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To cite this article: Maia Lordkipanidze, Hans Bressers & Kris 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](https://doi.org/10.1080/09640568.2018.1441014)

To link to this article: <https://doi.org/10.1080/09640568.2018.1441014>



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Published online: 13 Mar 2018.



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

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(Received 3 November 2016; final version received 10 January 2018)

This paper addresses the challenge of appropriate governance of complexity and diversity in the Dutch national park of 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 area. 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

1. Introduction

Literature on the governance of protected areas addresses important concerns regarding deterioration, disturbances and recovery from natural 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 services¹ (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

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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 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.

1.1. 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 when 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.

1.2. 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.

1.3. 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 2](#) describes the methodology. [Section 3](#) elaborates the conceptual framework. [Section 4](#) introduces the case study. [Section 5](#) 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 6](#), our findings are discussed that answer the research question and draw conclusions.

2. 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; López-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 1) 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.

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 2). The GAT was also used to guide an interactive workshop² 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 ongoing 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?

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. 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).

Table 1. Evaluative questions of GAT (Bressers et al. 2016).

Quality of the governance context				
Governance dimension	Extent	Coherence	Flexibility	Intensity
Levels and 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 recognized?	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 and 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 and 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 reassess goals? Can multiple goals be optimized in package deals?	How different are the goal ambitions from the status quo or business as usual?
Strategies and 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 and 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?

Table 2. 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

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.³

The GAT has its basis in the CIT (Figure 1), 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).

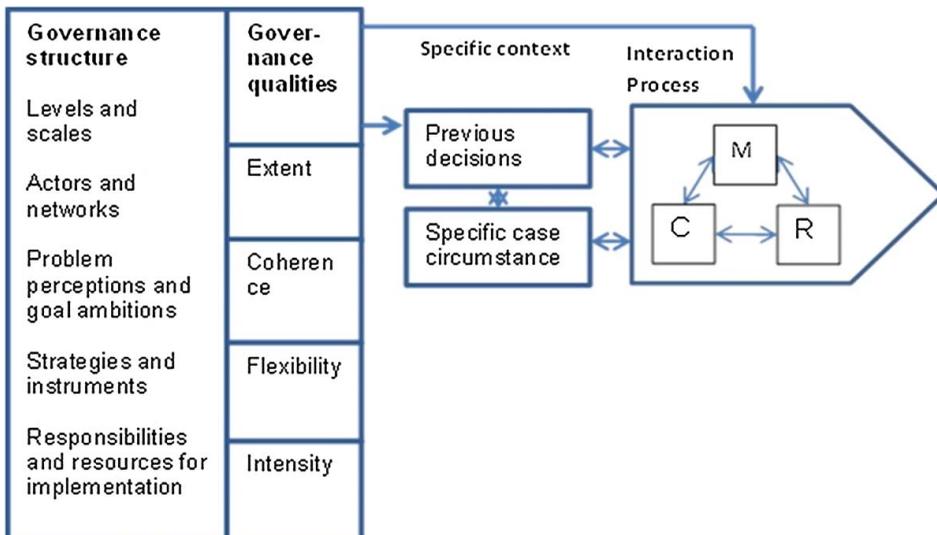


Figure 1. GAT within contextual interaction theory as an assessment framework for the case (based on Bressers and Lulofs 2010).

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.

4. Case study: the Alde Feanen National Park

The Alde Feanen National Park covers about 40 km² and is located in the northern province of Fryslân (Figure 2). 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).

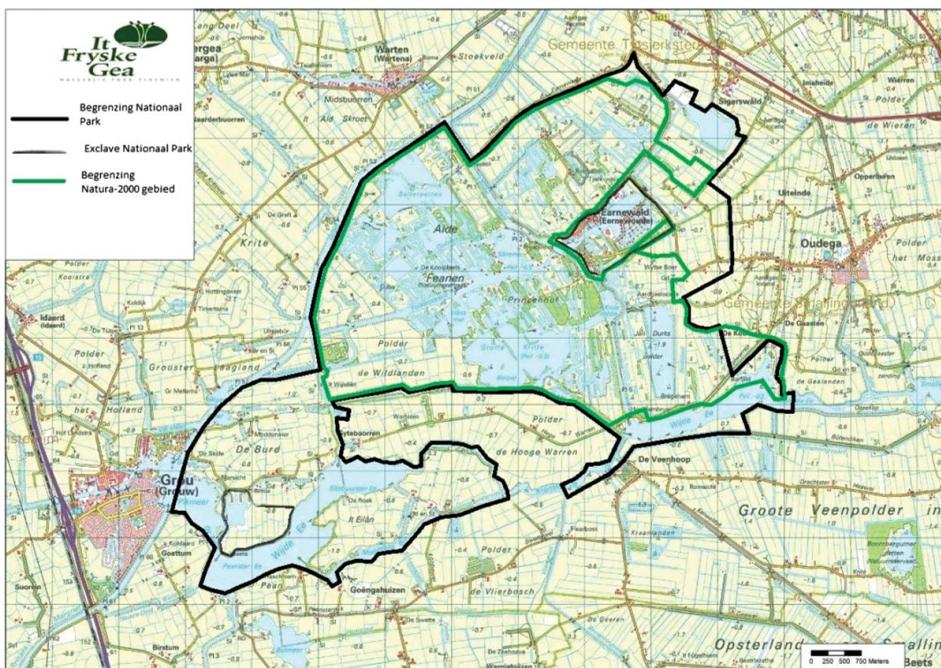


Figure 2. Alde Feanen National Park. Source: Nouta 2015.

Table 3. 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 to 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 nineteenth century	With the peat in the area almost gone; 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 carried out 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 2,500 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, a 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 signed up to the European Commission as a habitat area.
2006	The area became a national park.
2007	Alde Feanen became a part of the 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; the 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 4,000 ha.
2013–2019	LIFE+ project ‘Booming Business’ started in Alde Feanen, aimed at improving water quality, restoring nature and increasing navigability.

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 3 presents a time line of important historical changes to the area in terms of landscape formation and policy developments.

Table 4 presents biophysical and social properties of the Alde Feanen focal system.

The park is crisscrossed by a large number of watercourses. These vary considerably in size and breadth. They are used for transportation, fishing, 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.⁴ 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 3) 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 ongoing for more than a decade. Although the waterway is an important transportation route for commercial shipping in

Table 4. 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.⁷</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 17 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.⁸</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>

Varianten voor een alternatieve vaarweg naar Drachten

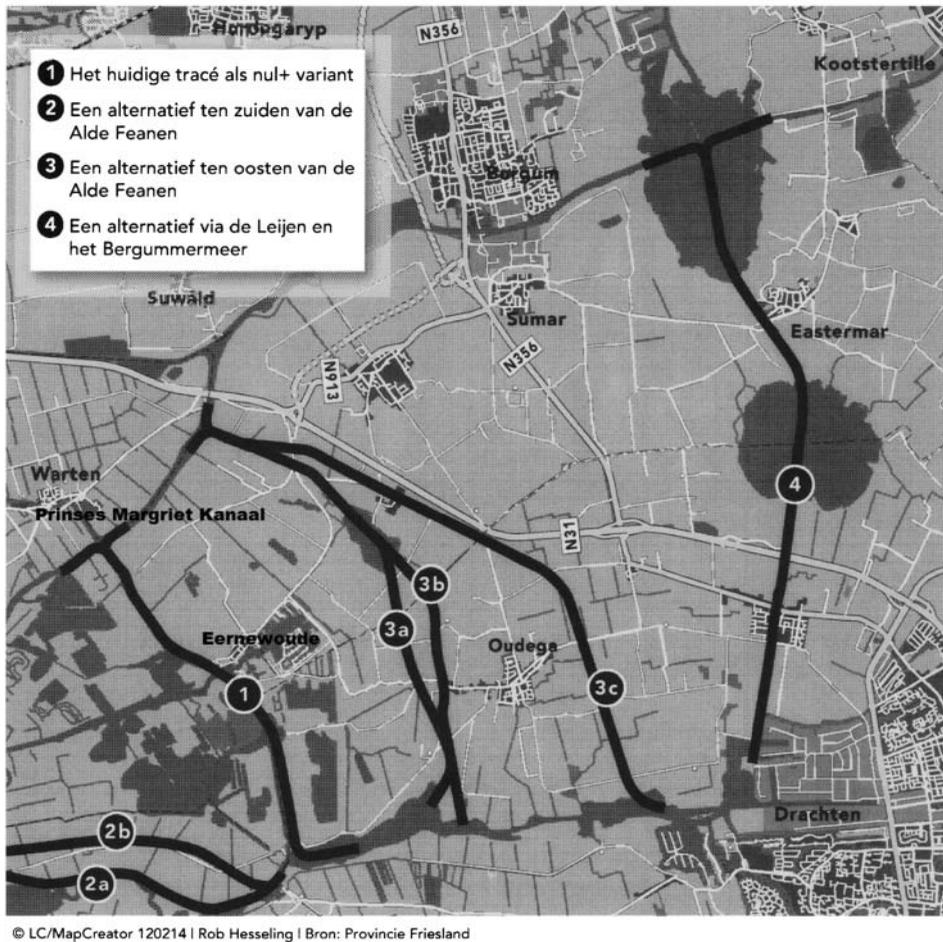


Figure 3. Legend: alternative routes: (1) broadening and deepening of the current route, also as 0+ variant (crosses Nature 2000 area); (2) alternative route south of the Alde Feanen in two variants; (3) alternative route east of the Alde Feanen in three variants; (4) alternative route via De Leijen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

the northern Netherlands, it has created considerable negative impacts on the environment of the area.

5. Application of the assessment framework to the case study

5.1. 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 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 5 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.

5.2. 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 level⁵ 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

Table 5. Visualisation of the governance context analysis.

Dimensions	Quality criteria			
	Extent	Coherence	Flexibility	Intensity
Levels and scales	High (+), but no involvement of the national level	High (+), with a certain level of hierarchy in decision-making	Medium (0), with adaptive atmosphere between levels	Medium (0), pressure comes from EU and global level
Actors and 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 and 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 and 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 and resources	Low (-), dependence on outside resources	Low (-), fragmented responsibilities as well as resources	Low (-), institutional inertia and separation of funds	Low (-), lack of sufficient resources

Note: (+) Green – high; (0) yellow – medium; (-) red – low.

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 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)⁶ 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 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 ongoing 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 overweigh 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.

5.3. 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 a 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.

6. Findings and conclusions

6.1. 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 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, they 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, involving 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.

6.2. 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 policy-makers, 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.

Notes

1. 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)
2. The workshop was organized 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" (with the focus on the Alde Feanen issues).

3. 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.
4. The waterway connects the harbour to the Princess Margriet canal which is a part of the EU network for the biggest inland vessels.
5. 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.
6. 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).
7. In surrounding areas, the ground water level is set relatively low for agricultural purposes and is controlled by (Wetterskip) regional water authority (Wetterskip 2014).
8. Life+ project ‘Booming Business’ (2013–2019) (€6 mln); <http://www.np-aldefeanen.nl/8829/booming-business>; Life+ is a European funding program for rehabilitation and development of special natural values in Natura 2000 areas.

References

- Adger, W.N. 2003. “Building Resilience to Promote Sustainability.” *IHDP Update 2*: 1–3. <http://www.ihdp.unu.edu/docs/Publications/Secretariat/Update-Dimensions/IHDP-Update-2003-2.pdf>.
- Bahadur, A.V., M. Ibrahim, and T. Tanner. 2010. “The Resilience Renaissance? Unpacking of Resilience for Tackling Climate Change and Disasters.” *Strengthening Climate Resilience Discussion Paper 1*. Brighton: Institute of Development Studies, University of Sussex. http://www.fsnnetwork.org/sites/default/files/ids_resilience-renaissance.pdf.
- Beheer-en Inrichtingsplan Alde Feanen. 2005. “Management and Perspective Plan Alde Feanen.” In *opdracht van: Overlegorgaan Nationaal Park De Alde Feanen. Uitgevoerd door: Buro Hemmen - adviseurs natuurbeheer en landschapsecologie*, Prepared by Buro Hemmen - Consultancy in nature management and ecology and commissioned by Consultative Body National Park Alde Feanen. www.np-aldefeanen.nl/download/NPALDEFEANEN08783.pdf
- Beheerplan Natura 2000 Alde Feanen. 2015. Opgesteld door Altenburg and Wymenga / Provincie Fryslân [Management Plan Nature 2000 Alde Feanen]. Prepared by Altenburg and Wymenga Ecological Consultancy/Province of Fryslân. <http://www.np-aldefeanen.nl/download/NPALDEFEANEN08783.pdf>
- Béné, C., R.G. Wood, A. Newsham, and M. Davies. 2012. “Resilience: New Utopia or New Tyranny? Reflection about the Potentials and Limits of the Concept of Resilience in Relation to Vulnerability Reduction Programmes.” *IDS Working Paper No. 405*. Brighton: Institute of Development Studies.
- Biggs, R., M. Schlüter, D. Biggs, E.L. Bohensky, S. Burnsilver, G. Cundill, V. Dakos, et al. 2012. “Towards Principles for Enhancing the Resilience of Ecosystem Services.” *Annual Review of Environment and Resources* 37: 421–448.
- Borrini-Feyerabend, G., and R. Hill. 2015. “Governance for the Conservation of Nature.” In *Protected Area Governance and Management*, edited by G.L. Worboys, M. Lockwood, A. Kothari, S. Feary, and I. Pulsford, 169–206. Canberra: ANU Press.
- Boyd, J., and S. Banzhaf. 2007. “What are Ecosystem Services? The Need for Standardized Environmental Accounting Units.” *Ecological Economics* 63: 616–626.
- Boyd, E., and C. Folke, eds. 2011. *Adapting Institutions: Governance, Complexity and Social-Ecological Resilience*. Cambridge: Cambridge University Press.
- Bressers, H. 2004. “Implementing Sustainable Development: How to Know What Works, Where, When and How.” In *Governance for Sustainable Development: The Challenge of Adapting Form to Function*, edited by William M. Lafferty, 284–318. Cheltenham, Northampton, MA: Edward Elgar Publishing.
- Bressers, H., N. Bressers, S. Kuks, and C. Larrue. 2016. “The Governance Assessment Tool and Its Use.” In *Governance for Drought Resilience: Land and Water Drought Management in Europe*, edited by Hans Bressers, Nanny Bressers, and Corinne Larrue, 45–65. Cham, Switzerland: Springer. http://link.springer.com/chapter/10.1007%2F978-3-319-29671-5_3

- Bressers, H., and K. Lulofs. 2010. "Analysis of Boundary Judgments in Complex Interaction Processes." In *Governance and Complexity in Water Management*, edited by Hans Bressers and Kris Lulofs, 17–32. Cheltenham: Edward Elgar.
- Brown, V.A. 2008. *Leonardo's Vision: A Guide to Collective Thinking and Action*. Rotterdam: Sense.
- Carpenter, S.R., and W.A. Brock. 2008. "Adaptive Capacity and Traps." *Ecology and Society* 13 (2): 40. <http://www.ecologyandsociety.org/vol13/iss2/art40/>.
- Carpenter, S., F. Westley, and M. Turner. 2005. "Surrogates for Resilience of Social–Ecological Systems." *Ecosystems* 8: 941–944.
- CDA Fryslân [Christian Democratic Appeal, Political Party in Friesland]. 2014. "CDA Smallerland: Hoogste tijd Voor Aanpassing Vaarweg Drachten [Time for Adjustment of Fareway Drachten]." <http://cda.frl.nl/nieuws/1254/cda-smallerland-hoogste-tijd-voor-aanpassing-vaarweg-drachten/>.
- Chandler, D. 2014. "Beyond Neoliberalism: Resilience, the New Art of Governing Complexity." *Resilience: International Policies, Practices and Discourses* 2 (1): 47–63. doi:10.1080/21693293.2013.878544.
- Clement, S., S.A. Moore, and M. Lockwood. 2016. "Letting the Managers Manage: Analyzing Capacity to Conserve Biodiversity in a Cross-Border Protected Area Network." *Ecology and Society* 21 (3): 39. doi:<https://doi.org/10.5751/es-08171-210339>.
- Cox, M. 2012. "Diagnosing Institutional Fit: A Formal Perspective." *Ecology and Society* 17 (4): 54. doi:<https://doi.org/10.5751/ES-05173-170454>
- Cumming, G.S., G. Barnes, S. Perz, M. Schmink, K.E. Sieving, J. Southworth, M. Binford, R.D. Holt, C. Stickler, and T. Van Holt. 2005. "An Exploratory Framework for the Empirical Measurement of Resilience." *Ecosystems* 8 (8): 975–987. doi:<http://dx.doi.org/10.1007/s10021-005-0129-z>
- Davidson, J.L., I.E. van Putten, P. Leith, M. Nursey-Bray, E.M. Madin, and N.J. Holbrook. 2013. "Toward Operationalizing Resilience Concepts in Australian Marine Sectors Coping with Climate Change." *Ecology and Society* 18 (3): 4. doi:<https://doi.org/10.5751/ES-05607-180304>.
- Davoudi, S. 2012. "Resilience: A Bridging Concept or a Dead End." *Planning Theory and Practice* 13 (2): 299–333. <http://www.tandfonline.com/doi/pdf/10.1080/14649357.2012.677124>.
- De Boer, C., and H. Bressers. 2011. *Complex and Dynamic Implementation Processes; Analyzing the Renaturalization of the Dutch Regge River*. Enschede, The Netherlands: University of Twente in collaboration with Dutch Water Governance Centre.
- Dudley, N., and S. Stolton, eds. 2008. *Defining Protected Areas: An International Conference in Almeria, Spain*. Gland: IUCN, 220.
- Eagles, P.F.J., F. Romagosa, W.C. Buteau-Duitschaeffer, M. Havitz, T.D. Glover, and B. McCutcheon. 2013. "Good Governance in Protected Areas: An Evaluation of Stakeholders' Perceptions in British Columbia and Ontario Provincial Parks." *Journal of Sustainable Tourism* 21 (1): 60–79. doi:10.1080/09669582.2012.671331.
- Eklund, J., and M. Cabeza. 2016. "Quality of Governance and Effectiveness of Protected Areas: Crucial Concepts for Conservation Planning." *Annals of the New York Academy of Sciences, Issue: The Year in Ecology and Conservation Biology*. 1399 (1): 27–41. doi:10.1111/nyas.13284/pdf
- Folke, C., S.R. Carpenter, B. Walker, M. Scheffer, T. Chapin, and J. Rockström. 2010. "Resilience Thinking: Integrating Resilience, Adaptability and Transformability." *Ecology and Society* 15 (4): 20. <http://www.ecologyandsociety.org/vol15/iss4/art20/>.
- Gunderson, L.H. 2009. *Comparing Ecological and Human Community Resilience*. CARRI Research Report 5. Georgia: Department of Environmental Studies at Emory University Atlanta.
- Hannah, L. 2006. "Governance of Private Protected Areas in Canada: Advancing the Public Interest?" PhD diss., University of Victoria.
- Holling, C.S. 1973. "Resilience and Stability of Ecological Systems." *Annual Review of Ecological Systems* 4: 1–23.
- Joseph, J. 2016. "Governing Through Failure and Denial: The New Resilience Agenda; Millennium." *Journal of International Studies* 44 (3): 370–390.
- KKBA Vaarweg Drachten. 2014. *Uitgevoerd door: Witteveen+Bos en Altenburg and Wymenga ecologisch onderzoek*. Gemeente Smallerland. [Cost Benefit Analysis of Waterway

- Drachten]. Report by Witteveen and Bos Engineering Consultancy and Altenburg & Wymenga Ecological Consultancy. Smallingerland Municipality.
- Kotzebue, J.R., H.T.A. Bressers, and C. Yousif. 2010. "Spatial Misfits in a Multi-Level Renewable Energy Policy Implementation Process on the Small Island State of Malta." *Energy Policy* 38 (10): 5967–5976.
- Lebel, L., J.M. Anderies, B. Campbell, C. Folke, S. Hatfield-Dodds, T.P. Hughes, and J. Wilson. 2006. "Governance and the Capacity to Manage Resilience in Regional Social-Ecological Systems." *Ecology and Society* 11 (1): 19. <http://www.ecologyandsociety.org/vol11/iss1/art19/>.
- Lockwood, M. 2009. *Governance Assessment of Terrestrial Protected Areas: A Framework and Three Case Studies*. Hobart: University of Tasmania. <http://www.geog.utas.edu.au/geography/nrmgovernance/>.
- Lockwood, M. 2010. "Good Governance for Terrestrial Protected Areas: A Framework, Principles and Performance Outcomes." *Journal of Environmental Management* 91: 754–766.
- Lockwood, M., M. Mitchell, S.A. Moore, and S. Clement. 2014. "Biodiversity Governance and Social-Ecological System Dynamics: Transformation in the Australian Alps." *Ecology and Society* 19 (2): 13. doi:<https://doi.org/10.5751/ES-06393-190213>.
- López-Angarita, J., R. Moreno, C.E. Alvarado, P. Restrepo, J. Maldonado, and J.A. Sánchez. 2009. *A Socio-Ecological Resilience Approach for Evaluating Management Effectiveness of Marine Protected Areas*. Final Report: NOAA CORAL GRANT NA07NOS4630021. Colombia: Universidad de los Andes, Facultad de Ciencias.
- MEA (Millennium Ecosystem Assessment). 2005. *Ecosystems and Human Well-Being: Synthesis*. Washington, DC: Island Press.
- Mitchell, M., M. Lockwood, S.A. Moore, and S. Clement. 2015. "Incorporating Governance Influences into Social-Ecological System Models: A Case Study Involving Biodiversity Conversation." *Journal of Environmental Planning and Management* 58 (11): 1903–1922. doi: <https://doi.org/10.1080/09640568.2014.967387>.
- Nationaal Park De Alde Feanen. 2016. "Samenstelling Overlegorgaan Nationaal Park De Alde Feanen" [Composition of the Consultative Board National Park Alde Feanen]. <http://www.npaldefeanen.nl/9061/organisatie/samenstelling-overlegorgaan>.
- Nelson, D.R., W.N. Adger, and K. Brown. 2007. "Adaptation to Environmental Change: Contributions of a Resilience Framework." *Annual Review of Environment and Resources* 32: 395–419. doi:<https://doi.org/10.1146/annurev.energy.32.051807.090348>.
- Nouta, C. 2015. "Natuurlijk Kapitaal in Beeld: De Ecosysteemdiensten van Nationaal Park De Alde Feanen [Natural Capital: Ecosystem Services of Alde Feanen National Park]; Afstudeeropdracht voor de Opleiding Milieukunde (deeltijd), Major Natuur en Milieu". Thesis for Environmental Studies, part-time, major in Nature and Environment, Hogeschool Van Hall Larenstein, Leeuwarden.
- Ostrom, E. 2005. *Understanding Institutional Diversity*. Princeton: Princeton University Press.
- Parker, S.R., and S.D. Murphy. 2013. "Resilience in a Protected Area: Prospects for Fathom Five National Marine Park, Lake Huron, Canada." *The George Wright Forum* 30 (1): 50–66.
- Potts, R., K. Vella, A.P. Dale, and N. Sipe. 2016. "Evaluating Governance Arrangements and Decision-Making for Natural Resource Management Planning: An Empirical Application of the Governance Systems Analysis Framework." *Society and Natural Resources* 29 (11): 1325–1341. doi:<https://doi.org/10.1080/08941920.2016.1185557>.
- Reid, W., H. Mooney, A. Cropper, D. Capistrano, S. Carpenter, K. Chopra, P. Dasgupta, et al. 2005. *Millennium Ecosystem Assessment Synthesis Report; Ecosystems and Human Well-Being: Synthesis*. Washington, DC: Island Press.
- Resilience Alliance. 2010. *Assessing Resilience in Social-Ecological Systems: Workbook for Practitioners (Revised Version 2.0)*. Resilience Alliance. <http://www.resalliance.org/resilience-assessment>.
- Science for Environment Policy. 2015. *Ecosystem Services and the Environment. In-Depth Report 11 Produced for the European Commission, DG Environment by the Science Communication Unit*. Bristol: UWE. <http://ec.europa.eu/science-environment-policy>.
- Smith, R.J., R.D.J. Muir, M.J. Walpole, A. Balmford, and N. Leader-Williams. 2003. "Governance and the Loss of Biodiversity." *Nature* 426: 67–70.
- Walker, B.H., C.S. Holling, S.R. Carpenter, and A. Kinzig. 2004. "Resilience, Adaptability and Transformability in Social–Ecological Systems." *Ecology and Society* 9 (2): 5. <http://www.ecologyandsociety.org/vol9/iss2/art5>.

- Wetterskip. 2014. *Watergebiedsplan Alde Feanen e.o.* [Water Management Plan]. <http://www.wetterskipfryslan.nl/documenten/projecten/watergebiedsplan-alde-feanen/wgp-alde-feanen-2014-06-03.pdf>
- Wyborn, C. 2015. "Co-Productive Governance: A Relational Framework for Adaptive Governance." *Global Environmental Change* 30: 56–67. doi:<https://doi.org/10.1016/j.gloenvcha.2014.10.009>.
- Yin, R.K. 2003. *Case Study Research, Design and Methods*. 3rd ed. Newbury Park, CA: Sage.
- Young, O.R. 2008. "Building Regimes for Socio-Ecological Systems: Institutional Diagnostics." In *Institutions and Environmental Change: Principal Findings, Applications, and Research Frontiers*, edited by O. Young, L.A. King, and H. Schroeder, 115–144. Cambridge, MA: MIT Press. doi:<https://doi.org/10.7551/mitpress/9780262240574.003.0004>