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Comparative Assessment of Water Governance in Protected Areas

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Abstract: This paper undertakes a comparative analysis of the governance systems of nature areas in relation to resilience measures in the field of water and nature management. The main question is to identify the key characteristics of governance that influence the resilience of the selected areas. The purpose of this comparative study is to understand and explain how aspects within the governance context influence the success of policy initiatives or measures towards resilience goals. For comparison, the hierarchic method is used. The results of the five case studies are compared: four cases from the Netherlands and one from UK. For the assessment of the governance of selected areas the governance assessment tool is used to systematically assess the relevant elements and qualities of the governance contexts and to understand the circumstances for the implementation of adaptive measures. The results of the comparison reveal different combinations of the governance qualities creating, to some extent, the setting for the resilience of the areas in which external factors and continuous interaction between layers of the governance system influence the adaptive capacity of the governance to manage resilience.

Keywords: water governance; ecosystems; resilience; protected areas; comparative analysis

1. Introduction

Trends in biodiversity policies recognize a key role of the governance context for water and nature management and link ecological resilience to governance processes [1]. Governance is an evolving concept which addresses a broad range of issues such as policies, decision making, planning, land and resource use, financial and other relevant aspects. We assume governance arrangements have an ability to influence the achievement of protected area objectives [2,3]. Protected areas have often been regarded "as 'islands' of conservation in a 'sea' of development" [4] (p. 194). Recent trends in protected area governance include inclusive governance models and multi-level stakeholder involvement [5]. Also, a historical perspective and the overall social, political, and cultural context of a protected area need to be taken into account for the governance to be effective [2]. 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. The concept of resilience was introduced by Holling [6] 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 [6,7] (p. 1), [8] (p. 300), [9] (p. 7), [10]. Adaptive capacity reflects the learning aspect of system behavior in response to disturbances [11]. In this paper, resilience is observed as a dynamic set of conditions and processes [12], adaptable to different uses and contexts. The concept of resilience has been adopted and interpreted in policy contexts as well [13], viewed as a complex system being context-dependent and as a process of learning lessons from governance failures [14,15].

This paper undertakes a comparative analysis of the governance systems of protected areas to understand the adaptive capacity of these systems in response to outside changes or disturbances. The challenge is to see how two concepts, governance and resilience, relate and influence each other. The focus is therefore 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 measures towards resilience goals. We do not measure resilience as such, but rather observe what resilience measures are applied to the addressed areas and how governance influences their success. Five cases are studied: three national parks (Alde Feanen, Drents-Friese Wold, and Weerribben-Wieden) and one former national landscape (Northeast of Twente region) in the Netherlands, and one area designated as a special protected wetland area in the UK (Somerset County Levels and Moors). The main question addressed in the comparison is: What are the key characteristics of the governance context that influence the resilience of selected natural areas? To elaborate on the main question, the following sub-question can be of aid: 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? What the impacts of governance on resilience are and what remedies look like, will be also discussed.

The governance contexts of the five cases are assessed by using governance assessment tool to understand the influencing factors and process circumstances towards 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" [16] (p. 6). 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 the sustainability and resilience of the protected area. These aspects will be argued further in the paper.

The paper proceeds as follows. In Section 2, the methodology is described, and the assessment framework for the governance is introduced. Here, the selection of cases is explained as well. In Section 3, results of the case studies are presented in comparison. In Section 4, discussion is provided and in Section 5, conclusions are drawn.

2. Methodology

As methodology for comparison, the hierarchic method is used, which implies that the research 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 are used as an input for comparative analysis in the second stage [17]. Two or more cases need to be included in a comparative study in order to produce more generalizable knowledge about how and why particular policies succeed or not. As a research design option, comparative case studies qualify "when an understanding of the context is seen as being important in understanding of the success or failures of the intervention and policy" [18] (p. 2). The emphasis is then on "explaining how the context influences the success of an intervention and how to tailor the intervention better to the specific context to achieve intended outcomes" [18] (p. 1). It is essential to identify the theoretical framework for the comparative study which can help to understand the governance context. Being explicit on defining a rationale for the selection of cases is important as it gives guidance on how the case study process can best be conducted (using leading questions per case, to give more depth to the analysis in the comparison), and to identify how cases are analysed and synthesised with and across the cases. The case studies are selected when there is a need to understand and explain how aspects within the context influence the success of policy initiatives [18].

As an assessment framework for the case studies, the contextual interaction theory (CIT) and its related governance assessment tool (GAT) are used, and elaborated upon in Section 2.1. This comparative paper involves the analysis of the similarities and differences across the studied cases that share a common focus on resilience. For that, an understanding of each case is essential in establishing the foundation for applying the analytical framework that is used in the cross-case comparison [18].

The unit of the analysis is the context formed by governance dimensions and qualities of each case study. For each of the five cases a paper has been written and published [19–23]. The authors of this paper contributed to the first three Dutch cases, while the fourth and fifths cases were part of the DROP (Benefits of Governance in Draught Adaptation) project in the frame of EU Interreg IVB programme, in which the first and the second author participated and contributed to as well. Some parts and main results from those published articles are briefly presented in this paper to provide greater insight and depth for the comparison. In those papers, the effectiveness of the governance processes towards resilience in the addressed nature areas is elaborated including the decision-making processes and the context for these. Based on the results of the analysis of each case study, this comparative paper seeks to compare them in terms of the influencing factors in the governance contexts. The originality of this paper is perceived in the comparison of the case studies. To understand the case contexts, data collection methods such as fieldwork visits, observations, interviews and document analysis were used. For primary data, interviews with the relevant stakeholders per case study have been conducted, and for some cases, workshops were organized as well. For secondary data, secondary sources have been used, including academic literature, relevant reports, and documents.

2.1. Governance Assessment Framework

To understand the governance context for the processes in the selected cases, the governance assessment Tool (GAT) [16] has been applied. GAT is rooted in a theory of policy implementation named as contextual interaction theory [24–26] which focuses on actors and their interaction processes and takes stakeholder characteristics into consideration. CIT perceives that multi-actor processes can be understood from the characteristics of the different stakeholders involved in the process. These characteristics are motivations (driving their actions), cognitions (interpretation of the situation) and resources (capacity and power) [16]. They are not only intrinsic to the actors and influenced by the process, but also influenced by many external factors from a multi-layered context. This context includes a specific context, a structural and a wider context (Figure 1). The specific context involves factors such as, for example, characteristics of the geographical place where the project is realized, and also other circumstances such as the case history or previous decisions. This sets an institutional ground for the process that influences which actors participate, to what extent and with what legal sources and expectations. The next layer is the structural context where the governance assessment tool concentrates on. In the wider contexts, there is cultural, economic, and technological development and characteristics of the political system [25–28].

This governance assessment framework has been used in each studied case and is presented here as well. It emphasizes the processes that focus on how well the governance context supports or restricts the adaptation processes. The framework helps to understand the social interaction processes of involved actors and their characteristics. The GAT 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.

Resources and responsibilities: assuming a complex multi-resource basis for implementation.

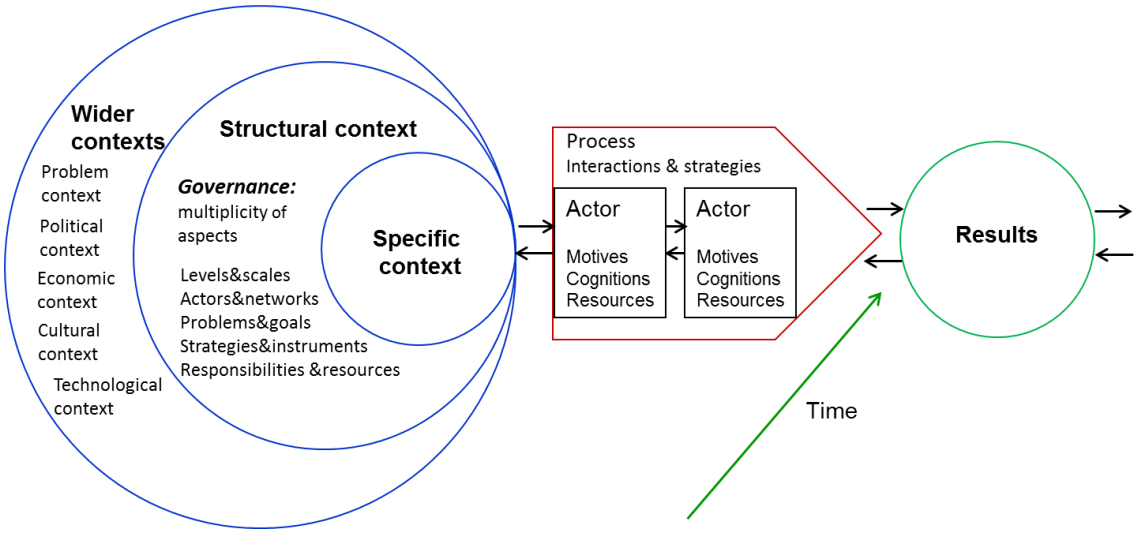

Figure 1. Multi-layered contexts of the CIT [16].

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

1. Extent (refers to the completeness and comprehensiveness of issues at hand, enquiring if all relevant aspects of the governance dimensions are considered).
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 helps 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. The GAT has been applied in each case. The analysis is based on the information acquired from interviews, interactive workshops with stakeholders, and relevant documents and reports per case. There were two stages of the analysis: (i) collecting the interview data according to the five governance dimensions of the GAT to describe the context concerning certain issues and (ii) analysing the data according to the four evaluation criteria to assess the quality and the capacity of the governance contexts.

The GAT questions (Table 1) have been used as data collection strategy and to guide individual interviewees as well as workshop participants. The analysis relied on open discussions between the interviewees and the interviewer, interview transcripts, and notes. The main questions asked during the workshop 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? The ranking of 'supportive', 'neutral' and 'restrictive or hindering' (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 members of the research team to ensure that the assessment did not overlook any important aspects and to check the consistency of the analysis.

Table 1. Evaluative questions of the GAT [16].

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/excluded in the policy strategy? 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?

2.2. Rationale for Case Selection and Resilience Characteristics

The rationale for choosing the cases is based on several aspects, such as significance of the areas for the region, location, characteristics of the selected areas and their governance, relation to the water and nature management. Next, to these general boundaries of the case selection, there was a comparative focus, starting with the province of Friesland that sponsored the study. The first case sits entirely in the province of Friesland, while the second crosses the boundary with a neighboring province, the third is in another neighboring province, and the fourth is in that same province without the status of national park (it is a national landscape). The last one has a similar status, but even sits in another country, the UK. By this sequence, the governance systems change step by step. The last two cases (Northeast Twente and Somerset case) are stemming from an international research project DROP (Benefits of Governance in Drought Adaptation) in which the main author participated and contributed to the publications.

The first case study area, Alde Feanen National Park (Figure 2) is 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 3), was chosen as it is a cross border park, located partly in the province of Friesland and partly in the neighboring province of Drenthe. These two areas share a regional authority which is the Province of Friesland, but the second also has to be accountable to the other provincial authority.

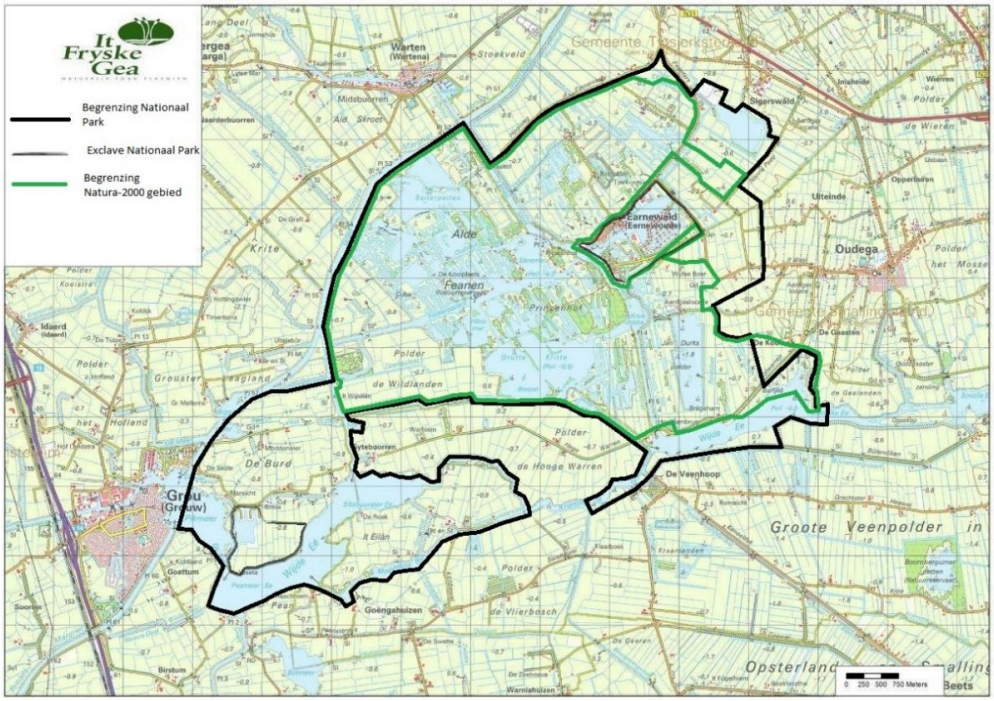

Figure 2. Alde Feanen National Park [29].

Figure 3. Drents-Friese Wold National Park. (The photo is licensed under the Creative Commons Attribution-ShareAlike 2.0 license (CC-BY-SA 2.0) and is free to copy and share; http://nl.wikipedia.org/wiki/Nationaal_Park_Drents-Friese_Wold)

The third case, the Weerribben-Wieden National Park (Figure 4), is from a neighboring Province of Overijssel (with similar to the first case, a pure wetland landscape). In this case, the province delegated most of its authorities even further to the municipality level.

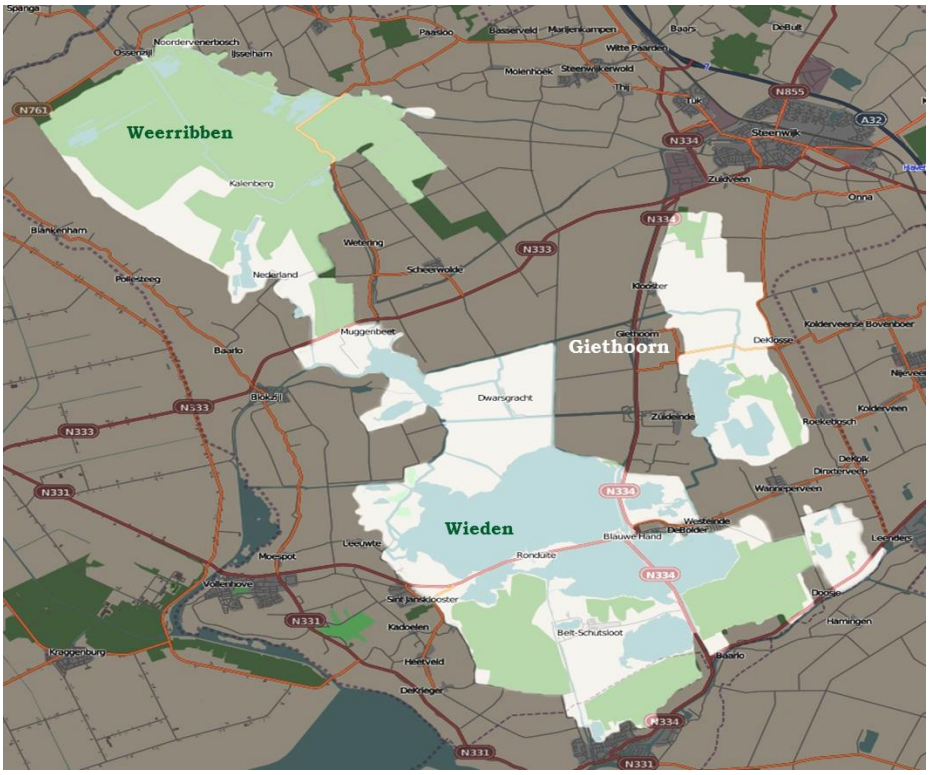

Figure 4. Weerribben-Wieden National Park. (Weerribben-Wieden map- By OpenStreetMap contributors openstreetmap.org, CC BY-SA 2.0, https://commons.wikimedia.org/w/index.php?curid=9965609).

The fourth case, Northeast of Twente region (Figure 5) is also within the authority of the province of Overijssel. It is located in a different part of Overijssel, the setup is different; the area has no official park status. This comes with a different role of the province in this case. It is the regional water board taking the lead in the governance processes.

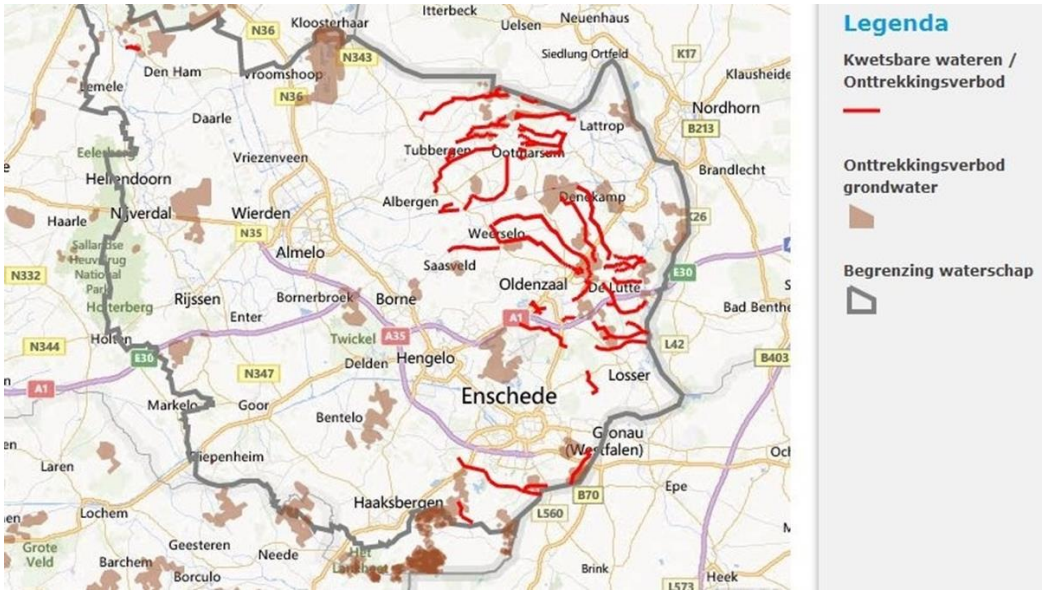

Figure 5. Northeast of Twente region. Legend: Kwetsbare wateren/Onttrekkingsverbod (vulnerable waters/ withdrawal ban); Onttrekkingsverbod grondwater (withdrawal ban groundwater); Begrenzing waterschap (boundary of water board).

In the fifth case, Somerset County Levels and Moors (Figure 6) in the UK has no decentralized nature protection, and has a different institutional setup and quite different set of responsibilities to divide compared to the cases in the Netherlands. However also in this case, the same EU directives that are important in all cases are valid in the research period.

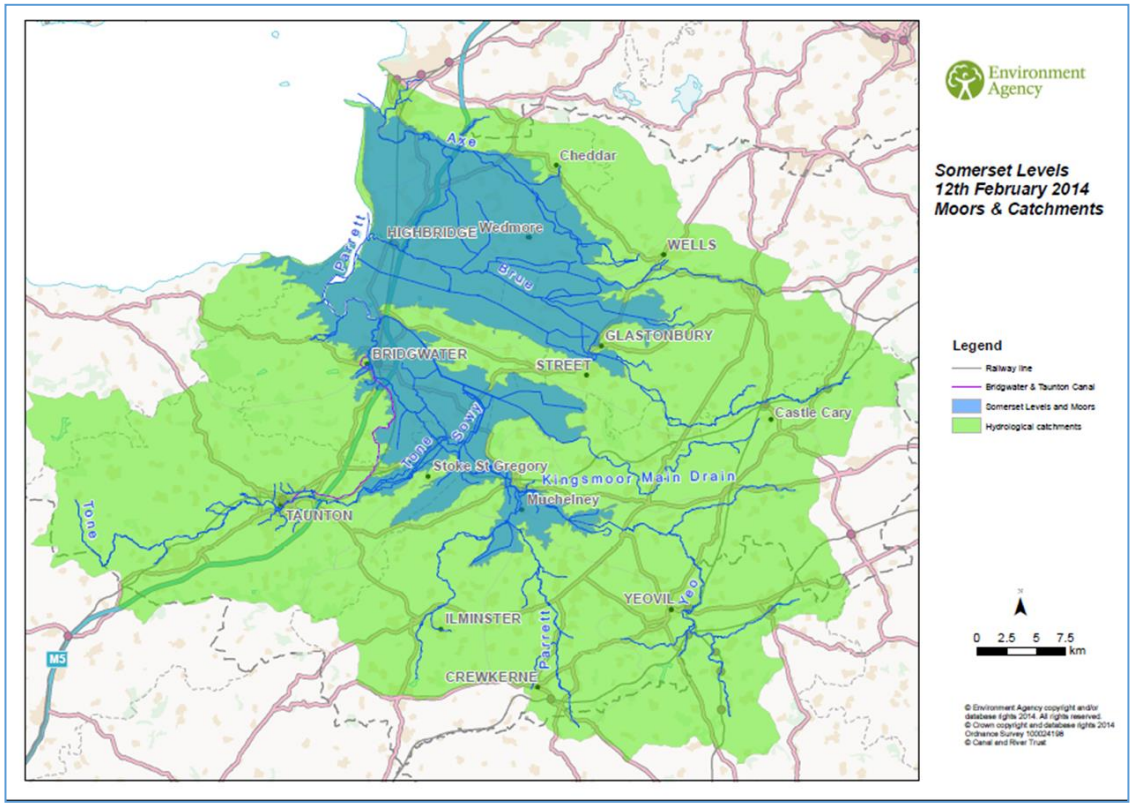

Figure 6. Somerset County Levels and Moors. (Environment Agency (EA); Available via license: CC BY-NC 2.5) Browne et al., 2016 [19,30]

2.3. Characteristics of the Cases

In Table 2, some characteristics of the selected areas, such as status of the area, type of landscape, resilience threats observed, governing authority and type of measures implemented per case are presented.

The areas have varied landscapes comprising of agricultural land and/or protected nature areas that are affected by climate change and/or man-made conditions. Among the three national parks chosen, two have more or less similar types of landscapes, identified as fresh water wetlands (Alde Feanen and Weerribben-Wieden), and one has land characteristics consisting of forests and heath lands, that were in the past deeply drained (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 this landscape is recognized as a Special Protected Area. The studied cases shed light on how the governance contexts influence the feasibility of measures to enhance resilience in those areas.

Table 2. Comparative characteristics of selected cases.

Area	Status/Type of Area	Landscape Biodiversity	Resilience Threats	Governing Authority	Measures
Alde Feanen NL	National Park	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
Drents-Friese Wold NL	National Park	Forests, heath land, sand drifts, agriculture	Several land use change from nature to farmland & vs, deforestation Drought and soil eutrophication due to agriculture activities	Decentralized to Provinces Friesland/Drenthe, multi-level character	Canals for drainage blocked Restoration of nature area
Weerribben-Wieden NL	National Park	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
North-East of Twente region NL	National Landscape	Dry area with small creeks	Water scarcity, drought	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
Somerset County UK	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 modeling

3. Results

3.1. Resilience in the Selected Areas

In each case the resilience state has been observed, summarizing results in Table 3. In the case of the Alde Feanen, the resilience has been threatened due to the challenging context with different contributing factors affecting the resilience of the area: on-going acidification causing the decline of fen meadows, disappearance of peat bog reed which threatens the diversity of animals and plants as they do not renew themselves. Also, human interventions, such as a waterway for commercial purposes and recreational boats in the summer time, potentially deteriorate the water quality and the natural values of the park [21].

Table 3. Summarising results of resilience threats, issues addressed and governance contexts per case.

	Resilience	Issue Analized	Governance Context
Alde Feanen NP	Threats to water quality and water dynamics due to climate change and human interventions	Widening of the waterway for commercial vessels in the park that affects the natural values of the area.	Restrictive—although the majority of actors are well connected and collaborate, institutional complexity and inertia hinder resilience.
Drents-Friese Wold NP	Problems regarding droughts and soil eutrophication due to agricultural activities.	The restoration of the degraded agricultural land, the Oude Willem area.	Relatively supportive, with well-connected actors, but lack of priorities in terms of provision of ecosystem services
Weerribben-Wieden NP	Poor quality of environmental conditions and water quality, high phosphate content due to intensive farming,	Transition process from an old to the new model of the governance.	Moderately flexible with restrictive intensity and incoherence of problems and goals among actors towards resilience goals
Northeast Twente	Droughts and water scarcity problems, affecting both nature and agriculture	Drought governance and drought resilience policies and measures.	Moderately supportive—actors' coherence compensates fragmentation of responsibilities and resources and other governance dimensions
Somerset county	Resilience is threatened by shifts between extreme events from drought to flood events	Drought governance in the context of floods.	Rather supportive with increasing positive tendencies and proactive approach to drought management but with uncertainty over funding and governmental responsibilities.

In the Drents-Friese Wold National Park, the resilience status has been affected through several land use changes from nature to farmland and vice versa. In the previous period, the area was made considerably dryer by 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 remained and only recently have some areas been reforested and deeply drained forests returned into wetter forests. Due to the agricultural activities the Drents-Friese Wold began to face serious problems with regard to droughts and soil eutrophication [22].

In the Weerribben-Wieden National Park, the ecosystem has been threatened mainly as a result of intensive farming. The water table in the surrounding polders was lowered drying up low laying bog. 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. However, the poor quality of environmental conditions in Weerribben-Wieden is still among the current issues. Due to that, for example, disturbance of some bird species (black tern) that breed in the park has been observed [23].

In the Northeast of Twente region resilience has been threatened by droughts and water scarcity problems, affecting both nature and agriculture. The majority of the small creeks are running dry in summer and with climate change this tends to increase, if no measures are applied. Flora and fauna in the creeks die, and the surrounding nature is suffering. This causes complaints from both nature organizations and farmers. Partly these problems are caused by earlier measures of 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 at both ends [20].

Somerset county, which is among UK's most significant peat wetland natural environments, emerged by co-existence of agriculture and water/environmental management [19,30]. The area is sensitive to both serious floods and droughts. Resilience in the area is threatened by shifts between extreme events within one year, e.g., shift from drought to flood events, like the great winter floods of 2013–2014 [19].

More detailed results on the assessment of the governance contexts are presentend in the next Section 3.2.

3.2. Results of Comparisons of the Governance Contexts of the Case Studies

In each case, the governance assessment has been conducted using GAT. Table 4 visualizes the comparison of the governance contexts of the selected cases according to the four qualities taking into consideration the five governance dimensions of the GAT. The main influencing factors are mentioned per quality for each case.

From the results of the assessment, it is observed that the governance qualities of 'extent' and 'flexibility' have restrictive, neutral, and supporting scores, while qualities of 'coherence' and 'intensity' have only restrictive and neutral scores. The colour red does not imply that actors perform negatively with regard to improving the resilience of the park, it implies that the mixture of elements of governance in practice hinders actors to choose for the actions that safeguard or improve resilience of the park, or makes it more difficult to realize them. The colour yellow implies that that an 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 influence the institutional regime for the better.

Table 4. Comparison of the governance contexts according to the qualities of the GAT.

Case	Extent	Coherence	Flexibility	Intensity
Alde Feanen NP	**Neutral**—Responsibilities are not in line with the extent of the problem perceptions of different actors which prevents to pool those responsibilities and resources.	**Restrictive**—big clash of interests among actors and fragmentation of the responsibilities & resources	**Restrictive**—lack of combined instruments to environmental conditions and towards resilience.	**Restrictive**—economic interest overweighs the ecological factors, making no pressure from actors towards resilience outcomes.
Drents-Friese Wold NP	**Supportive**—though business sector is excluded	**Neutral**—need to prioritize benefits of ecosystem services	**Neutral**—room to engage new actors and reassess the goals	**Restrictive**—but with the potential to increase with needed resources

Table 4. *Cont.*

Case	Extent	Coherence	Flexibility	Intensity
Weerrib-Wieden NP	**Restrictive**—mostly local levels involved	**Restrictive**—various perspectives and interests of actors do not support each other	**Neutral**—but still challenged due to the missing higher levels. Transition process provides some room to include new actors and reassess goals	**Restrictive**—with lack of pressure from actors towards resilience goals
North-East Twente	**Supportive**—but withdrawal of the national level from relevant policies impacts the quality; Province remained active but just as a partner	**Neutral**—fragmentation-coherence paradox. Actors coherence compensates fragmentation of 'responsibilities & resources' and also other dimensions	**Supportive**—with fair degree of adaptive capacity, but with restriction to voluntary approaches for preventive measures	**Neutral**—with slow integration of the draught resilience awareness, and with only external pressure (EU) to make water system more resilient.
Somerset county	**Supportive**—with stakeholders' strong and positive involvement in the drought management	**Neutral**—positive across different levels and actors but is limited in strategies and instruments and lacks about the future of the region	**Neutral**—increasing in terms of implementing adaptation plans but limited with regard to responsibilities and resources	**Neutral**—funds and resources do not always reflect the intensity of responsibilities identified

3.2.1. Alde Feanen

The main issue analysed in this case concerns human interventions that affect the ecosystem resilience of the park. A relatively big 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 altogether. In the assessment of the Alde Feanen case, the overall picture from the analyses shows a governance context not being supportive enough, displaying more concerns than positive qualities. In terms of extent and coherence, the majority of actors are well connected in dealing with issues with a fair degree of collaboration in their interactions, though also revealing low qualities at specific issues. Flexibility and intensity were revealed to be more towards restrictive quality as well, despite the motivation of the involved actors to collaborate and seek consensus in decision making. Institutional complexity is revealed as a hindrance to efforts to increase the resilience of the area. Institutional complexity is considered a norm for protected area governance [30]. 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 the governance context too complex to deal with issues of high rivalry and contributes to the complicated and long 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 intertia and thus to low flexibility and low intensity [21].

Some themes emerge 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, 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 overweigh the resilience factors creating no pressure from the main actors towards resilience.

Formal involvement of farmers is also identified as a concern. Farmers are land owners and important actors, and their interests need to be taken into account, especially if the area is planned to be extended (one of the alternatives that is discussed) [21].

3.2.2. Drents-Friese Wold

The main issue analysed is related to the restoration of the degraded agricultural land, the Oude Willem area, within the Drents-Friese Wold National Park, as one of the primary measures for managing the drought prone area and to increase the resilience of the park. The overall picture from the analyses has shown 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 is assessed as a drawback. Flexibility was assessed as medium/neutral, though there are always issues to be tackled at specific levels. Intensity was revealed to be restrictive, despite the strong commitment of all levels to carry out the project. That is because the provision of ecosystem services is not prioritized, thus resilience as such is not in focus on the agenda. Stakeholders also need to find new ways to enable future investments for nature development, because governments have retracted previous funding mechanisms [22].

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 more important while 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. The cooperation of these provinces regarding the Oude Willem proves to be rather supportive as these provinces provide the majority of financial resources and develop local nature and spatial development plans to implement national nature policy. Also, two water boards, Wetterskip Friesland and (then) Reest en Wieden (later merged with the water board Groot Salland to become Drents Overijsselse Delta), were the main water managers and partially providers of funds, but Reest en Wieden had a higher interest and level of involvement as most of the area is under its territory. The one point to be noted 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 would therefore include new actors through a 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 their territory [22].

3.2.3. Weerribben-Wieden

The main issue analysed was related to the transition process from an old to the new model of governance for the Weerribben-Wieden National Park. In this case, the governance context has been subject to major challenges and restructuring in the recent past. After the drastic changes in nature policy in the Netherlands, by national government withdrawing from their central role and decentralizing the authority with regard to nature tasks to the provinces, the province has in turn also decided to withdraw itself from a leading position, decentralizing 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, has been created to take responsibility in the transition process for developing a new governance model for the national park [23].

From the analysis of the Weerribben-Wieden case, the overall picture of the quality of governance can be described as moderately flexible with restrictive intensity and incoherence of problems and goals among actors towards resilience goals. The observations on the governance context revealed

more concerns on all qualities of the governance regime. For example, the degree of extent is towards restrictive with mostly local levels involved with various actors directly concerned with the park. This provides a challenge to strengthen this quality. Coherence is also restrictive as various perspectives and interests of stakeholders do not support each other. Only flexibility tends towards neutral, but is still challenged due to 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 in a matter. 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 in which the province withdrew. Although there is an agreement among stakeholders that park governance has to change, there is a diminished sense of responsibility for the maintenance of the natural resources of the national park [23].

3.2.4. Northeast of Twente

The main issue analyzed in this case is related to the drought governance and drought resilience policies and measures in the Northeast of Twente region, a former national landscape, which is situated in the same province of Overijssel as the Weerribben-Wieden national park. In the case of the Twente area the province was represented in the multi-stakeholder committee, but never as a leading party, so others were not as much dependent on them, as in the Weerribben-Wieden case. But the good connection with the province ensured that it contributes 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. In the case of the Northeast of Twente region, the overall picture from the analysis 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. In this case the province remained active, though just as a partner, not as a leader. Compared to the previous case from the same province but from a different part, where the province transferred its responsibilities to the lower municipality level, and took the role of observer with no responsibility for resilience goals, the contribution by the province remained more substantial. With coherence, a "fragmentation-coherence paradox" is observed. It is called a "paradox" because, while normally the observed fragmentation of instruments, responsibilities, and resources would lead to stalemates and ultimately disinterest in the topic, in the context of positive experiences with mutual cooperation among actors it has led to a recognition that the various parties need each other, with no fear that one of them will become too dominant. While fragmentation is presented in almost all dimensions, especially in the responsibilities and resources dimension, this does not lead to stalemates as could be expected. The close collaboration of the stakeholders at multiple levels of administration and project managers is a great advantage that provides coherence and enables successful implementation of measures. The supportive actor and network coherence saves the situation. Flexibility is quite supportive, though the low degree of alternative sources of income next to market oriented farming in the '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 is the weakest quality. Especially the slow increase of drought resilience awareness and the resulting reliance on voluntary preventive measures only create the risk that the ultimate goals will be difficult to achieve [20].

3.2.5. Somerset County

In the only non-Dutch case of Somerset, the assessment focuses on the governance of drought for the Somerset region, but in the context of flooding as recent history. History showed that Somerset is vulnerable to shifts between extreme events, even within one year, for example a sudden shift from drought to flood in 2012. More drought periods have occurred. Climate change increases both 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 [31–33]. Droughts are projected to be more severe and to 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 [19].

In comparison to the previous Dutch cases, Somerset County Levels and Moors (as a unique manmade wetland landscape of international importance) has a different governance system, but it is ultimately regulated by the same EU directives and global agreements related to water and nature (e.g., Ramsar Convention) as in the Dutch cases. It has no water boards but the County itself has responsibility. It mediates between different types of interests, e.g., after the 2013–2014 floods, interests of wetlands were completely submerged with that of preventing the floods and the debate on improved 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 is having a complex, multilayered and multi-actor regulatory and governance system. Drought governance relates to the management of drinking water, agricultural water, and water for nature and biodiversity. Drought is seen to influence all of these, and also as being influenced by activities related to drinking water, agriculture, industrial activity, infrastructure (e.g., energy provision), navigation, and environmental protection (fisheries, wetlands, wildlife and plants) [34]. 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 [19].

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 a proactive, anticipatory 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 the neoliberalism of risks and responsibilities, there has been a reconfiguration of responsibilities and resources for drought and water scarcity issues [19]. 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 suggested 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, in actors and networks there is some inconsistency between the formal plans and the experiences of being supported in various tasks which possibly leads the system to feel less flexible for some actors in the process. There is flexibility in the responsibilities, but q 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 [19].

The assessment of the governance context in Somerset has shown the water management to be unique and complex. The Somerset case provides an insight into how governance failures affect 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 assessment of the governance context in Somerset has shown that the long-term adaptation plans, and crisis management strategies and instruments that are emerging in each of these boundaries of responsibilities for water management are strong and becoming increasingly clear [32] (e.g., Environment Agency 2015). The events in Somerset reflect a deeper political failure to maintain strategies and instruments that support water management to withstand both directions of climate change extremes (drought and flood), and a failure to adaptation into connected forms of policy and planning (such as land use

planning) [19]. The question is whether the observations on governance–resilience relations around flood and drought issues still seem to hold under such different institutional conditions. Since the last extreme flooding of 2013–2014, the change in the governance context is observed in terms of adding an extra layer of governance around the flooding issues to realise the 20-year flood action plan, with Somerset Rivers Authority (SRA) being a key actor in this process. Coherence seems to have improved after the big flooding, but there are still lots of disagreements between farmers and conservationists, so this coherence is not fully resolved. One thing that has been particularly undertaken in the land management stream of the action plan is related to the natural flood management, specifically to naturally slow down water flow and to store water rather than use engineering (creating leaky ponds on farms, like small reservoirs, to store water and gradually releasing when needed, is starting to become popular in England now). It is good for flooding but also good for drought management to use water in the summer 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 supported the use of 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. In addition, an issue of intensive farming vs nature conservation remains questioned. After the Brexit the answer on what will happen is unclear. The whole system of farming subsidies through the common agricultural policy is a European subsidy and this money will be lost after the final shape of Brexit. However, one of the very few things that could come out of Brexit and could be positive 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.

4. Discussion

This comparative case analysis demonstrated the results of the five case studies with regard to the governance context influences on resilience. While the cases were more or less different, the geophysical situation and the overriding EU regulations were similar. The findings from the case studies emphasized the ways in which governance aspects can impact the feasibility of resilience measures and whether an institutional organisation or the type of authority that is guiding a process makes a difference, like in the 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 sub-question addressed, it was observed that all four qualities (extent, coherence, flexibility and intensity) of the governance context showed a certain degree of supportiveness or restrictiveness when dealing with addressed resilience threats or issues. However, the specific context and the wider context in all cases also played a role. Therefore, it is difficult to assess only features of the structural context and end 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 the quality of extent only restrictive in the case of the Alde Feanen is that responsibilities are not in line with the extent of the problem perceptions of different actors which prevents to pool those responsibilities and resources. In the case of the Drents-Friese Wold, the lack of interest from businesses in project implementation is believed to exist because they do not see direct benefits from the ecosystem services delivered after the realization of the restoration project Oude Willem. In the case of the Weerribben-Wieden, involvement of mostly local levels negatively influences the extent quality. In the Northeast Twente region, the extent is supportive, but withdrawal of the national level from relevant policies impacts the quality as well, although province remained active but just as a partner. In Somerset County case, the extent is also supportive, with stakeholders' strong and positive involvement in the drought management, but with a reduced funding environment.

Considering that, in the Alde Feanen, the responsibilities of actors and the problem perceptions need to be better linked. In the Drents-Friese Wold, to increase the interest and involvement of actors such as businesses in targeting resilience goals, the benefits that ecosystem services provide need to be better explained. In the Weerribben-Wieden, the extent of higher level involvement needs to be improved as only local level actors cannot make significant changes. The same holds to a lesser extent for Northeast Twente due to the absence of the national level and the passive role of the province, but with the water board in a stronger role. As for Somerset, the funding environment needs improvement.

What creates a process in which all perspectives and interests are aligned is reflected by coherence quality. The main factor affecting this quality in the first case is a big clash of interests among actors and fragmentation of the responsibilities and resources. For the Drents-Friese Wold case, the benefits of ecosystem services expected after the restoration project of Oude Willem were not prioritised by actors. In the Weerribben-Wieden case, various perspectives and interests of actors do not support each other. While in the Northeast Twente case, actors' coherence compensates for the fragmentation of responsibilities and resources and also other governance dimensions, in the Somerset case, coherence is positive across different levels and actors, but is limited in the strategies and instruments and lacks 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 the case of the Alde Feanen, there is a lack of combined instruments to improve environmental conditions and move towards resilience. In the Drents-Friese Wold, there is room to engage new actors and reassess the goals as a result of decentralization, but the engagement of new actors makes the context even more complex. However, the culture of working together helps to achieve goals in complex circumstances. For the Weerribben-Wieden, the situation is challenged due to the missing higher levels. But the transition process to the new type of organisation for the national park provides circumstances to reassess goals, though hardly in the direction of making them more ambitious. For the Northeast Twente region, there is a fair degree of adaptive capacity in the flexibility quality, but with some restriction to voluntary approaches for preventive measures. In the case of the Somerset County, flexibility is increasing in terms of implementing adaptation plans but is 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 intensity quality. In the case of the Alde Feanen, economic interests overweigh the ecological factors, making no pressure from actors towards resilience goals. In the Drents-Friese Wold intensity is low but with the potential to increase with needed resources. In the Weeribben-Wieden, similar to the first case, there is a lack of pressure from actors towards resilience goals. In the Northeast Twente region, there is a slow integration of the draught resilience awareness, and with only external pressure from the EU to make the water system more resilient. Furthermore, in the Somerset case, there is a strong sense of intensity for drought issues from all levels and scales. A strong intensity is seen in the use of instruments and measures (a constant renewal of the plans for drought in the region), but intensity of the issue decreases in the sharing of resources associated with the tasks of adaptation, and funds and resources do not always reflect the intensity of responsibilities identified. There is an issue of problem definition for drought which needs to be seen in a complementary way with 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 [19].

Discussion on the Impacts of External Circumstances on the Governance Context

It has been observed that governance elements and resulting qualities create some sort of setting for improving the resilience of the park. However, it is also seen that every case has its unique history and no single solution or setting can be applied to all cases with different circumstances. Certain characteristics of the governance context can lead to improved management but whether governance is capable to deal with unexpected circumstances is a matter of question. The expectation was that the single province would lead the process and make an appropriate setup for resilience but in fact the

impacts of external circumstances appeared to have crucial influence on the governance context 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) (shown in Figure 1). In the Alde Feanen case, it is mainly the economic pressure of the waterway that complicates the situation. The province of Friesland, instead of taking the lead in protecting the Nature 2000 area, competes itself with protecting economic interests, while in the Drents-Friese Wold, the complicating factor is a shared responsibility with another province and whether two provinces cooperate when dealing with issues. In the Weeribben-Widen case the province creates difficulties itself due to its withdrawal, and decentralising its responsibilities further to the lower level authorities with insufficient capabilities and with no administrative and financial strength to carry these responsibilities. In the Northeast Twente case, which is in the same province, the situation is better because the province has not completely disconnected itself and is still a part of the team as a partner, but not as a coordinator. Fragmentation of responsibilities and resources is remedied by a very close partnership of the actors involved (coherence). Lastly, in the Somerset case, with a very different set up compared to the Netherlands, a huge outside impact of, first, drought and then the huge flood affected the whole case.

This observation suggests that it is not only four qualities of the GAT that influence the capacity of the governance context, but also external factors that affect the success of governance of natural areas. Indeed, the level of the governance quality and the level of quality of protection influence each other and the governance circumstances impact the capacity of the area to protect and improve itself. However, big challenges in a number of situations call for the governance to be resilient as well, but not as a part of ecological resilience, rather as governance context resilience, to cope with such unexpected circumstances.

5. Conclusions

This paper compared governance contexts of the selected areas to see how governance influences resilience in those areas. The impacts of the governance on resilience were revealed in different combinations of governance qualities. However, these did not lead to any particular supporting institutional set up. This is due to the variety of the challenges that affected each case. Having an overarching view on the results, it can be observed that the governance context always sits in the wider context situations and includes part of the specific context (referred to as complexity of the governance context); as it is difficult to give a real content without referring to the case specific context. Even when concentrating only on the governance aspects, the story leads to relate it to the wider context and 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 the case of the Alde Feanen that needs to be broadened, becomes important in the structural context as it is part of the history and part of the wider context.

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; and there are also differences in the structural context. Some of the differences, e.g., related to the criteria for the case selection, geographical characteristics, previous decisions, or effects of decentralisation, were discussed. In the Northeast Twente case, decentralisation has less negative effects (as province is still there as a partner and secondly water board is a substantial organisation with lots of capacity and finances), than in the Weerribben-Wieden case, where decentralisation is pushed down to the level of the municipality which has no capacity to lead the national park.

Another lesson learnt is related to the effects of decentralisation of nature policies in the Dutch cases, while in the UK case it is related to a very fragmented water governance system which makes it challenging to combine strategies and instruments for resilience. The governance suffered much in the Dutch cases when the province withdrew from its responsibilities and it has not yet fully recovered its strength. For example, in the Alde Feanen they still have to compete with economic interest, or in

Northeast Twente case the governance was not really supportive, bringing up the coherence between actors to compensate other restrictive qualities.

The resilience of the studied areas is hampered by the 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, i.e., a level that cannot properly handle given responsibilities. The resources for nature tasks can be pulled up to a certain level, but not if decentralisation is pushed too far, like in Weerribben-Wieden case, where province is not fulfilling the responsibility that it legally has to care for nature. The new transition situation in the 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.

The study also showed the ecological systems in the parks as being dynamic and vulnerable to dramatic changes, e.g., long summer droughts or sudden floods. 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 and long-term vision for the areas to increase the likelihood that instruments and resources for resilience will improve. Such measures will motivate actors to overcome differences in opinions and to work on a common future for the area.

Thus to sum up, if all levels and actors acknowledge the right level of decentralisation, commit to lead the functioning of the whole park (and not only for the part of the park), connect levels and scales to problem perceptions and goals in the right way, and realize the strategies and instruments applied, hindrances can be avoided, leading to the improved quality of the governance context to realize resilience goals.

The research revealed that having more 'resilient' governance context is important as unexpected external changes will always occur and challenge the capacity of the governance context to deal with these changes. The study revealed a new perspective as well that suggests considering 'resilience' as a new quality dimension for the governance context next to the 'extent', 'coherence', 'flexibility', and 'intensity'. This could provide researchers with additional insight into the governance context analysis of future cases. The research contributes to the scholarly literature on the governance for resilience in protected areas by using a governance assessment framework for analysis of the governance contexts of the national parks. The paper will benefit the readership because it observes the governance circumstances in relation to the resilience measures and provides analyses and research findings of the practical management experiences of the involved case study areas, revealing the difficulties in the management of these areas. The manuscript should be of interest to both scientific and practitioners' audiences with an interest in environmental policies, resilience and governance.

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