

Why tackle a far-off problem? Municipal resistance to climate change adaptation from an organisational change perspective

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Although the importance of local government is often emphasized when it comes to climate change adaptation, empirical data reveal that local efforts have been rather limited. Why does one observe this paradoxical situation? This article presents empirical data gathered through a questionnaire (n=70) and case studies (n=13) demonstrating that resistance within Dutch municipalities prevents organisational adaptation despite there being strong external forces for change. We offer two explanations for this observation. Firstly, we have observed a strongly divided approach to climate change adaptation where each of the involved sub-units (i.e. policy domains) has its own perception of climate change, and of the preferred 'solution' to tackle the related problems. Secondly, we have sensed a general feeling that adaptation is not really a local responsibility. In this perspective, the concept of climate change is associated with a far-off future, distant in time and space. We conclude that actions by regional and national governments are needed to enable municipalities to look beyond their local and sectoral partitions.

Keywords: Organisational change, Netherlands, climate change, local government, adaptation

Introduction

Since governments play a leading role in protecting society from natural hazards (Wisner et al., 2004), it is relevant to investigate how this type of organisational actor currently responds to the climate change challenge. The local governmental level is relevant because of its proximity to citizens and to businesses, giving it the potential to set an example and to decide on many local issues that affect the environment (Coenen and Menkveld, 2002; Betsill and Bulkeley, 2006). Indeed, municipalities play a key role in preparing societies for climate change (Coenen and Menkveld, 2002). Major organisational adjustments have taken place to accommodate climate mitigation ambitions, such as the formulation of a climate change strategy or the appointment of a climate coordinator (Bulkeley and Kern, 2006; Kousky and Schneider, 2003). Currently, it is generally accepted that, alongside cutting our impacts on the climate through mitigation, adaptation will also be required to cope with an increasing frequency of extreme weather events resulting from the changing climate (IPCC, 2007). Again with adaptation, the importance of local-level government is emphasised (e.g. Amundsen et al., 2010; Glaas et al., 2010; Granberg and Elander, 2007; Storbjörk, 2007, 2010; Wilson, 2006).

However, empirical data reveal that local efforts for adaptation have been rather limited (Van den Berg et al., 2010). Furthermore, having the capacity for adaptation does not automatically translate into action (O'Brien et al., 2006). It has been suggested that institutional factors are key in explaining this low level of change (Næss et al., 2005). Following its latest assessment report, the IPCC (2007) poses that adaptation will meet both limits and barriers in practice. Limits involve factors that are largely insurmountable and lead to the conclusion that adaptation will be ineffective. These usually reflect physical, ecological and technological limits. Barriers, by contrast, question the efficiency and legitimacy of adaptation, and are typically located in the financial, cultural and political realms. In particular, social and cultural barriers have been little researched (IPCC 2007).

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Such factors relate to the ways in which people and groups experience, interpret and respond to climate change. Depending on their worldviews, their values and beliefs, individuals and groups may differ in their risk tolerances and have different preferences concerning adaptive measures. The presence of diverse understandings and prioritisations across different groups can limit adaptive responses. Increasing our understanding of this type of barriers is where we want to contribute to.

It has been suggested that having a highly vulnerable profile can be a major driver for adaptation (Swart et al., 2009). Having a reputation of a front runner in flood and water-level management, a study of the Dutch response to climate change should provide us with some relevant insights into a 'most-likely' scenario (George and Bennet, 2003) on how governments are preparing for climate change and what the role of perceptions is in this process. Apart from its focus on traditional adaptation to flooding risks, the Netherlands is also interesting as it is also one of the most vulnerable parts of the EU when it comes to climate-change-induced flooding risk (EEA, 2006) as two-thirds of the country are classed as flood-prone territory (Van Koningsveld et al., 2008). However, despite the consequent high level of external pressures, earlier research has suggested that adaptation practices in Dutch municipalities are both ad hoc and limited (Van den Berg et al., 2010).

There is little literature on how adaptation works as a process (Lindseth, 2005), particularly when it comes to analysing adaptation in terms of organisational theory, and how we should interpret inaction towards adaptation. This is where our study aims to contribute. The aim of this study is to uncover explanatory factors for the observed paradoxical situation of a low municipal response to climate change despite a high level of external pressure. The study attempts to contribute to both organizational and climate change studies. Explanatory factors are sought in the organisational change literature. We adopt one of the classic models for organisational change – Lewin's (1951) Force Field Model – which is based on a continuous balancing between external factors pressing for change and internal factors resisting these pressures.

We propose a more detailed research into the factors related to the institutional setting where adaptation takes place. In our case, we have selected the governmental arena for closer study. We argue that internal factors can act as both major triggers and resistances in determining the level of activism. We focus on how organisational factors actually affect organizational 'output' in terms of organisational changes. We therefore posed the following main research question to guide this work which is further divided into two sub-questions:

- (RQ) To what extent do organisational factors explain the limited level of organisational adaptation to climate change in Dutch municipalities?
 - (a) In terms of organisational change, how can Dutch municipal organisations adapt to better cope with climate change and what are they currently anticipating?
 - (b) What organisational factors can we determine to influence the current level of organisational adaptation in Dutch municipalities?

Closely related to this is how the concept of climate change is perceived, and how these perceptions affect current climate change responses. Hence, this is also being addressed throughout. We start the paper by outlining how we approached the study. We move on to explain the methodological choices and then discuss the results from the study by answering the two sub-questions. We conclude the paper by answering the main research question and discussing some implications of our findings.

Conceptual framework for analysing organizational change

Despite the vast number of organisational change articles relevant for other scientific communities (e.g. the public administration community) only a small number have actually reached beyond the realm of organisational theory (Fernandez and Rainey, 2006). Jones (2009) characterises

organisational change as “the process by which organisations move from their [current] state to some desired future state to increase their effectiveness”. Generally, planned organisational change interventions aim to eventually increase the organisation’s effectiveness (Woodman, 1989). Manifestations of organisational responses to climate change similarly target at extending efficiency.

A traditional model for approaching organizational change is based on Lewin’s Field Force model (Lewin, 1951; Jones, 2009) which comprehends a situation where external factors are pushing for change and a set of internal factors are resisting these pressures. The resulting impasse of pushing and resisting factors can be seen as an equilibrium which is to be found at the core of an organization. Table 1 lists forces for change representing typical pressures from outside the organisation. These pressures, coming from various domains, encourage an organisation to adapt to new conditions. However, “one of the main reasons for some organisations’ inability to change is *organisational inertia*” (Jones, 2009, p. 296) implying a tendency of an organisation to maintain the status quo. This inertia is caused by internal factors that resist the externally driven forces for change.

Why is organisational change resisted? Numerous speculations about the root causes of the resistance-to-change phenomenon can be found, and O’Toole (1995) discusses a sample of some thirty suggestions. For practical reasons, we have limited ourselves to four levels (see Table 1). Resistance usually stems from differences in perceptions of a situation, which lead people to resist a change because they fear the consequences, or because it threatens the way they make sense of the world (Bruckman, 2008). Indeed, resistance is not to be found ‘in’ the individual, but rather in the constructed reality in which these individuals operate (Ford et al., 2002).

Lewin’s (1951) pioneering approach to organisational change included a unfreeze-transition-refreeze sequence (Weick and Quinn, 1999). Elaborated upon in several studies (e.g. Judson, 1991; Kotter, 1995; Armenakis and Bedeian, 1999), this sequence has been further divided into specific intermediate stages. In general, the start of an organisational change process commences with a period of ‘loosening up’, where a *sense of urgency* is created, followed by the formation of a *coalition* and defining a *common vision*. In our analysis, we will identify the status of organisational change in the municipalities studied based on this theory.

Table 1. *Driving and resisting factors influencing organizational change*

<i>Forces for change</i>	<i>Resistances to change</i>
Competitive forces	Organisational level
Economic, political and global forces	Functional and group level
Demographic, social and ethical forces	Individual level

Source: adopted from Jones (2009: 294)

Following the logic of Table 1, we now explain how we interpret the various force categories in terms of our study. The various driving factors fall within three main categories. First, in a business setting, being open to outside pressures is one of the major modes of coping with competition (Jones, 2009). In a public setting, this particular type of competition-driven organisational change is less applicable because of the monopolistic position. As such, we adapt the interpretation of this concept to reflect a municipality’s capacity to cope with the outside world, that is through cooperation with higher-level governments. Second, forces in the economic, political and global category are generally alike for all Dutch municipalities. However, a form of competition seems to be present, one in terms of effectively implementing higher-level governmental policies and in establishing effective division and implementation of tasks. Third, settings can be quite different when it comes to demographic, social and ethical forces as these forces are connected to how the local population is organised – hence, the level of ‘public interference’ varies. Here one can think, for example, of the level of dedication of the Municipal Council or the ‘distance’ experienced

between civil servants and citizens.² As a fourth force, we propose adding geographical position as we suspect that being based in a flood-prone area will drive a municipality to take adaptive precautions more quickly than a counterpart located in higher and drier regions (cf. Swart et al., 2009). Local vulnerabilities vary significantly throughout the Netherlands, with two-thirds of the country being flood prone (Van Koningsveld et al., 2008).

The forces for change are counterbalanced by several categories of organisational (or: internal) resistances. As indicated in Table 1, the theory differentiates four levels of resistance to change. First, there is the organisational level, which covers the organisation's structure, culture and strategy. A Dutch municipality has many different tasks and responsibilities, many of which involve implementing national regulations (Dutch municipalities receive 80 per cent of their income from the national government for such tasks; Statistics Netherlands, 2008). This situation obviously leaves limited space for independent initiatives. This could explain why, particularly with smaller municipalities, only concrete problems are 'addressed' while less defined issues are ignored. Second, the functional (and partially also the group) level includes differences in sub-unit orientation and sub-unit power conflicts. This includes the relationships between the various local policy domains and the mutual disputes that arise. Third, and closely related, the group level covers group norms, cohesiveness, 'groupthink'. As the group level in our study largely overlaps with the policy domains at functional level, we place the group level within the functional level.

On the individual level, factors such as selective perceptions matter. We can think of how individuals perceive climate change, and how they interpret the need to take adaptive measures. Here we draw on Hjerpe and Linnér (2009) who applied a utopian-dystopian approach in analysing climate policies. Their approach implies that perceptions of the future are either fairly positive or simply negative. The *utopian* view draws a somewhat optimistic image in which anticipating climate change can be a window of opportunity that provides an opportunity to take fundamental, robust and more sustainable decisions. The *dystopian* view focuses on worst-case scenarios with images of climate change as a major threat leading to more frequent and more severe natural disasters. We propose adding a third dimension to this dichotomy, one amounting to a more compromising, *laissez-faire* view. This third view does not hold with the fairly positive aspects of the utopian view or with the more alarmist dystopian view, but perceives of climate change as more of a 'non-issue' – with no need for change. Adopting the *laissez-faire* view leads to business as usual. The reasoning behind adopting this third attitude is that other issues have greater priority as climate change is seen as distant in time and place.

Methodology

As theoretical explanations are scarce for the observed paradoxical situation of a low municipal response to climate change despite the high external pressures, we have selected a theory-developing case study design since this allows an inductive approach (George and Bennet, 2005). Several pragmatic criteria were established to select municipalities for the study, of which their risk profile, experience with past flooding and size (urban vs. rural) were the most important.

Empirical data were gathered through policy document analysis and complemented through semi-structured interviews with civil servants (n=27) during two rounds of case studies involving a total of thirteen municipalities (our case-study unit).³ In the first, national case-study round, carried out in 2009, eight municipalities were involved with one or two interviews held with the civil servants responsible for climate policy. In the second round, in 2011, five municipalities, all in the

² The concept of government is here understood as the administrative unit of bureaucrats in the council office constituting the municipal organisation that is led by the Municipal Executive and which is supervised by the body of elected members constituting the Municipal Council.

³ The studied municipalities were: Almere, Breda, Enschede, Kampen, Millingen aan de Rijn, Nijmegen, Noord-Beveland, Rijssen-Holtten, Schiermonnikoog, Tubbergen, Utrecht, Wierden and Zwolle. We also interviewed civil servants from the following locally operating governmental bodies: Municipal Health Services (GGDs) and the Safety Regions representing the IJsselland and Twente regions.

Province of Overijssel, were visited, with between two and six informants representing the various involved sub-units or policy sectors (environment, spatial planning and water/sewage) interviewed. This second round was preceded by a digital questionnaire (n=70) which was distributed among civil servants in the province (Van den Berg, 2011b).

To compare the efforts put into adaptation among the different municipalities, a simple inductive framework was applied in which we focused on the organisation of climate issues within the organisation, the type of measures carried out and the respondents' perceptions of the climate change concept, its risks and preferred solutions. In attempting to generalise the findings from the thirteen cases, we ordered and re-ordered the data to achieve a level of general understanding. The three sub-themes presented in the introduction of this paper formed a basis on which we could 'shuffle' the data to create a running story. Table 2 shows a brief overview of the organisational climate change responses encountered in the case studies.

Results

In terms of organisational change, how can Dutch municipal organisations adapt to better cope with climate change and what are they currently anticipating?

The adaptation options presented in the literature usually have a physical nature and are focused on solving particular vulnerabilities or aimed at particular sectors. For example, De Bruin et al. (2009) present 96 adaptation options for the Netherlands, of which only a few can directly be related to the municipal reality – most are oriented towards spatial planning, although some water and housing adaptations are also mentioned. Considering the local perspective, we would however suggest that almost all local policy responsibilities will directly or indirectly be affected by the impacts of climate change (Van den Berg et al., 2010). Anticipated increases in extreme weather events thus potentially require action by the majority of municipal departments. In our interpretation, 'action' refers to organisational change within the municipal organisation so as to better cope with climate change impacts.

Based on the organisational change literature as discussed above, municipal responses to climate change should aim to increase the effectiveness of the organisation. First, a municipality can pursue *policy-based action* by formulating specific adaptation policies that enhance the preparedness of the municipality for climate change impacts. The first generation policies will probably be targeted at particular impacts, such as excessive temperatures or surplus storm water, but the development of a more mature, integrated, climate change policy would be more effective (Mickwitz et al., 2009; Urwin and Jordan, 2008). A policy-based action usually involves allocating human or financial resources for implementing an adaptation. Second, a municipality could anticipate *organisational action* to target an enhanced facilitation of climate change (thus actually being 'organisational adaptation' as we apply it throughout the paper). Such adaptations can take place on one or more of the four identified levels (Leavitt et al., 1973; Jones, 2009):

1. Human resources (e.g. training or otherwise enhancing skills and capabilities);
2. Functional (e.g. allocating a staff member or a new department to coordinate climate change strategy);
3. Technological (e.g. developing specific procedures to better cope with extreme weather events, such as the realisation of an early warning system);
4. Organisational (e.g. adjusting the organisational culture and structure to better match staff to tasks so as to improve output).

A striking example of organisational adaptation is to be found in Rotterdam (a city not covered in this study) where a Climate Office was established to implement the city's ambitions to become climate proof and to halve its CO₂ emissions (Groven et al., 2012). As for this study, in all of the

studied municipalities, we saw distinctive climate policies that mostly aimed at a better accommodation of local mitigation ambitions. Adaptation is sometimes considered in these plans as an additional strategy to mitigation, but we failed to find them being coupled in plans, as one might expect, for new residential districts. In terms of organisational adaptation, we saw that the majority of the studied municipalities had taken measures at the functional level by allocating a climate or energy coordinator to be responsible for implementing the organisation's mitigation strategy.

We found one example of organisational-level adaptation, in Utrecht, where a so-called Climate Atelier was established to prepare the design of a new residential district, uniting several municipal sub-units and three governmental layers. Although more of a working method than a separate organisational unit, this innovative, semi-functional form of organisational adaptation was directly inspired by the intra-governmental ambition of generating a 'climate proof' and sustainable 'output' (Gemeente Utrecht, 2008). In the other twelve cases, at best, only a few adaptation projects were mentioned in existing policies (such as in the mitigation strategy). However, local mitigation ambitions can be an important factor in adaptation materialising as a well-established mitigation strategy can broaden the organisational scope related to climate change (interview Breda municipality). As such, it is likely that adaptation will eventually be taken on board as an additional climate ambition (Van den Berg et al., 2010). Overall, we observed a strong focus on mitigation, which is locally termed 'climate policy'. To date, adaptation is generally absorbed in existing local policy structures, and this is perceived as a sufficient climate strategy.

While we see the local level as the key level for action because of its detailed knowledge of local conditions, the detailed scope on this level causes major distractions with an abundance of short-term local issues demanding attention. In terms of 'solving' climate change, we observed that municipalities often look to the national level to take the initiative. This strong vertical orientation means that local policy domains tend to look 'up' rather than 'sideways' for inspiration and input. Indeed, local policy sectors tend to adjust their policies to better fit with higher-level policies than to tune their policies to local needs (Van den Berg and Coenen, 2012). This situation can to an extent be explained by the municipalities' strong financial dependence on national government.

What organisational factors can we observe to influence the current level of organisational adaptation in Dutch municipalities?

Organisational change theory argues that organisations are under constant stress as driving and opposing factors compete in the equilibrium phase. While we observed an increase in the external pressures on Dutch municipalities, as the press and national government increasingly inform the public on climate change impacts, we saw only minor adjustments in the studied municipalities. Based on the theory, we assume that internal resistance-to-change factors must be increasing to maintain the power balance.

In all the studied municipalities, the majority of the forces for change are similar as the municipalities are all facing the same outside world when it comes to economic, national political, global and social forces. The conceptualised driving and resisting factors for change show a few patterns. First, as discussed earlier, we added a geography dimension to the pushing factors in the Force Field Theory of Change. We saw this as an external pressure for change on a municipality, assuming that an increasing vulnerability would encourage a municipality to be more responsive (Swart et al., 2009). Further, vulnerabilities show great local variations (Næs et al., 2005). For example, some areas are highly susceptible to flooding, whereas neighbouring areas can be high and dry. Our findings however show that a more vulnerable position does not drive a municipality on to more organisational adaptations (Van den Berg et al., 2010).

Second, we were able to make a general distinction between rural and urban municipalities. In the urban cases, the organisational scope was broader, with more-specialised staff, enabling earlier exploration into new policy issues. In urban municipalities, we did observe some steps

Table 2. *Encountered organisational climate change responses encountered in the case studies*

<i>Case</i>	<i>Municipality character</i>	<i>Policy-based action</i>	<i>Organisational adaptation</i>
Almere	Urban, flood prone	Mitigation policy	None
Breda	Urban, not flood prone	Towards broadening mitigation policy to include adaptation	None
Enschede	Urban, not flood prone	Mitigation policy ('sustainability')	Functional adaptation, not inspired by climate change
Kampen	Rural, flood prone	Minor mitigation policy	None
Millingen aan de Rijn	Rural, flood prone	Minor mitigation policy	None
Nijmegen	Urban, flood prone	Mitigation and fore running water policy adjustments	None
Noord-Beveland	Rural, flood prone	Minor mitigation policy	None
Rijssen-Holten	Rural, not flood prone	Minor mitigation policy	Technical adaptation not inspired by climate change
Schiermonnikoog	Rural, flood prone	Minor mitigation policy	None
Tubbergen	Rural, not flood prone	Minor mitigation policy	None
Utrecht	Urban, not flood prone	Towards broadening mitigation policy to include adaptation	Organisational adaptation (Climate Atelier)
Wierden	Rural, not flood prone	Minor mitigation policy	None
Zwolle	Urban, flood prone	Comprehensive mitigation policy	Functional adaptation, not inspired by climate change

towards a more integrated way of working that united staff from several disciplines. The already mentioned case of Utrecht (the fourth largest city in the country) where the Climate Atelier brought together not only disciplines but also various governments was, in terms of our framework, the 'ultimate' organisational situation recorded.

Third, we recorded varying degrees of interference by the outside world in the municipal organisation. Differences were seen in the degree of contact with the national and regional governments, and in the degree of 'interference' by the public and by the city council. In smaller municipalities, the public has a stronger say in local politics but, at the same time, the municipal organisation expects the population to be more self-reliant, for example when it comes to flooding and disaster management. In some larger municipalities (Enschede and Nijmegen), the city council has urged the municipal administration to speed up local climate or sustainability policies. These larger municipalities, in general, show a stronger degree of 'openness' when it comes to placing a broader sustainability approach on the agenda, and they are usually well in front when it comes to formulating and implementing climate ambitions, such as cutting emissions or decreasing the municipality's energy demand.

From the data it was clear that a major driving factor for organisational change within a municipality consists of national policies coupled with financial benefits. On the policy level, we saw that many of the studied municipalities now have a mitigation plan due to national subsidies that made it relatively easy for municipalities to double their mitigation budget. On the technological level, a good example is that all the studied municipalities are now separating their rainwater drainage from the local sewer system despite this measure not having been made compulsory. However, it does produce a saving on sewer costs as it is heavily supported by the national government.

From the questionnaire data, we were able to conclude that the political context of municipalities plays an exceptionally strong role as an organisational factor when it comes to organisational change (Van den Berg, 2011b). Respondents indicated that political interest can act

both as a major driver for change - if it is present – and likewise act as a major barrier when it is absent. An increasing political interest usually sees funding becoming available that enables civil servants to carry out changes in routines and tasks. Political interest can suddenly arise in the event of extreme weather but, even if this is followed up by change or adjustment, the measures tend to be isolated and short term. Most of the time, when there are no extreme events, politicians generally need to be convinced by their staff that change is necessary. This is often a difficult job as integrated information is rarely available within the organisation on vulnerabilities and how the municipality might be affected by climate change.

It has been suggested that the occurrence of extreme weather events would offer a so-called window of opportunity (Kingdon 1995) for the carrying out of any adaptation measures (Penning-Rowsell et al, 2006). We have, however, observed that in general extreme weather events are being considered as anomalous occurrences and ‘solved’ at the time by isolated, stand-alone measures. Wherever current weather extremes happen, these are framed as natural variation fitting the scope of the municipality’s current preparedness. The exact manifestation of current extremes are pictured as bad luck. Because of this way of framing (Chong and Druckman, 2007), these events are, in general, not perceived to require structural measures. Indeed, the vast majority of the studied contingency plans considers preparing for extreme weather events as impossible arguing that the occurrence of extreme weather is impossible to be foreseen. Current changes in weather patterns are thus being absorbed by existing local policy structures. Hence, as long as climate change will manifest in ‘minor’ extreme weather events, such as local flooding, organisational changes are not to be foreseen.

To what extent do organisational factors explain the limited level of organisational adaptation to climate change in Dutch municipalities?

At the most general organisational level, we have found that municipality size matters. In rural municipalities, civil servants generally have a broader portfolio, whereas city staff tends to be more specialised, allowing them more room to explore new themes such as adaptation. In urban municipalities, we saw a broader approach to climate change being applied. Here, we found that not only excessive rain, but also heat and drought, were under consideration, along with how best to prepare for such events. In rural municipalities with a more-limited personnel capacity, we found a greater belief in citizens being self-reliant. We further found on the organisational level that the level of ‘openness’ is an important factor in determining the likelihood of adopting organisational change. This openness is determined by the organisational culture and whether it indicates that the organisation is open to new themes. If mitigation is already a major issue for the organisation, then adaptation is likely to be added. Further, local politics matter. We found that the political colour of the local administration is also a factor of importance. If, for example, a ‘green’ party is involved then the climate policy strategy is likely to be broader (Van den Berg et al., 2010).

As for the functional level, we have observed large differences in the involvement of the policy domains studied. Water management departments dominate the local adaptation agenda, and spatial planning and environmental departments are hardly involved, and have seemingly resigned themselves to this situation. We further observed a lack of involvement by the safety and public health sectors even though they will clearly be faced with climate change impacts. However, the water departments do not so much take the lead in ‘tackling’ adaptation at the organisational level as ‘solve’ one aspect of the climate change issue by taking measures to cope with increasing rainfall, currently one of most salient impacts. In rural municipalities, this sectoral approach is widely accepted by the various sectors. In cities, however, there is a stronger sense of the need for cross-sectoral corporation in which the ‘dominance of water’ is not always accepted.

We also found a strong sectoral approach in the framing of climate change. If it is narrowly defined as an increase in storm water quantities, then the effect of climate change is generally seen as a water issue, and one that is a problem for the urban water managers, both by the water

managers themselves and their colleagues in other departments. Despite their geographical differences, all the studied municipalities showed this pattern. Interestingly, the respondents from the higher-located municipalities assumed that their at-risk counterparts would be anticipating and preparing for the more drastic flooding risks in their areas. However, this appeared not to be the situation: where a flooding risk is relevant, the local municipalities perceive this to be a problem for the water board or the national government due to the scale and the severity of the issue.

The sectoral divisions are also seen in the assessments of climate-related risks. The representatives of the studied policy domains were found to have distinctive perceptions of what the climate change risks were (e.g. Lyme disease, flooding, heat), and the preferred 'solutions' to cope with these risks. In general, spatial planners are more concerned over climate change risks than their colleagues in environment and water departments. Further, environmental coordinators tend to see mitigation as the preferred response to climate change, whereas spatial planners and water managers tend to perceive adjustments to the water system as the preferred 'solution'. This situation can probably be linked to the daily realities of these staff members with the environmental department being responsible for the local mitigation strategy, while the water department (and spatial planning, to some extent) is concerned with the local water system and the need for better drainage given the observed changes in local precipitation patterns.

Jones (2009) argues that, on the functional level, the different sub-units (in our case, policy domains) tend to have different perceptions of problems and solutions because these judge from the own viewpoint. This tunnel vision can create significant organisational inertia as the organisation first needs to spend time and effort securing agreement over the nature of the problem, its sources and its solutions before it can actually tackle the problem. This explanation fairly well fits the situation we have found in our case studies, suggesting that with a rather fragmented situation, investments are required to 'resolve' this before actual organisational adaptations can take place.

At the individual level, we observed a strong tendency not to relate climate change impacts to one's own municipality. In general, these impacts are framed as hitting elsewhere. When inquiring in high areas, reference is made to lower-lying areas prone to flooding. However, in low-lying municipalities, climate change is considered to impact in other countries or in coastal counterparts. Further, even if an individual considers themselves to be in a flood-prone municipality, taking any organisational or policy action is usually rejected as solutions are expected to come from the national government as climate change is considered to be 'too big' for a single municipality to act upon. The observed municipalities, in short, do not perceive themselves to 'own' the problems caused by a changing climate.

Representatives of the various sectors have different ideas about the risks, and the preferred measures to cope with these risks are strongly sectoral (water people prefers water solutions, whereas the environmental workers prefer mitigation measures). The literature on risk perception suggests that responsive behaviour towards natural disasters (e.g. flood insurance) is strongly dependent on its frequency and severity. Measures are more likely if the hazard (e.g. a flood) is common, even if it is less catastrophic than another rarer hazard (Slovic et al., 1982). In his study on risk perceptions of climate change in America, Leiserowitz (2005) argues that concerns over the impacts of climate change are increasing but limited, and that this hinders the political prioritisation of this issue. Responsive behaviour towards risks is only likely if these risks are perceived as close, both in time and place (Leiserowitz, 2005, 2006). In line with this, our findings suggest that the respondents did not feel at risk from climate change as they generally perceived any impacts as distant (Van den Berg, 2011a).

We noticed that municipalities respond to perceptible weather events, such as increasing precipitation or higher temperatures. For example, Nijmegen, one of the examined municipalities, had made 'heat scans' (aerial infra-red photos of urban areas visualising differences in temperatures) in winter to reveal major heat leaks as input for their mitigation policies, and intended additional scans of heated areas during heat waves. The problems caused by shifting precipitation

patterns were being anticipated by all the selected municipalities. The awareness of this effect is rising, and it is increasingly connected to climate change. This pattern of increasing awareness was not related to municipality size.

Further, we observed a common perspective on the climate change concept in all the studied municipalities: one which can be characterised as a *laissez-faire* attitude with some dystopian elements. This is based on the view, but again only concerning water, that actions should be taken now to prevent worse to come. By worse, one refers to increasing disturbance and damage, but still post-event action is politically more acceptable than preventive actions against developments that might not appear for several decades.

Do these perceptions influence the extent of organisational adaptation? It appears that it is actual experience rather than perceptions that stimulates a municipality to respond to climate change (Spence et al., 2011). In one case (the Rijssen-Holten municipality), where extreme rainfall in three successive storms in one month flooded four hundred houses, the political will for a full revision of the local drainage system suddenly appeared. Neighbouring municipalities cited this extreme situation and saw it as fully understandable that an adaptation was carried out (thorough revision of the local sewer and drainage systems). However, they were also pleased it was not their municipality that was affected; and none of the neighbours took similar measures. This example shows the major shortcoming of relying on perceptions as, in the case of climatic change, the impacts are hard to visualise until they are actually manifested. Currently, an extreme weather experience is considered as a matter of bad luck, and this legitimises the idea that assistance should be provided by neighbouring municipalities or the national government. However, this might well come too late, after damage or worse has occurred.

Clearly, the local level does anticipate concrete problems that require additional policies. One of the respondents at the “veteran case” Rijssen-Holten indicated that he experienced that a problem ‘needed’ to be tangible for it to be solved (interview Rijssen-Holten municipality). However, any occurrence of extreme weather is framed as part of the changing weather patterns and therefore hard to prepare for. What is being observed on the ground is that precipitation patterns are changing, causing some problems with local water management. Local flooding resulting from this is framed as a pure accident, for which no-one can really prepare. In their local disaster plans, the increase in extreme weather events is assessed as unforeseeable, thus requiring no specific preparations. The current problems with surplus storm water are rarely framed as problematic, but considered as an issue that should be tackled through existing and new regulations. Spence et al. (2011), in contrast, argue that highlighting linkages between current local weather events and future climate change is probably a useful strategy for increasing concern and action. It is precisely here that we see a problem since organisational change processes follow the materialisation of a sense of urgency, something we sensed in no more than a few of the studied municipalities.

Conclusions

In this paper, we have investigated to what extent organisational factors explain the limited level of organisational adaptation to climate change in Dutch municipalities. As a first sub-question (*In terms of organisational change, how can Dutch municipal organisations adapt to better cope with climate change and what are they currently anticipating?*), we have explored what municipal organizations can do to prepare for climate change impacts. We have distinguished adaptations in either their policies or their organisation. Our findings indicate that policy adaptations have been processed in regular policies within existing frameworks. Examples of this are the problem tackling of surplus storm water in the local sewer plan or new discharge methods of excess storm water in the development of new residential districts. Remarkably, almost all observed adaptations anticipate an increase in precipitation. Already precipitation patterns are being observed to change which increases local troubles. This observation is being communicated as a decisive argument to make adjustments. However, in the one case where a major revision was carried out in the local sewer

system, this was actually inspired by extreme weather experience rather than projections of climate change.

We have observed that in general, organisational changes are rare. In one case, we saw an intra-governmental working method being introduced to realise a more effective climate change output. Apart from this, we mainly found functional adjustments introduced to better accommodate mitigation, but only limited policy adjustments were noted for adaptation. We have further found a strong vertical orientation when it comes to the adoption of new themes on the local level. This situation reflects that national policies are a major driver of local change. Initially, we added the dimension of geographic location, as an external pressure for change, to the Force Field Theory of Change, assuming that an increased vulnerability would encourage a municipality to be more responsive. This, however, proved not to be the case. A more vulnerable position as such does not drive a municipality to make organisational adaptations.

As for the second sub-question (*What organisational factors can we determine to influence the current level of organisational adaptation in Dutch municipalities?*) we have identified strong pressures for change together with strong organisational factors resisting these pressures. Based on the Force Field Theory of Change this power balance currently seems to favour the internal factors, as we have observed only a rather low level of organisational adaptation in Dutch municipalities. In identifying these internal factors, we have followed Jones (2009) by distinguishing these on organisational, functional, group and individual levels. The most effective resistance to change was identified on the functional level, where we could observe strong sectoral partitioning resisting an integrated approach to adaptation in Dutch municipalities.

On the organisational level, we observed that extreme weather events are generally considered as anomalous one-off occurrences that are 'solved' at the time by isolated, stand-alone measures. Dutch municipalities seem to perceive current weather extremes as natural variations fitting within the scope of their current preparedness, and that current changes in weather patterns can be absorbed within the existing local policy structures. This situation is perceived as sufficient, negating any need for organisational change. On the functional level, the representatives of the studied policy domains were found to have distinctive perceptions of what the climate change risks were (e.g. Lyme disease, flooding, heat), and the preferred 'solutions' to cope with these risks. On the individual level, we observed a strong tendency not to link climate change impacts to one's own municipality. In general, such impacts are framed as hitting elsewhere. The studied municipalities, in short, do not perceive themselves to 'own' the problems caused by the changing climate. The overall situation thus supports the risk perception literature which suggests that responses to risks are only likely if the risks are perceived as close in both time and place.

Having answered the sub-questions, we can now answer our main research question (*To what extent do internal organisational factors explain the limited level of organisational adaptation to climate change in Dutch municipalities?*). The currently limited extent of organisational adaptation to climate change in Dutch municipalities can be explained by the strongly divided approach to climate change adaptation. Each of the involved sub-units has its own perception of climate change, and of the preferred 'solutions' to tackle the related problems. This strongly divided reality stalls the appearance of an integral climate change policy – let alone an organisational adaptation inspired by the ambition to be better prepared for climate change. Current changes in weather patterns are absorbed by existing local policy structures. Although these are somewhat fragmented, the situation is perceived as sufficient, thus negating any sense of a need for organisational change.

Organisational theory argues that 'investments' are needed to resolve the currently observed tunnel vision in the various policy sectors concerned before actual organisational adaptations can take place. To 'unfreeze' the status quo, a sense of urgency needs to be created, followed by coalition forming and the definition of a common vision. In general, the case studies have shown that Dutch municipalities are currently still in the early stages of this process. In most cases, a rather

limited sense of urgency is present. In some cases, a coalition, and maybe even a provisional vision, has been established. However, this does not mean that the subsequent steps towards organisational change are bound to be taken. This need for stronger integration as part of adaptation has been observed in other European countries (Swart et al., 2009). We argue that tackling this situation requires supra-local, cross-sectoral ‘solutions’, and that training and communication will be strong elements. Given the strong vertical orientation observed, we believe that possible solutions will require a more explicit role for the regional and national governments in enabling municipalities to look beyond their local and sectoral partitions.

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References

- Amundsen H, Berglund F and Westskog H (2010) Overcoming barriers to climate change adaptation—a question of multilevel governance? *Environment and Planning C: Government and Policy* 28 (2): 276-289.
- Armenakis AA and Bedeian AG (1999) Organizational change: a review of theory and research in the 1990s. *Journal of Management* 25(3): 293–315.
- Betsill MM and Bulkeley H (2006) Cities and the multilevel governance of climate change. *Global Governance* 12(2): 141–159.
- Bulkeley H and Kern K (2006) Local government and the governing of climate change in Germany and the UK. *Urban Studies* 43(12): 2237–2259.
- Chong D and Druckman JN (2007) Framing theory. *Annual Review of Political Science* 10: 103–126.
- Coenen FHJM and Menkveld M (2002) The role of local authorities in a transition towards a climate neutral society. In: Kok MTJ, Vermeulen W, Faaij A and Jager DD (eds) *Global warming and social innovation: the challenge of a climate neutral society*. London and Sterling, VA: Earthscan, pp. 107-126.
- De Bruin K, Dellink R, Ruijs A, Bolwidd L, Van Buuren A, Graveland J and De Groot R (2009) Adapting to climate change in the Netherlands: an inventory of climate adaptation options and ranking of alternatives. *Climatic Change* 95(1): 23-45.
- Delta Programme Commissioner (2011) *Delta Programme 2012. Working on the delta: acting today, preparing for tomorrow*. The Hague: Delta Programme Commissioner. Available at: <http://www.deltacommissaris.nl/english/topics> (accessed 5 January 2012).
- EEA (2006) *Vulnerability and adaptation to climate change in Europe*. Copenhagen: European Environment Agency (EEA).
- Fernandez S and Rainey HG (2006) Managing successful organizational change in the public sector. *Public Administration Review* 66(2): 168–176.
- Ford JD, Ford LW and McNamara RT (2002). Resistance and the background conversations of change. *Journal of Organizational Change Management* 15(2): 105–121.
- Gemeente Utrecht (2008) *Wonen in het landschap: structuurvisie Rijnenburg*. Utrecht: gemeente Utrecht, stadsontwikkeling. [Municipality of Utrecht: living in the landscape: masterplan Rijnenburg – in Dutch]
- George AL and Bennett A (2005) *Case studies and theory development in the social sciences*. Cambridge etc.: MIT Press.
- Glaas E, Jonsson A, Hjerpe M and Andersson-Sköld Y (2010) Managing climate change vulnerabilities: formal institutions and knowledge use as determinants of adaptive capacity at the local level in Sweden. *Local Environment* 15 (6): 525-539.
- Granberg M and Elander I (2007) Local governance and climate change: reflections on the Swedish experience. *Local Environment* 12 (5): 537-548.
- Groven K, Aall CA, Van den Berg MM, Carlsson-Kanyama A and Coenen FHJM (forthcoming) *Integrating climate change adaptation into civil protection: comparative lessons from Norway, Sweden and the Netherlands*.
- Hjerpe M and Linnér BO (2009) Utopian and dystopian thought in climate change science and policy. *Futures* 41(4): 234-245.
- IPCC (2007) *Climate change 2007: impacts, adaptation and vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Parry ML, Canziani OF,

- Palutikof JP, Van der Linden PJ and Hanson CE (eds). Cambridge and New York: Cambridge University Press.
- Jones GR (2009) *Organizational theory, design, and change: text and cases* (6th ed). Upper Saddle River etc.: Pearson Education.
- Judson AS (1991) *Changing behavior in organizations: minimizing resistance to change* (rev ed). Cambridge, MA: Blackwell Publishers.
- Kingdon JW (1997) *Agendas, Alternatives, and Public Policies* (2nd ed). Upper Saddle River etc.: Pearson Education.
- Kousky C and Schneider SH (2003) Global climate policy: will cities lead the way? *Climate Policy* 3(4): 359-372.
- Kotter JP (1995) Leading change: why transformation efforts fail. *Harvard Business Review* 73(2): 59-67.
- Leavitt HJ, Dill WR and Eyring HB (1973) *The Organisational world*. New York: Harcourt Brace Jovanovich Inc.
- Leiserowitz AA (2005) American risk perceptions: is climate change dangerous? *Risk Analysis* 25(6): 1433-1442.
- Leiserowitz AA (2006) Climate change risk perception and policy preferences: the role of affect, imagery, and values. *Climatic Change* 77(1): 45-72.
- Lewin K (1951) *Field theory on social science*. New York: Harper and Row.
- Lindseth G (2005) Local level adaptation to climate change: Discursive strategies in the Norwegian context. *Journal of Environmental Policy & Planning*, 7(1), 61.
- Mickwitz P, Aix F, Beck S, Carss David, Ferrand N, Gorg C, Jensen A, Kivimaa P, Kuhlicke C, Kuindersma W, Manez M, Melanen M, Monni S, Pedersen A, Reinert H and Van Bommel S (2009) *Integration, Coherence and Governance*. Helsinki: Partnership for European Environmental Research (PEER).
- Næss LO, Bang G, Eriksen S and Vevatne J (2005) Institutional adaptation to climate change: flood responses at the municipal level in Norway. *Global Environmental Change* 15(2): 125-138.
- O'Brien K, Eriksen S, Sygna L and Næss LO (2006) Questioning complacency: climate change impacts, vulnerability, and adaptation in Norway. *Ambio* 35(2): 50-56.
- O'Toole J (1995) *Leading change: overcoming the ideology of comfort and the tyranny of custom*. San Francisco: Jossey-Bass Publishers.
- Penning-Rowsell E, Johnson C and Tunstall S (2006) 'Signals' from pre-crisis discourse: lessons from UK flooding for global environmental policy change? *Global Environmental Change* 16(4): 323-339.
- Rijkswaterstaat (2008) *Capaciteitsplanning ergst denkbare overstromingsscenario's*. Report, Oranjewoud/Save and HKV Lijn in water, Netherlands, June. [Dutch Ministry of Infrastructure and the Environment: capacity planning worst case flood scenarios – in Dutch]
- Slovic P, Fischhoff B and Lichtenstein S (1982) Why study risk perception? *Risk Analysis* 2(2): 83-93.
- Spence, A, Poortinga W, Butler C and Pidgeon NF (2011) Perceptions of climate change and willingness to save energy related to flood experience. *Nature Climate Change* 1 (1): 46-49.
- Statistics Netherlands (2008) *Lokale overheid financieel grotendeels afhankelijk van Den Haag*. Available at: <http://www.cbs.nl/nl-NL/menu/themas/macro-economie/publicaties/artikelen/archief/2008/2008-2624-wm.htm> (accessed 10 January 2012). [Local government financially largely dependent on The Hague – in Dutch]
- Storbjörk S (2010) 'It takes more to get a ship to change course': barriers for organizational learning and local climate adaptation in Sweden. *Journal of Environmental Policy & Planning* 12(3): 235-254.
- Storbjörk S (2007) Governing climate adaptation in the local arena: challenges of risk management and planning in Sweden. *Local Environment* 12(5): 457-469.
- Swart RJ, Biesbroek GR, Binnerup S, Carter TR, Cowan C, Henrichs T, Loquen S, Mela H, Morecroft MD, Reese M and Rey D (2009). *Europe adapts to climate change: comparing national adaptation strategies*. Helsinki: Partnership for European Environmental Research (PEER).
- Urwin K and Jordan A (2008) Does public policy support or undermine climate change adaptation? Exploring policy interplay across different scales of governance. *Global Environmental Change* 18(1): 180-191.
- Van den Berg MM & Coenen FHJM (2012) *Integrating climate change adaptation in local policies: lessons from the Netherlands*.
- Van den Berg MM (2011a) *Naar een klimaatbestendiger Overijssel: Casestudyonderzoek naar klimaatbeleid bij Overijsselse gemeenten*. Report, University of Twente, Netherlands, September. [Towards a more climate proof Overijssel: case study research on climate policy in Overijssel municipalities – in Dutch]
- Van den Berg MM (2011b) *Naar een klimaatbestendiger Overijssel: analyse van klimaatbeleid bij Overijsselse gemeenten*. Report, University of Twente, Netherlands, January. [Towards a more climate proof Overijssel: analysis of climate policy in Overijssel municipalities – in Dutch]

- Van den Berg MM, Lafferty WM and Coenen FHJM (2010) Adaptation to climate change induced flooding in Dutch municipalities. In: Martens P and Chang CT (eds) *The social and behavioural aspects of climate change: linking vulnerability, adaptation and mitigation*. Sheffield UK: Greenleaf Publishing, pp. 130-157.
- Van Koningsveld M, Mulder JPM, Stive MJF, Van der Valk L and Van der Weck AW (2008) Living with sea-level rise and climate change: a case study of the Netherlands. *Journal of Coastal Research* 24 (2): 367-379.
- Weick KE and Quinn RE (1999) Organizational change and development. *Annual Review of Psychology* 50: 361–386.
- Wilson E (2006) Adapting to climate change at the local level: the spatial planning response. *Local Environment* 11 (6): 609-625.
- Wisner B, Blaikie P, Cannon T and Davis I (2004) *At risk: natural hazards, people's vulnerability and disasters* (2nd ed). London and New York: Routledge.
- Woodman RW (1989) Organizational change and development: new arenas for inquiry and action. *Journal of Management* 15(2): 205-228.