



# Governance of climate adaptation, which mode? An exploration of stakeholder viewpoints on how to organize adaptation

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## Abstract

There are many normative answers on the question how to realize climate adaptation, ranging from pleas for the government to play a decisive role, to calls for refraining from action and relying upon spontaneous adaptation of both government and non-governmental actors. In this article, we present a Q methodological study, aimed at investigating the governance preferences among non-governmental actors in the Netherlands and the “narratives” they use to motivate these preferences. Our empirical results underline the fact that the question “how to organize adaptation”, is a controversial one. The results resemble the various positions in the current academic debate about the governance of adaptation, and add important insights and nuances to it. Many respondents feel that the current climate adaptation policy is too non-committal. The dominant viewpoint underscores a need for more rules and norms and the possibility to sanction organizations that do not adapt. Minority viewpoints show an urge to stimulate and support self-organization of partners, as well as a need for more action. However, financial and regulatory preconditions are needed to stimulate actors in order to see to the necessary investments. Policy-makers have to invest in mixing their policy instruments. Clearly, most nongovernmental actors are in favor of the government setting a framework with rules and norms for climate adaptation. However, the viewpoints show that this is not sufficient. The government should facilitate networks, joint efforts and create the financial and regulatory preconditions to remove current barriers blocking adaptation measures.

**Keywords** Climate adaptation · Stakeholder perspectives · Governance · Q methodology

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## 1 Introduction

The increasing evidence of the various impacts of climate change urges governments to think not only about mitigation programs in order to reduce CO<sub>2</sub> emissions but also to formulate adaptation strategies in order to cope with the consequences. At the same time, many scholars claim that governance of climate change is a “wicked” (Alford and Head 2017) or even “a super wicked” (Lazarus 2008) problem. This “wickedness” implies not only a lack of consensus about (scientific) knowledge of the (potential and impact of the) effects of climate change and about (the consequences of) solutions for the problem, it also means there are highly divergent viewpoints about the strategy on how to solve the issue with the actors involved (Hulme 2009; Verweij et al. 2006). Because of the latter, governments struggle and are bound to processes of extensive participation in order to find a consensus about joint action (Alford and Head 2017; Biesbroek et al. 2010). Given the highly interactive and wicked nature of the issue, scholars often ask themselves: what kind of government action and which type of governance is needed to coordinate climate adaptation (Huiteima et al. 2016; Mees et al. 2013)?

Bovaird and Löffler (2009, 8) state: “trying to define public governance seems to open Pandora’s box”. They define public governance as how an organization works with its partners, stakeholders, and networks to influence the outcomes of public policies (p. 6). This “how” can be highly different. In the literature, many contributions reflect upon typologies, and distinguish different forms of governance and their relative merits and disadvantages (Bouckaert et al. 2010; Considine and Lewis 1999, 2003; Dixon and Dogan 2002; Lowndes and Skelcher 1998; Powell 1990; Thompson et al. 1991). The scholars agree that these typologies, such as hierarchy, market, and networks, are ideal types and should be studied with care as most of the governance arrangements are mixed types (Tenbenschel 2018). Second, scholars also say policy-makers mix styles in order to be effective and appeal to a broad array of actors (Keast et al. 2007; Voets et al. 2015). Designing the most effective and efficient policy instrument mix is a challenge, but an essential task for policy-makers (Howlett 2009), especially when it comes to policy issues that are highly wicked. Various scholarly contributions study forms of governance that can be applied in order to achieve climate adaptation (Henstra 2016). However, a more empirical investigation of the ‘governance preferences’ of those subjected to government action seems to be lacking.

This paper therefore undertakes the task to study these preferences among Dutch non-governmental stakeholders. Non-governmental or non-public actors, like NGOs, housing corporations, nature conservation organizations, societal interest groups, private companies, and consultancy firms, play a major role in the climate change arena, not only because they are the ones who advise on the issues and implement climate adaptation measures, but also because their interests influence the controversial climate adaptation debate. Their perspective is highly relevant, not only because they face the consequences of climate change and ask for governmental action, but they are also stakeholders directly affected by government policy regarding adaptation measures. How do they perceive the way in which the climate adaptation policy is governed and how this plays out, and what governance approach is fruitful, according to them, in the future? Assisted by Q methodology—a method to study commonalities and differences in a particular policy community by means of factor analyses—we unravel the dominant viewpoints on climate adaptation governance in the Netherlands. This methodology helps to highlight the significant areas of conflict and consensus in the climate adaptation debate, by pointing out the main issues of difference and similarity. Thus, we aim to answer these research questions:

RQ1: What are the viewpoints on climate adaptation governance among non-governmental stakeholders?

RQ3: How do these viewpoints relate to the literature on climate adaptation governance?

RQ3: What lessons can we discern from the different viewpoints on climate adaptation governance?

In the following paragraphs, we explore different modes of governance, based on the scholarly literature, and attempt to situate the current governance approach of the climate adaptation issue in the Netherlands. In the section thereafter, the methodology is explained. In the remainder of this paper, the results are discussed, and we end the paper with a concluding paragraph in which we compare our findings with the literature on the governance of climate adaptation and policy recommendations.

## 2 Modes of governance

The way in which public issues are governed by government is discussed in scholarly literature by using different labels. Some authors refer to governance *modes* or *mechanisms* (Considine 2001; Howlett 2009; Lowndes and Skelcher 1998; Williamson 1996). Other authors use the term *policy instruments* to describe instruments that steer public action (Hall 2011; Salamon 2002). The idea of steering modes departs from the idea that governments can use different types of approaches and strategies (Bouckaert et al. 2010; Powell 1990) that rely upon the logic of (1) the state (and the formal legal power it possesses); (2) the market (and thus upon financial incentives and solutions that uses market-like mechanisms); or (3) the networks (collaboration and mutual adjustment, dialog etc.) (Lowndes and Skelcher 1998), as the set of institutions that is intended to foster coordination of actions in the public domain.

Realizing coordinated action to reach climate adaptation has to do with applying a deliberated mixture of different modes of governance, policy instruments, and management strategies (Molenveld et al. 2020; Bouckaert et al. 2010; Powell 1990). The classical way of implementing policy is by means of hierarchical or legal governance. In this mode of governance, steering is conducted by means of instruments like laws, norms, and regulations. Binding norms guide the behavior of both governmental and non-governmental actors, and their compliance is guaranteed by a system of control and enforcement. Its *rationale* is deeply anchored in the legal and political principles guiding the functioning of modern states (Bouckaert et al. 2010).

In many cases, the classical hierarchical way of coordination is supplemented or even replaced by market-like instruments (Coase 1937; Williamson 1973) and network-based approaches (Kickert et al. 1997; Ouchi 1980; Rhodes 1997). Market-like modes of governance are based upon the idea that coordination can be realized by using market-like mechanisms: positive and negative incentives (like subsidies, contracts etc.) that change the benefits people attribute to certain actions and thus results into behavioral change. As Howlett (2009: 77) states, “the context, style, and substance of the marketplace has increasingly tended to infiltrate much of the policy design process in most countries in recent decades”.

The network mode of governance focuses on mutual adjustment between mutually dependent actors. Government steering is based on designing and facilitating voluntary collaboration between actors who together define their aims and the way they want to realize them jointly (Kickert 1993; Koppenjan and Klijn 2015). The latter two modes of governance thus attempt to develop alternatives for the use of regulatory means, enabling government to suffice

with a strategy which entails less intervention from the government side, a trend often described as ‘governing without government’ (Davies 2002; Rhodes 1997).

There are two other modes of governance we would like to add, as they are distinctive in terms of which mechanisms are used to realize coordination. A fourth mode of governance is based upon the idea that citizens and stakeholders have self-organizing capacities (Boonstra and Boelens 2011; Van Meerkerk et al. 2018). In this mode of governance, coordination is believed to be more effective if the government keeps its *hands off* and leaves it to spontaneous (bottom-up) actions of actors who are themselves able to create order due to their self-organizing capacity. In this mode of governance, governments thus have to abstain from intervention, facilitate room for people's creative ideas, and remove barriers. Only a limited facilitative role for governments is deemed necessary (Edelenbos et al. 2016).

The second addition has to do with governance based upon communication (Alexander 1995; Bekkers 2017; Lascoumes and Le Gales 2007). In this mode of governance, actors are given information about the problem, with illustrations of possible solutions (best practices), as well as tools and techniques for how to approach the issue. This mode of governance thus relies upon ideas of communicative steering, the *sermon* as policy instrument (Bemelmans-Vidéc et al. 2011). These five modes are displayed in Table 1. We do not aim to present a new typology or classification, but aim to structure the scholarly debate about governance and to subsequently use these forms in our analysis.

All types of governance or steering are deemed difficult, as resources are widely dispersed among actors and actors have different agendas and problem perceptions. As a result, modern societies are highly complex and government sectors are fragmented and difficult to understand and steer due to many interdependencies (Teisman et al. 2009). Moreover, governments do not have the necessary resources, capacity, and means to steer society in the way they prefer (Klijn and Teisman 2004). As a consequence, governments are bound to long policy design processes, with iterative steps, in which they design the policy instrument mix for the issues they want to influence.

### 3 The governance of climate adaptation governance—a contested issue

All of the aforementioned modes of governance are present in the literature on climate change governance (see for example Biesbroek et al. 2010; Broto and Bulkeley 2013; Mees et al. 2014). One of the most striking differences exists between authors who ask governments to restrain from intervention in this domain versus authors who plea for a strong, regulatory

**Table 1** Modes of governance

Regulatory governance	Based on mandatory rules and regulations, whereby the government uses its legal powers and superior position to enforce behavior.
Network governance	Based on the joint goal determination, combined use of resources, and coordinated actions in cooperation with mutually dependent parties.
Market governance	Based on economic principles such as price mechanisms. Behavior is steered with price incentives or by making the market responsible for making the necessary investments.
Communicative governance	Based on giving information, sharing good examples, highlighting high-profile examples, and developing tools and knowledge that other parties can use to take action themselves.
Self-governance	Based on self-steering capacity of actors to adjust their behavior and to look for solutions to social problems. This process can be facilitated by government, but starts bottom-up.

approach. The former believe in the power of spontaneous adaptation while the latter opt for planned adaptation (Cannon and Müller-Mahn 2010; Smit et al. 2000). Sometimes, those who opt for planned adaptation strongly plea for a regulatory approach because of the saliency of the topic, which is based on strict norms that guarantee that necessary actions are taken by a specifically mandated lead actor (Lazarus 2008). At the same time, authors (Camacho 2009) emphasize that—due to the infancy of the policy field—regulatory actions are still to be altered, as the policy field and its respective challenges are constantly changing. However, there are also many authors who argue that adaptation has to be based upon the *collaborative effort* of public, private, and societal actors, and measures are multifold and multifaceted. Some emphasize the value of “spreading the word,” creating climate awareness and communication about the impact and strategies to deal with climate change (McCrum et al. 2009). Part of this mode of governance involves disseminating knowledge about best practices, making tools and techniques available, co-creating in urban labs, awarding champions and fostering learning processes (Collins and Ison 2009; Nevens et al. 2013). Simultaneously, financial incentives and other forms of market governance are deemed useful (Linnerooth-Bayer and Hochrainer-Stigler 2015). For example, many authors discuss the role that insurance arrangements, seed-money, and subsidies can play in stimulating adaptation (cf. Botzen and Van Den Bergh 2008; Fankhauser et al. 1999). More generally, the role private actors can take in adaptation is frequently discussed, especially with regard to the question of how responsibilities between public and private actors can be distributed (Mees et al. 2013; Tompkins and Eakin 2012).

This article aims to contribute to the debate on the governance of climate adaptation by investigating the opinions of Dutch stakeholders in this field. This study adds to the literature on the governance of climate adaptation, by enriching it with a more systematic and comparative investigation of the various modes of governance and focusing on practitioners' arguments for opting for one governance mode or another. In this era in which the role of government is heavily discussed and policy solutions are created in complex governance processes, the question is whether governance choices are legitimate and fit non-government actors, as they have the power to alter local circumstances and share their opinion in the climate adaptation debate. To understand the governance preferences on climate adaptation in the Netherlands, it is important to understand the context of the current debate on adaptation in this country.

#### 4 Climate adaptation governance in the Netherlands

In 2008 the Dutch government installed a second *Delta Committee*. This committee presents key proposals annually in September to address climate change in the flood-prone Netherlands. One of the proposals that year was to install a Delta Commissioner. The Delta Commissioner is responsible for drafting the yearly Delta Program, which describes the aim to safeguard the Netherlands against the consequences of climate change.

The Delta Commissioner devoted his time to preparing five directional norms in the first years, the so-called Delta Decisions. One of these decisions was to implement climate-resilience measures ranging from new norms for flood-risk safety, fresh water availability, and measures to deal with climate adaptation, especially related to drought, heat stress, water nuisance, and mitigating the consequences of floods. The risk of flooding by the rivers or from the sea is deeply engrained in the Dutch common awareness; thus, it was not difficult to come

up with new norms for flood risk management. A much more passive attitude exists regarding other climate-related measures (Biesbroek et al. 2011). The other measures of this program are largely based upon the idea that local and regional governments, as well as private actors, and citizens have to be informed, inspired, and stimulated (through communicative governance) to both raise “climate awareness” and to implement adaptation measures. Most of the regional and local organizations feared the costs of additional responsibilities on this issue. Second, a preliminary evaluation (de Graaff et al. 2017) revealed that it was questionable whether this approach would be effective in order to realize the ambition of making the Netherlands climate-proof by 2050.

In 2016, a mid-term review of this program showed that little progress was made and that many actors would prefer a more powerful and well-enforced approach in order to warrant progress. At the same time, some actors did not see any reason to alter the governance mode. It became clear that there was a deep controversy about how to foster and accelerate climate change adaptation. Hence, in this paper, we focus on this controversy to understand and unravel the different viewpoints prevalent among non-governmental stakeholders, to see which dominant and minority viewpoints hold true.

## **5 Q methodology as a way to study preferred governance approaches to climate adaptation**

Q methodology was invented by William Stephenson (Brown 1993; Stephenson 1935). It is a method to study significantly different viewpoints within a given population, about a particular topic. The number of Q methodological studies is still scarce; however, for our study, this method was particularly useful. Contrary to mainstream statistical analyses—which are essentially item-analyses that correlate different items—Q methodology is geared towards correlating patterns of thought of the respondents, and respondents are the “variables” (Watts and Stenner 2012). Respondents reveal their viewpoints by sorting statements, and those who sort particular statements in a similar fashion have comparable views. Respondents who sort statements completely different disclose significantly different viewpoints. By means of factor analyses, one ends up with clusters, which reflect the majority and minority viewpoints in the debate on climate adaption (Watts and Stenner 2012). We chose this method over more traditional methods (e.g., interviews and surveys) as it provides insight into the viewpoints and how they differ on particular issues. This is useful to analyze, as such differences are proven to be the cause of inertia and non-implementation of policy, especially on climate adaptation (Hobson and Niemeyer 2011; Živojinović and Wolfslehner 2015, p. 1080). Q methodology also received its critiques. It is sometimes said to be overly descriptive, instead of explanatory (Ramlo and Newman 2011, p. 180), and respondents have to sort too many statements, which makes the distinction between statements too fine (McKeown and Thomas 2013).

The set of statements of a Q methodological study can be designed in many different ways. We followed three steps. First, the rule of thumb is that the set should be representative for the current debate on the topic (Watts and Stenner 2012). In order to safeguard this representativeness, we conducted 50 exploratory interviews among non-governmental actors, involved in and implementing the Delta program. In the interviews, we asked their opinions on the current governance approach regarding adaptation, and their wishes for the future approach (see Appendix 1). Second, from these interviews, we derived 200 literal statements. We removed

statements that had the same meaning and rephrased unclear statements. We chose oft-mentioned statements that are salient for the debate in the community and that reflect the whole breadth of the discussion within this community. We used a discourse matrix (see Table 2), like Dryzek and Berejikian (1993), to ensure the statements reflect both the different governance styles and elements of the current governance and preferred future governance approach. By working this way, we attained 25 statements. The numbers refer to the statements in Table 7. Third, the statements were piloted among five experts in the field. Afterwards, statements were again rephrased and more clearly articulated.

Subsequently, a survey was distributed online via PoetQ (Jeffares and Dickinson 2016) to a total of 726 non-governmental stakeholders from November 2016 to January 2017. This survey was part of an evaluation of the 'Deltaprogramma Ruimtelijke Adaptatie' (Delta Program on Spatial Adaptation) which set the joint ambition: “state, provinces, municipalities and water boards in the Netherlands will be as climate-proof and water-robust as possible in 2050, and will bear in mind - in case of landscape and urban (re) developments—that no extra risk of water and nature damage and casualties arise to the extent that is reasonably achievable. This climate-proof and water-robust mindset will be part of the recurrent policies and actions of these parties by 2020 at the latest”. Deltares (the third author is employed by this organization), an independent institute for applied research in the field of water and subsurface, was commissioned to execute the evaluation and administers a mailing list of actors involved in the Delta Program on Spatial Adaptation. These respondents are stakeholders, implementing and advocating for adaptation measures in the following domains: drought, heat stress, water nuisance, and mitigating the consequences of floods. The respondents were asked to rank-order 25 statements on a scale from “does not reflect my opinion” to “reflects my opinion” in a normal distribution (see Fig. 1).

After five reminders, a total of 119 respondents finished the survey (response rate 16%). After removing the governmental actors, we obtained a dataset of 98 non-governmental stakeholders. In Q methodological approaches, a response of less than or equal to the number of statements and four or five people defining each anticipated viewpoint is considered adequate (McKeown and Thomas 2013). In the descriptive questions, we asked for the respondents' organization of origin: private actors, knowledge institutions, and non-profit organizations. Table 3 displays the respondents' organizations of origin.

**Table 2** Discourse matrix, based on Dryzek and Berejikian (1993)

	Communicative governance	Regulatory governance	Market governance	Self-governance	Network governance
Current practice: What is dominant?	1	2	3	4	5
I Current practice: is it effective?	6	7	8	9	10
II Current practice: what should be changed?	11	12	13	14	15
Future: what is needed to reach the 2050 goals?	16	17	18	19	20
Future I: what desired for the future?	21	22	23	24	25

-3	-2	-1	0	1	2	3
1	2	3	4	5	6	7
8	9	10	11	12	13	14
	15	16	17	18	19	
		20	21	22		
			23			
			24			
			25			

Fig. 1 Sorting grid

## 6 Results

Using KenQ analysis, a Web Application for Q Methodology by Prof. Shawn Banasick,<sup>1</sup> we analyzed the data stemming from our 98 respondents. A typical Q sort analysis procedure starts with correlating all the Q-sorts. KenQ then helps to indicate the commonalities in the dataset and subsequently identifies the major clusters. This is called “factor extraction” and is achieved by a centroid analysis. We first retrieved seven centroid factors, and kept only three factors for rotation and applied Varimax rotation. The choice to retrieve *only* three factors was based on multiple iterative steps. First of all, the unrotated factor matrix showed only three factors with two (or more) pure loadings (Watts and Stenner 2012). Factors 4, 5, 6, and 7 had less than two pure loadings. Pure loadings are respondents that significantly load on one particular factor. However, in the first instance, when using a significance threshold of 0.01, the factors were highly intercorrelated. We solved this—although the factors are still correlated (see Table 8)—by raising the significance threshold to 0.001 before flagging a certain respondent:  $3.29 \times (1/\sqrt{25}) = 0.658$  (Van Exel and De Graaf 2005; Watts and Stenner 2012). The cumulative explained variance of the unrotated factors is 47%.

Each factor will be explained in detail (see also Table 9). To interpret the factors that resulted after the analysis, we looked at three types of statements:

1. Characterizing statements placed on the extreme end of the poles:  $-3$  and  $3$
2. Distinguishing statements which significantly different from other factors
3. Consensus statements which do not differ greatly in position when looking at the different factors

On the basis of the statements, and comments of respondents, the researchers reconstructed the viewpoints and gave every perspective an appropriate label.

### 6.1 Viewpoint 1: make adaptation a formal obligation

The first factor accounts for 34% of the total variance in the dataset (unrotated factor) and can therefore be called the dominant viewpoint (12% after varimax rotation). Table 4 presents the

<sup>1</sup> <https://shawnbanasick.github.io/ken-q-analysis/>



**Table 3** Organization of origin

Private actors: constructors, grid operators, other	22
Knowledge institutions: universities, colleges, advisory boards and consultants	55
Non-profits: NGOs, housing associations	21
Total	98

statements which are scored highly and are significantly different when compared with the other factors. If we look into the distinguishing statements, respondents agree most with statements that describe the *regulatory governance* style, and mostly disagree with the statements describing *communicative governance*. In the future, a mixed approach—between regulatory governance, and sanctions—is necessary according to them: “especially because companies and citizens have to invest in climate adaptation solutions, they will not be so eager to do so” (Respondent 93, university, economics and respondent 73, consultancy flood risk).

This viewpoint underscores that part of the community disagrees with soft steering, as it led to the current partial adaptation (statement 21). Creating “buzz” words (statement 11) is not the right strategy, according to them. At the moment, the responsibilities are sometimes too unclear (statement 7). Respondents who load high on this viewpoint favor a clear framework, however “with latitude for citizens and companies to implement

**Table 4** Distinguishing statements for factor 1

Statement number	Statement	Place in grid	Significance	Governance perspective
12	For the implementation of climate resilience, it is essential that goals and obligations are clearly laid down.	3		Regulatory
17	In order to achieve the 2050 targets, enforceable legal obligations and standards are required, including sanctions in the event of default.	3		Regulatory
23	Non-governmental actors have to bear the consequences themselves if their investments are not climate friendly.	2	*	Market
14	Parties confronted with the consequences of climate change will automatically seek for ways to cope with them.	2	*	Self-governance
9	As the urgency increases, parties will automatically adjust their behavior and take measures	1	*	Self-governance
7	The current policy is ineffective, because it is unclear who is responsible for what.	1	*	Regulatory
15	Joint effort is the key to realizing climate resilience.	0		Network governance
13	The central government must financially support municipalities, water boards, and provinces to make investments in favor of climate resilience.	-1	*	Market governance
11	Climate resistance must become a “buzz word.”	-2		Communicative governance
22	As climate resilience is always about local customization, it is not desirable to work with generic standards.	-3	*	Regulatory governance
21	Soft management (via images, stories and sharing of experiences) remains the most desirable way to work on climate resilience in the long run.	-3		Communicative governance

Statements are significant at  $P < .05$

\*Significance at  $P < .01$

efficient and effective measures which fit the local context” (respondent 93, university, economics). One respondent points towards the word “norm”. He states that standards can be generic and he would prefer a framework with guidelines, that provides clarity and promotes the speed of implementation (Respondent 43, NGO, technical union). These respondents call the idea that adaptation measures need “local customization”, an excuse not to proceed to action (statement 22): “I do not understand why climate-proofing is always about local customization! Without clear goals and obligations, actors do little and 2050 is approaching faster than you might think. Without real commitment, nothing changes fundamentally!” (respondent 6, university, urban planning).

According to some respondents who load high on this factor, parties have to be confronted with the consequences of climate change. If they are not confronted, they will not take action (respondent 52, NGO and respondent 73, consultancy flood risk). People who are confronted with climate adaptation will have to search for ways to adapt (statement 14), and otherwise will have to face costs (by the government) if their efforts and investments are not climate-proof (statement 23).

This fact or shows a viewpoint in the debate, that favors enforcing norms and goals to reach the climate objectives (statements 12 and 17). In this viewpoint, propositions that fit with the theoretical perspective of regulatory governance are particularly relevant. This viewpoint is strongly present in the current debate on climate change adaptation in the Netherlands. It is represented by authoritative institutes like the Scientific Council of the Government (Faber et al. 2016). In 2016, the Netherlands Environmental Assessment Agency emphasized that—without more clear policy guidelines—major opportunities to realize adaptation measures by coupling them with investments in spatial planning would be missed. However, at the national policy level, hesitance towards a more obligatory approach is still strong. This is clear from the Implementation Program of the National Adaptation Strategy 2018–2019 which has a strong focus on raising awareness, fostering an intergovernmental dialog and sharing best practices.

## 6.2 Viewpoint 2: foster co-creation and self-organization

The second viewpoint shows a mix of *self-governance* and *communicative* governance statements (see Table 5). The factor accounts for 6% of the total variance (unrotated factor, and 13% after varimax rotation) in the dataset and is therefore less prevalent compared to factor 1.

These respondents think that responsibilities are currently clear (statement 7) but think these responsibilities do not lead to the necessary adjustments (statement 9). Therefore, they advocate for a mindset change for the future: “there is a senseless legal and financial shear process going on at the moment: who should be doing what tasks and with what competence. However, this discussion is endless. I see more opportunities if making payback-effects and possibilities visible, with best practices and experts” (respondent 69, foundation, soil). Providing “best practices” is seen in this perspective as an important basis for steering (statement 16 and 21). Whenever financial incentives are mentioned, these are seen as positive incentives to get parties in motion: “as long as everyone work within his own ‘silo’, nothing will happen, and we will waste a lot of funds. If you frame this problem as a multifaceted issue, we can partner up and show an end result which is useful and also financially attractive. However, there needs to be a starting point, which the national government should create (financially)” (respondent 79, NGO, community

**Table 5** Distinguishing statements for factor 2

Statement number	Statement	Place in grid	Significance	Governance perspective
24	We must try to realize climate adaptation in the future in a smart way and without many additional costs, by integrated thinking and working.	3	*	Self-governance
16	To achieve the 2050 goals, much more knowledge and examples need to be shared.	3	*	Communicative
15	Joint effort is the key to realizing climate resilience.	2	*	Self-governance
12	For the implementation of climate resilience, it is essential that goals and obligations are clearly laid down.	1		Regulatory
21	Soft management (via images, stories, and sharing of experiences) remains the most desirable way to work on climate resilience in the long run.	1	*	Communicative
14	Parties confronted with the consequences of climate change will automatically seek for ways to cope with them.	-1		Self-governance
18	The achievement of the 2050 targets requires the development of financial and economic instruments.	-1		Market governance
7	The current policy is ineffective, because it is unclear who is responsible for what.	-2	*	Regulatory
9	As the urgency increases, parties will automatically adjust their behavior and take measures.	-3		Self-governance

$P < .05$ : \*significance at  $P < .01$

based). By framing issues as an integrated policy problem, it is possible to provide opportunities for different stakeholders to see the added value from collaboration (statement 24). Water, green spaces, and dikes have many functions and meanings; by connecting these functions in a new way, more than climate-proofing can be achieved (e.g. environmental quality) (respondent 84, consultancy spatial planning). One of the respondents notes for instance that a better connection between spatial policy and long-term flood risk management generates more opportunities for other actors to get involved (respondent 65, consultancy spatial planning).

An important facet is the emphasis these respondents place on the self-organizing capacity of parties. Joint energy is the engine behind achieving climate-proofing, according to the respondents (statement 15). One of the respondents indicates that this is, on the one hand is unavoidable because non-government parties are the largest land/real estate owners. On the other hand, there is “a safety paradox.” The national government and the water boards ensure that citizens feel safe behind the dikes, so citizens and other non-governmental organizations are not stimulated to actively engage themselves to take action regarding climate change (respondent 65, consultancy spatial planning). Respondents who load high on this factor agree that by allowing parties to experience the urgency and challenges themselves, they will be encouraged to take initiatives to meet the targets from 2050. Stakeholders of municipalities and water boards must be stimulated and facilitated by provinces and central government to develop spatial plans with integrated added value that can also be quantified by sector and by stakeholder (respondent 69, foundation, soil).

At this moment, in the Netherlands this position is most strongly articulated by the national policy community on climate adaptation. It is especially the dominant policy belief of the

National Ministry and fits also in the current policy paradigm as it relates to planning and spatial development which is more and more based upon principles of mutual agreement, customization, and giving space to base local decisions on local considerations (as is exemplified in the new Environmental Act).

### 6.3 Viewpoint 3: be clear about responsibilities

The third viewpoint is a mixed model; respondents most strongly agree with the statements referring to *regulatory* and *market* governance (see Table 6). The factor accounts for 7% of the total variance (unrotated factor, 23% after varimax rotation) in the dataset. According to these respondents, there are currently too few financial incentives to achieve climate resilience (statement 8) and the effectiveness of the policy leaves something to be desired, because it is not clear who is responsible for what (statement 7). The respondents indicate that they disagree with statements related to *communicative*, *network* and *self-governance*.

For the implementation of climate resilience, it is essential for these respondents that goals and obligations are clearly defined (statement 12). Those goals and obligations should however not be enforced. At the same time, the respondents state that the government should certainly not have a wait-and-see attitude: “A government can be expected to operate pro-actively. Behavioral change requires time, effort and leadership and apathy is deadly! (literally and figuratively). The government should take matters into its own hands, and make sure that competences lies where an effect can be gained”. (Respondent 78, consultancy water related, also: respondent 39, university spin-off

**Table 6** Distinguishing statements for factor 3

Statement number	Statement	Place in grid	Significance	Governance perspective
7	The current policy is ineffective, because it is unclear who is responsible for what.	3	*	Regulatory
12	For the implementation of climate resilience, it is essential that goals and obligations are clearly laid down.	3		Regulatory
8	There are currently too few financial incentives to achieve climate resilience.	2	*	Market
10	Many promising measures for achieving climate resilience are not realized, because parties are unable to look beyond their own turf.	2	*	Network
15	Joint effort is the key to realizing climate resilience.	0		Network
1	At present, parties are mainly motivated to work on climate resilience, on the basis of good examples.	0		Communicative
9	As the urgency increases, parties will automatically adjust their behavior and take measures.	-1		Self-governance
14	Parties confronted with the consequences of climate change will automatically seek for ways to cope with them.	-2		Self-governance
21	Soft management (via images, stories, and sharing of experiences) remains the most desirable way to work on climate resilience in the long run.	-2		Communicative
25	It is an art in itself not to take matters into your own hands as a government, even if the effects of climate change become clearer.	-2	*	Self-governance

$P < .05$ : \*significance at  $P < .01$

environment). At the moment, climate policy often takes form along the line of institutionalized interest groups, according to this cluster of respondents. There is no real shared ownership (respondent 60, consultancy natural built assets). If the competences are clearer, climate adaptation will become mainstream and thus an integral part of daily operations. One of the respondents explains: “It then can be included in the planned spatial investments, for example in the case of new constructions or urban renewal” (respondent 64, consultant organization advice).

One could see the ideas advocated by this factor *assubidiarity*; respondents want to place competences where they fit and belong. However, these respondents see that this subsidiarity is not working for some stakeholders, as costs are borne by parties who do not see direct benefits: what are the incentives for them to cover these costs? A respondent explains: “developers build according to legal requirements and therefore need hard steering; there is a great demand for housing and cheap and fast construction without taking into account climate resilience” (respondent 60, consultancy natural built assets). Therefore, the national government must financially support municipalities, water boards, and provinces to make the necessary investments for climate-proofing (statement 13). The respondents who load on this factor advocate for dedicated budgets: “dedicated budgets function as a catalyst, and finally lead to good policy!” (Respondent 78, consultancy water related).

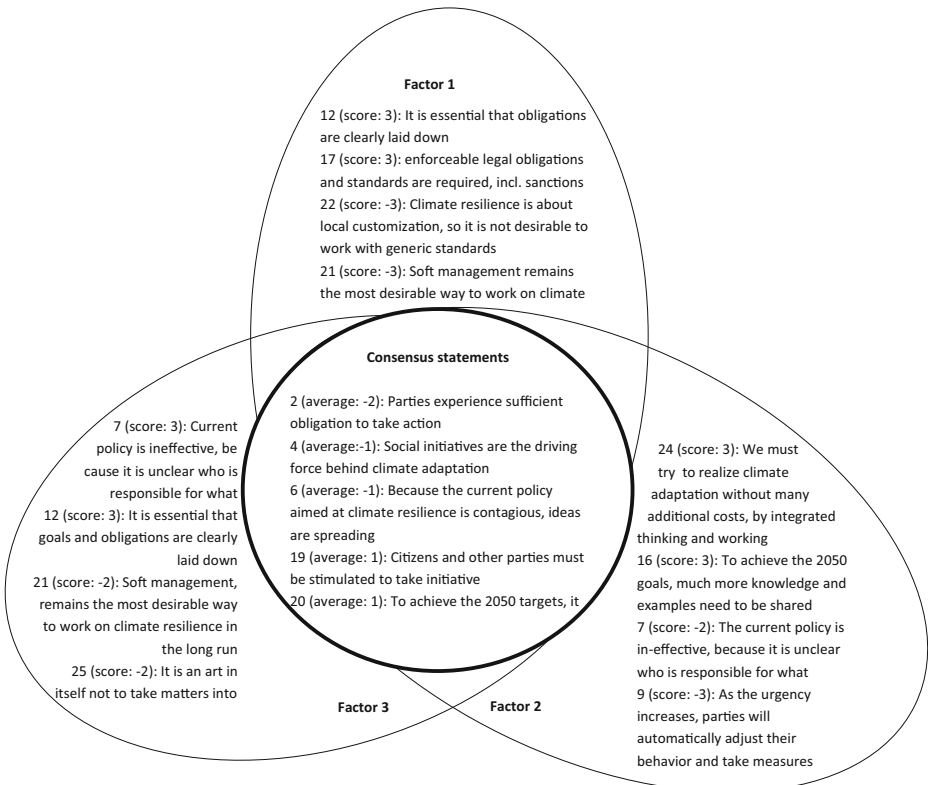


Fig. 2 The extreme elements of the factors and the consensus statements

## 7 Discussion

Before we reflect upon the three perspectives, it is useful to show on which statements there is consensus (see middle of Fig. 2).

All respondents *disagree* with the statement that parties experience enough obligation to do something about climate change (statement 2). This statement is placed on  $-2$  and  $-3$  on the grid, in all perspectives, and therefore, this is a shared feeling in this community. Furthermore, a huge point of agreement is that actors have to—more than ever before—take joint initiatives and collaborate in the future (statement 20). Hence, the calls for a less voluntary approach and for a more intense collaboration go hand-in-hand. That raises the interesting question of meta-governance: how to combine a more hierarchical with a more collaborative network approach and to come to a more synergistic interplay (Pahl-Wostl 2019)? Actors also agree upon but are more neutral about another statement: whether societal initiatives are the driving force behind climate adaptation (statement 4). They disagree with the fact that the current policy aimed at climate resilience is contagious (statement 6) and agree that actors should be motivated to take initiative and responsibility (statement 19).

When we delve further into the three perspectives and confront them with the current debate on the governance of climate adaptation, we can see interesting similarities. The first perspective, a plea for a stronger role of the government, is also resembled by recent studies on the governance of climate adaptation. Bednar et al. (2019) concluded, based upon a comparative analysis of two Canadian provinces, that a more hierarchical mode of governance is necessary to overcome implementation barriers in climate adaptation.

The second perspective on “spontaneous” adaptation (and governance as “stimulating and fueling” in combination with communicative and self-governance) is quite popular by governments who hesitate to take decisive action in a time of climate skepticism, high uncertainty, and low public awareness (Biesbroek et al. 2010; Ford et al. 2011). It is also popular among scientists who see bottom-up initiatives as a welcome additional source of organizing capacity (Duijn et al. 2019; Mees et al. 2013).

The third perspective reflects the more academic debate about fairness, equity, and distributive justice in relation to climate change adaptation (Adger 2006; Klinsky and Dowlatabadi 2009). This body of literature stipulates the challenge to agree upon a set of incentives and provisions that make actors who have a stake or who can be held responsible for causing or increasing risks responsible for taking action. Although there is strong support among many stakeholders to implement a system of rules and incentives, it is also controversial, especially because the whole Dutch system of flood protection is based upon the idea of public responsibility to take the necessary measures.

Finally, the largest area of disagreement is on the topic of soft management, the idea that climate adaptation awareness should be spread through images, stories, and sharing best practices (statement 21). Additionally, the discourses show major disagreement on whether it matters to point out and make responsibilities clearer, in terms of effectiveness (statement 7). In the paragraphs above, we showed that some of the respondents think that the responsibilities are already clear but that some actors do not take the necessary steps to implement measures. Next, the respondents disagree on whether actors who are confronted with the saliency (statement 9) and the consequences (statement 14) of climate change will spontaneously adapt. Lastly, the respondents disagree about the extent to which the government should intervene and force actors to adapt (statement 25).

## 8 Conclusion

The Dutch debate on how to govern climate adaptation in an effective way shows the intricate and controversial character of the issue. Our Q methodological study illustrates the fierce and significant viewpoints of stakeholders about the right mode of governance. Overall, this study proves that the non-governmental respondents think that parties do not experience enough saliency in the community to take action regarding climate change, which is a clear consensus point among the stakeholders. This view is echoed in many scientific contributions that state that the current worldwide governance approach is too non-committal and thus ineffective (Fischer 2017; Hulme 2009; Lazarus 2008).

However, on how to govern the issue, respondents' opinions differ significantly. The strongest factor resembles the *regulatory governance style*. This group states that actors do not feel the urgency to adapt at present. Rather, they advocate for a strong national government that establishes clear rules so that actors who do not adhere would be financially sanctioned. We can conclude that there is a substantial group of stakeholders who want to go beyond the non-commitment and make climate adaptation a formal obligation.

This perspective strongly contrasts with the second perspective, which focus upon the power of self-organization. This perspective on spontaneous adaptation (and governance as stimulating and fueling in combination with communicative and self-governance) is quite contrary to the plea for more decisive action. Stakeholders who hold this view see the responsibility for adaptation as a shared responsibility. However, they also are convinced that governments have to invest in informing stakeholders, increasing expertise and facilitating fruitful partnerships. Focusing upon a more facilitative role thus does not imply leaning backwards.

The third group takes a position in the middle and focuses upon the right conditions for the governance of climate adaptation. They are quite positive about a stronger and more decisive government approach, which makes this position comparable to the first one. However, the third group sees it as a necessary precondition to effectively distribute responsibilities and obligations in order to achieve cost-effective and fair policies. They want to safeguard that each actor is held accountable for taking action in its own jurisdiction. This perspective shows strong resemblance with the literature on climate adaptation fairness, distributive justice and the search for normative principles to organize adaptation in a legitimate way (Adger 2016; Hartzell-Nichols 2011; Page 2008).

Interestingly, the results from our Q methodological study strongly resembles the academic controversy about the best way to realize climate adaptation. In this study we see a large difference between the explained variance in the unrotated and rotated factors. Moreover, the factors can be considered moderately correlated. Hence, we can conclude that there is consensus mainly about the first perspective, and perspective two and three nuance this perspective. These perspectives are consequently of interest to understand this heavily debated theme. In the academic debate, proponents of a more hierarchical governance style can be found alongside supporters of a more networked, collaborative style and those who emphasize the importance of legitimacy, fairness, and thus the need for principles that do justice to the peculiarities of climate adaptation. The same positions are clear from the Q-sort analysis. However, in all three groups, we witness a preference for more decisive action in light of expected climate change in the near future. Even

those who aim to foster co-creation and self-organization emphasize the need for greater commitment. In addition, those who underline the need for clear responsibilities embed their argument in a discourse in which the need for timely action gets a central function. An increased sense of urgency thus results in a plea for more decisive action, although this does not signify that the government has to act in a traditional, government-centric way (similar point in Adger et al. 2013).

## 9 Policy implications

Our results illustrate the complex character of the governance of climate adaptation and the difficulties to organize it in a legitimate way. Not only the question of whether adaptation is necessary is being debated. In addition, the question of *how* to organize it is a delicate one. Our results indicate that the perceptions on appropriate ways of organizing adaptation are highly divergent. That also means that governments have a double difficulty. They have to guarantee support for putting adaptation on their agenda, but they also have to find out what mode of governance is seen as legitimate and suitable.

Our study reveals the multiplicity in governance preferences among non-governmental stakeholders. For policy-makers, acknowledging this multiplicity is highly important. Using the width of possible modes can help governments to change deeply engrained governance routines (e.g. in the Netherlands the preference for regulatory governance in water governance, using standards based on calculated risks).

The results of our study show highly different but not incompatible preferences. This forms a strong argument to think about the governance mix (Howlett et al. 2017) that can be used to enhance the legitimacy and effectiveness of the governance of adaptation and which is able to avoid policy traps in the long term (Nair and Howlett 2016; Rogge and Reichardt 2016). The question about legitimacy thus goes beyond establishing the most effective mode of governance. It has much more to do with which governance mix is able to deal with the capricious nature of climate change and which has the best fit with society, groups of stakeholders, or regions. As our research shows, the respondents prefer not only more decisive action from the governmental side, they also emphasize fairness and justice and ask for a facilitating government that enables spontaneous action from the bottom up. Exploring how these perspectives can be combined in a powerful mixed mode is—given the controversial but urgent need for adaptation—a pressing design challenge.

## Appendix 1. Topic list

### PART 1: Introduction

1. What are you mainly concerned with in the area of climate adaptation?
2. To what extent is there a sense of urgency within your organization for these tasks?
3. Are you familiar with the objectives of the Delta Decision on Climate adaptation?
  - a. To what extent do these goals match your professional practice / your own goals? Inspiring? Feasible? Why? Examples?
  - b. What suggestions do you have for improvement?



## **PART 2: Instruments, approach, and results**

4. What instruments/resources do you use to achieve climate adaptation-related goals in your professional practice?
5. Did you use the instruments offered by the climate adaptation stimulation program?
6. Do you collaborate with “unusual” partners (other than central government or decentralized government) in achieving climate adaptation? With whom? How did that come about?
7. To what extent are tasks/division of responsibilities and authorities clear and sufficient with regard to the realization of climate adaptation?
8. What are the three most important factors that help you/your organization to achieve climate adaptation goals and which three factors hinder? Why?
9. What results (from instruments, processes, measures, etc.) from your own professional practice do you see in the field of climate adaptation? Examples?

## **PART 3: Conditions: policy programs and broader social context**

10. Which policy programs interfere (advantageously or disadvantageously) with climate adaptation in your practice?
11. Which social themes interfere (social and economic developments) with climate adaptation in your professional practice / your organization?

## **PART 4: Towards 2020 and 2050**

12. In general: What is going well? What not?
13. What goals do you see for 2020? And 2050? Is it possible to achieve those goals/the goals of the Delta Decision on Climate adaptation under current institutional conditions (financing, regulations, procedures, etc.)?

If not:

- a. Which adjustments do you think are necessary?
  - b. Which “building blocks” (factors/conditions) are needed?
14. What could be strengthened in your own organization?

## **Appendix 2**

**Table 7** Statements reflecting theoretical governance styles and elements of the current and future governance approach

Type	Communicative governance	Regulatory governance	Market governance	Self-governance	Network governance
Current practice: What is dominant?	1. At present, parties are mainly motivated to work on climate resilience, on the basis of good examples.	2. Parties experience sufficient obligation to start working on climate resilience.	3. Current climate resilience policies provide financial incentives that are powerful enough to encourage parties to take action.	4. Social initiatives are the driving force behind achieving climate resilience.	5. Climate resistance is currently mainly achieved when the right parties are able to find each other.
I Current practice: is it effective?	6. Because current policy aimed at climate resilience is contagious, the ideas are spreading and more and more parties are participating.	7. The current policy is ineffective, because it is unclear who is responsible for what.	8. There are currently too few financial incentives to achieve climate resilience.	9. As the urgency increases, parties will automatically adjust their behavior and take measures.	10. Many promising measures for achieving climate resilience are not realized, because parties are unable to look beyond their own turf.
II Current practice: what should be changed?	11. Climate resistance must become a "buzz word"	12. For the implementation of climate resilience, it is essential that goals and obligations are clearly laid down.	13. The central government must financially support municipalities, water boards, and provinces to make investments in favor of climate resilience.	14. Parties confronted with the consequences of climate change will automatically seek for ways to cope with them.	15. Joint effort is the key to realizing climate resilience.
Future: what is needed to reach the 2050 goals?	16. To achieve the 2050 goals, much more knowledge and examples need to be shared.	17. In order to achieve the 2050 targets, enforceable legal obligations and standards are required, including sanctions in the event of default.	18. The achievement of the 2050 targets requires the development of financial and economic instruments.	19. To achieve the 2050 goals, citizens and other parties must be stimulated to take their own initiative and responsibility much more.	20. To achieve the 2050 targets, it is necessary for parties to join forces.
Future I: what desired for the future?	21. Soft management (via images, stories, and sharing of experiences) remains the most desirable way to work on climate resilience in the long run.	22. As climate resilience is always about local customization, it is not desirable to work with generic standards.	23. Non-governmental actors have to bear the consequences themselves if their investments are not climate friendly.	24. We must try to realize climate adaptation in the future in a smart way and without many additional costs, by integrated thinking and working.	25. It is an art in itself not to take matters into your own hands as a government, even if the effects of climate change become clearer.

## Appendix 3

**Table 8** Factor correlations

Factor score correlations			
	Factor 1	Factor 2	Factor 3
Factor 1	1	0.2638	0.4498
Factor 2	0.2638	1	0.5249
Factor 3	0.4498	0.5249	1

## Appendix 4

**Table 9** Factor characteristics

	Factor 1	Factor 2	Factor 3
No. of defining variables	5	3	16
Avg. Rel. Coef.	0.8	0.8	0.8
Composite reliability	0.952	0.923	0.985
S.E. of factor Z-scores	0.219	0.277	0.122

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