zien hoe governance veerkracht beïnvloedt. De belangrijkste onderzoeksvragen die elke case begeleidden waren: *Welke veerkracht wordt waargenomen en wat zijn de bedreigingen in het gebied? Welke maatregelen worden overwogen om de veerkracht in de geselecteerde gebieden te vergroten? En welke governance-factoren ondersteunen of belemmeren de implementatie van adaptieve maatregelen om de veerkracht in de gekozen gebieden te vergroten?*

De casestudy's werden gekozen met de nadruk op de Nederlandse provincie Friesland, te beginnen met het nationale park Alde Feanen, een prioriteitsgebied voor de provincie met uitdagingen op het gebied van waterkwaliteit en stabiliteit van waterstanden en vanwege de waterweg die door het park loopt. De tweede case is een nationaal park, Drents-Friese Wold, dat gedeeltelijk in de naburige provincie Drenthe de grens van Friesland oversteekt. De derde case, Nationaal Park Weerribben-Wieden, bevindt zich in een andere naburige provincie Overijssel, terwijl de vierde case, het gebied Noordoost-Twente, zich in dezelfde provincie bevindt maar geen status heeft als nationaal park. En de vijfde en laatste case, de Somerset Levels en Moors, bevindt zich in een ander EU-land. Het is een gebied dat is aangewezen als een speciaal beschermd wetland in het Verenigd Koninkrijk, een land waar gedurende het onderzoek hetzelfde Europese beleid nog steeds van toepassing was. Deze internationale case was geselecteerd om een dieper inzicht te geven in de Nederlandse context. De verschuivingen in de institutionele contexten van de cases verschaften interessante achtergronden om de governance van elke case te vergelijken.

Het analytische raamwerk dat wordt gebruikt om de cases in een vergelijkende benadering te bestuderen, is de "contextuele interactie theorie" met daarin de "governance assessment tool", voor beoordeling van de governance context. In de contextuele interactie theorie wordt de volledige complexiteit van het governancestelsel omvat. Het is een model waarin de uiteindelijke resultaten, in dit geval het succes van

beleidsinitiatieven of maatregelen ten behoeve van veerkrachtdoelen, worden verklaard door het interactieproces tussen de betrokken actoren in wisselwerking met drie lagen context. Deze lagen van context zijn (1) de specifieke context gevormd door eerdere beslissingen en case-specifieke omstandigheden, (2) de structurele context, bestaande uit vijf dimensies van governance en (3) een laag van bredere contexten (de probleem-, politieke, economische, culturele en technologische context). De tool voor beoordeling van de governance geeft aan hoe de interacties tussen de vijf dimensies van governance de uitvoering van maatregelen voor veerkracht door de actoren die betrokken zijn bij het interactieproces ondersteuning bieden of belemmeren. Dit gebeurt door vier kwaliteiten van het governancestelsel te beoordelen waarvan wordt aangenomen dat ze van invloed zijn. Dit zijn (a) de reikwijdte (mate van volledigheid), (b) de coherentie, (c) de flexibiliteit en (d) de intensiteit (de veranderdruk) van elk van de vijf dimensies van governance. De onderscheiden dimensies in de structurele context zijn (i) Niveaus & schalen, (ii) Netwerken & actoren, (iii) Perspectieven & doelambities, (iv) Strategieën & instrumenten en (v) Verantwoordelijkheden & hulpbronnen voor implementatie.

Als zodanig ligt de focus van de analyse op de relaties tussen de ene laag van de context, de structurele context en het interactieproces en de daaruit voortvloeiende maatregelen, maar met een scherp oog op wat wordt verondersteld in de contextuele interactietheorie met betrekking tot de wisselwerking tussen de drie lagen van context en het interactieproces. De totale inspanning was dus om te begrijpen hoe verschillende patronen van wisselwerking tussen de lagen van de context het succes van beleidsinitiatieven of maatregelen ten behoeve van veerkrachtdoelen beïnvloeden.

De relaties tussen de vier kwaliteiten van de governance context en de procesresultaten in de cases geven aan dat het van essentieel belang is om de kwaliteiten van de vijf dimensies van governance in beeld te brengen. De governance context kan meer of minder stimulerend zijn en dit heeft invloed op de haalbaarheid van initiatieven en/of maatregelen om de weerbaarheid van ecosystemen in nationale parken te bevorderen. Met betrekking tot de structurele context waren er aanwijzingen in de

casestudy's dat bepaalde specifieke institutionele omstandigheden van grote invloed kunnen zijn op de governance-eigenschappen die van invloed zijn op de uitvoering van resilience maatregelen. Het niveau van decentralisatie in de bestudeerde gebieden is er een van. Onderlinge afhankelijkheden in ecosystemen van nationale parken en aangrenzende gebieden en het veiligstellen van middelen kunnen een zekere schaal vereisen. Aan de andere kant kan de deelname van actoren in netwerken en het rekening houden met verschillende belangen ook argumenten bieden om te decentraliseren.

Er waren ook duidelijke aanwijzingen dat de contextuele interactie theorie terecht veronderstelt dat er met meer dan de "structurele" governance context rekening moet worden gehouden met het oog op het volledig begrijpen en verklaren van processen en uitkomsten. De specifieke context en de bredere context hebben in sommige gevallen een wisselwerking gehad met de structurele context. In een goed verbonden governancesysteem hebben actoren interactie en kunnen ze omgaan met veranderende externe en interne omstandigheden en op effectieve manieren verantwoordelijkheden nemen. De structurele context is slechts één laag, ingebed in een bredere context van omstandigheden en in wisselwerking met delen van een specifieke context die bijdragen aan de complexiteit van de governance context en die de resultaten daarvan specificeren. De cases laten zien dat er een continue interactie is tussen de lagen (breder, structureel en specifiek) van de complexe context: in de eerste case was het vooral een economische druk die groter was dan het ecologische belang, terwijl in de tweede case het een gedeelde verantwoordelijkheid was tussen twee provincies die zich bezighouden met resilience maatregelen. In de derde case was het gerelateerd aan de decentralisatie van natuurtaken die te ver ging en belandde bij een bestuursniveau dat bepaalde verantwoordelijkheden niet aankon. In de vierde case hielden de problemen verband met de versnippering van verantwoordelijkheden en middelen, die gelukkig gecompenseerd werd door een nauwe samenwerking van partners. In de vijfde case was het een ernstige impact van buitenaf: een periode van zware droogte werd gevolgd door een enorme overstroming in de winter die de case sterk beïnvloedde.

Hoewel dit onderzoek governance beschouwde als een afzonderlijke factor van invloed op resilience, suggereren de omstandigheden van de cases dat 'veerkracht' (resilience) ook een kwaliteit kan zijn voor de governance context zelf, wat een relatief nieuw aspect is in deze context. De observaties geven aan dat het de moeite waard is om te beoordelen of governance regelingen in de structurele context leiden tot een bestuursregime voor het besturen van natuurgebieden dat veerkrachtig is voor grote externe gebeurtenissen, niet als onderdeel van ecologische veerkracht maar als voorwaarde voor de governancestructuur om met dergelijke onverwachte situaties om te gaan. Dit nieuwe perspectief in de analyse suggereert het beschouwen van 'veerkracht' als een nieuwe kwaliteitsdimensie voor de governance context die extra inzicht kan geven in de governance analyse van toekomstige cases.

Voor de Provincie Fryslân maakt het onderzoek het mogelijk zich te concentreren op mogelijke verbeteringen door de institutionele complexiteit in balans te brengen en institutionele inertie aan te pakken die de implementatie belemmert van maatregelen om de beschermde natuurgebieden veerkrachtiger te maken. De bevindingen van het onderzoek benadrukken dat om beter om te gaan met institutionele complexiteit en traagheid te overwinnen, een gedragsverandering en een managementhervorming nodig zijn, die zouden kunnen leiden tot meer op resilience gerichte prioriteiten van de actoren.

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About the author

Maia Lordkipanidze obtained her MSc degree from the International Institute for Industrial Environmental Economics (IIIEE) at Lund University in Sweden, in the field of Environmental Management and Policy (2001-2002). She was awarded a Swedish Institute Scholarship to pursue her master's degree studies. After graduation from MSc degree, she was involved in the research of IIIEE at Lund University for two years, working on regional development projects related to sustainable entrepreneurship and tourism. Back in Georgia, she worked for a Caucasus Environmental NGO Network organisation involved in the environmental impact assessment projects. Since 2006, she has been living in the Netherlands and working for the University of Twente, CSTM, as a research assistant under the umbrella of (then) Cartesius Institute for Sustainable Innovations of the Dutch Technical Universities (Delft, Eindhoven and Twente) in Leeuwarden, where she worked on several European development projects related to protected areas, sustainable innovations and water management. Prior to her PhD research, she worked also for the Province of Friesland in Leeuwarden, at the department of the European programmes and projects, undertaking research, and assisting with the development of project proposals on the regional development and innovations. During her PhD research at CSTM, Maia contributed to the water governance project on benefits of governance in drought adaptation (DROP) in the frame of the Interreg North West Europe programme. She also contributed to the development and preparation of another European project proposal titled as Floating Cultures in River Deltas (Delta Lady), related to the improvement of the regional policies on ecosystem services in European river deltas in the frame of Interreg Europe programme. The Delta Lady project with CSTM as the leading partner was approved and received five-year funding from the European Regional Development Fund. During her PhD research, Maia was also involved in the activities of the Master of Environmental and Energy Management programme of CSTM, specifically in the case study course and in the supervision of the Master students. Currently, she is working on the Delta Lady project and plans to be actively involved and contribute further to the research and activities of CSTM.

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