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# Legitimacy building under weak institutional settings

***Climate change adaptation at the local level in Denmark and Norway***

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**Abstract**

This article discusses local strategies for addressing the adaptation to climate change in Denmark and Norway. In both countries, the national impetus for local adaptation is weak. Regarding climate change adaptation, it is largely left to local actors to take the initiative. The article illuminates the dynamics of the different approaches to climate change adaptation at the local level. Using decision-making and learning theory, we present an analytical framework to examine four Scandinavian cases, two in Norway and two in Denmark, which represent two different responses, i.e. anticipatory actions and obligatory actions to climate change adaptation. This research finds that, by bringing in knowledge and resources and engaging in persuasive communication across sectors, the presence of institutional entrepreneurs in the adaptation process plays a key role in building legitimacy for anticipatory action in the municipal organisation.

**Keywords:**

Climate change adaptation, local governments, decision-making, learning, legitimacy building, institutional entrepreneurs

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## 1. Introduction

This article examines the processes of legitimising adaptation actions at the local level in relation to social learning from a cross-national Scandinavian angle. The article contributes to the climate change governance and planning literature; it provides a conceptual perspective on legitimacy and learning that explains the differences of ambition in adaptation performed by local governments. We analyse and discuss how Danish and Norwegian local governments approach climate change adaptation, asking: which reasons do local officials have for integrating climate change adaptation into their organisations; and which actions build legitimacy for climate change adaptation at the local level?

Planning related to climate change is a new and emerging field in local administration and planning. The actions often cover mitigation and adaptation activities, encompass several sectors and require a multidisciplinary approach (Rydland 2010, Solli 2010, Lemos and Morehouse 2005). It is now widely recognised that mitigation is not enough, and that the adaptation to climate change impact also needs to be practised and integrated into the planning and administration processes (Adger *et al.* 2005). Various authors have studied climate change adaptation and the barriers that hinder adaptation (Adger *et al.* 2005, Biesbroek, Swart and van der Knaap 2009, Eakin and Lemos 2010, Engle and *Lemos* 2010, Hallegatte 2009). This literature is interested increasingly in the decision-making processes that define climate change actions, and how the dynamics of these processes constrain development and implementation. Studies in America (Adger *et al.* 2009, Tang *et al.* 2010, Lemos and Morehouse 2005) and Europe (Bulkeley 2010, Wilson and Piper 2010, Berkhout, Hertin and Gann 2006, Haug *et al.* 2010, Juhola *et al.* 2011) have produced roughly the same results.

The complexity of governing climate change adaptation at various levels of decision-making is a main barrier to implementation. From an environmental governance perspective, Scandinavia is interesting since environmental policies here have been historically among the world's strongest (Aall *et al.* 2012, Juhola *et al.* 2012b). In terms of scholars examining Scandinavian issues, O'Brien *et al.* (2006) use Norway as a point of departure. They question the complacency that they found at the societal level, seeing it as a barrier to climate change adaptation. Blennow and Persson (2009) have examined

the personal motivation of Swedish forest owners to adapt to climate change. In the absence of Finnish national regulation on climate change adaptation, Juhula *et al.* (2012a) examine regional challenges related to adaptive capacity. Larsen, Kørnøv and Wejs (2012) explore institutional constraints to explain the lack of climate adaptation measures in Danish environmental reports.

By addressing the detailed arguments and reasoning behind the integration and implementation of climate change adaptation, this article illuminates the dynamics that influence the local approach to climate change adaptation. Section 2 of the article presents the two countries and discusses national initiatives to facilitate local adaptation measures. Section 3 proposes an analytical framework based on decision-making and organisational learning theory. Section 4 presents the methodology; section 5 describes the four local case studies (two in Denmark and two in Norway). Section 6 presents the comparative analysis of the four cases' approaches while section 7 draws the final conclusions.

## 2. Climate change adaptation in Denmark and Norway

Traditionally, Norwegian and Danish efforts to address climate change have focused on mitigation rather than adaptation. However, adaptation has gained some momentum, especially after the release of IPCC's Fourth Assessment Report (IPCC 2007). Moreover, there is a growing understanding of how important local governments are in implementing adaptation strategies (Kreutz and Lonkila 2012:787).

In both Denmark and Norway, local government is a key element in national policy-making. Most political parties seem nowadays to define local government from the perspective of an *integrative* model (Montin 2000). According to the integrative model, the relationship between central and local government is viewed as a question of functions, not as two separate political spheres (Montin 2000:12). In the 1980s, the Scandinavian governments adopted a similar formula for their environmental policies, with reforms giving the municipalities wider environmental powers. The new ways of climate change adaptation are a late example of this trend. However, climate change is associated with a high degree of uncertainty at the local level; many local governments

await national regulation and postpone action until receiving firm indications from state authorities (Harvold and Risan 2010).

In ***Denmark,*** the issue of climate change gained prominence on the agenda with the 2009 UN 15th Conference of Parties (COP15) in Copenhagen, which received extensive media coverage. At the state level, the government of the time published a *Strategy for adaptation to climate change in Denmark* in 2008. That strategy sought to provide 'a basis, which describes how the expected climate changes are believed to affect a number of sectors. Such an overview provides opportunities to consider if, and if so how and when, authorities, businesses and citizens can take into account climate change and if necessary adapt' (Danish Government 2008, p. 7). The strategy formalised the need to adapt to climate change and detailed several initiatives in building and sharing information, facilitating research, and enabling overall coordination. The strategy emphasised *ad hoc* initiatives and informally delegated responsibilities among the various stakeholders. The strategy did this, however, without imposing any specific or binding guidelines on stakeholders or requiring them to undertake concrete climate change adaptation measures (Danish Government 2008).

Denmark's 98 municipal councils are in charge of spatial planning and sector plans, i.e., water, wastewater, nature and heating. These obligations confer on municipalities many opportunities for climate change adaption. This is expressed in the Danish local government association's publication, *Climate Initiative*. Here, Local Government Denmark highlights the significant role of municipalities in terms of climate change adaptation and the state's role, for example, in providing funding for the tasks (Local Government Denmark 2009). A review of climate change planning in the Danish municipalities found that 48 of the 98 municipalities had voluntarily prepared dedicated climate change plans. 26 of these plans covered both mitigation and adaptation measures, while two concentrated on adaptation alone. The plans generally encompass the municipality as a geographical area at a societal level and, at the outset, cover all municipality functions. Some of the typical adaptation issues are: landscape analysis and risk; river management and wetlands; green urban areas and sewage systems (Kørnøv and Wejs, forthcoming). This also shows that water and flooding are one of the main climate change challenges expected in Denmark (Danish Government 2008).

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Like Denmark, ***Norway*** is a unitary state, where the local level – the municipalities – plays an important role in delivering a wide range of public services. Reforms in the 1980s and 1990s gave the municipalities greater environmental policy powers (Falleth and Hovik 2009). However, a *local* climate change focus was not addressed in a broader sense until after 2000. At the national level, the 2008 national report: *Climate Adaptation in Norway* discussed the challenges of climate change adaptation (Norwegian Government 2008). The report underlines that mitigating climate change should be the main focus and that guidelines should be prepared towards a more 'robust' infrastructure. To stimulate a more coordinated adaptation policy, the state established a national climate adaptation secretariat in 2007.

The policy on climate adaptation is not limited to the national level. All three administrative levels have differing responsibilities. Norway's 428 municipalities have a general responsibility for local planning. Climate change is expected to influence most sectors in which the municipalities have a responsibility (NOU 2010:10); local authorities will face many related challenges.

In 2009, the Norwegian government adopted new guidelines on climate and energy planning, focusing mainly on mitigation, not adaptation. The guidelines assumed that all municipalities would have prepared their plans by 1st of July 2010. However, only around 40 per cent of the municipalities met the deadline. The most populated municipalities were more likely to have a climate plan, while the vast majority of small rural communities had failed to meet the government demand (Harvold and Risan 2010).

In accordance with the state guidelines, the main focus of the local plans –which, in principle, must cover the whole municipality– is mitigation. When it comes to adaptation, many municipalities seem to lack a general strategy. Consequently, local climate adaptation often seems reactive (Amundsen, Berglund and Westskog 2010); action is typically not implemented until an incident, like a landslide or flood, occurs. Although local political leaders seem to have focused more on climate change in recent years, many local councils lack the competence and resources to manage all the climate change adaptation challenges (Aaheim 2009, Harvold 2011).

There are obvious differences between ***Denmark*** and ***Norway***; however, their policies on climate change adaptation also share similarities. Both countries have a national adaptation policy, although without imposing strong or binding demands on the

municipalities; these retain a great leeway for interpretation and choice. The regional level in the two countries has only an advisory role concerning climate change adaptation. This constitutes a weak institutional hierarchy in both countries, where local councils are left in a void without clear national regulation and where the practice among the local authorities varies considerably. Juhola *et al*. (2011, p. 459) find similar conditions in Finland and Italy, stating that: 'In Finland, for instance, the decentralised state structure has meant the national scale has limited ability to steer the municipalities. As a result, adaptation is instead framed as vulnerability to climate impacts at the local scale where extreme weather events have been felt'.

Juhola *et al*. (2011) also find stronger hierarchy in the UK, where climate change adaptation is being mainstreamed into planning policy and the local responsibility is thus made clear. There may be several reasons as to why the state level authorities in Denmark and Norway have decided not to impose strong or binding demands on the municipalities. However, these reasons are not explored here. This article's premise is that the actors are in what we will define as an 'institutional void' regarding climate change adaptation. The article explores how and why they act in this void; thus adding perspectives to Juhola *et al.* (2011), Aall *et al.* (2012) and others. Different actors might take action and impose demands for climate change adaptation in the state institutional void. These include non-governmental organisations, insurance companies, and municipalities. This article focuses on the municipalities as actors in the institutional void. Municipalities represent an interesting case as local level authorities with responsibility for a wide range of sectors and are highlighted in various contexts as important actors in climate change adaptation.

It prompts questioning about the processes behind the municipalities' actions on climate change adaptation; i.e. how do they legitimise these actions without the presence of state regulation – independently of size and institutional hierarchy – and thus perhaps attempt to fill the institutional void? Before presenting the case studies, we first elaborate the issues theoretically.

## 3. Analytical framework

The municipality is the lower tier in a hierarchical system, but it also has an independent role in developing the local community. So, while the municipality is instrumental in

implementing central government regulation, in some areas local councils also have considerable freedom to act independently and define the local policy on the future direction of the spatial and economic development of the local community. This means that, if the government is clear on what it expects and demands from local government, local practice can be viewed as the implementation of national policy. If the government has unclear expectations, as is often the case in climate change adaptation, the scope for local variation is wider; local factors, such as values and interpretations, become more important as explanatory factors.

In Denmark and Norway, the formal institutional setting of climate change adaptation is generally weak. This has implications for concrete local level action. Given the lack of national guidelines, an institutional void characterises the context in which local action is taken to adapt to climate change. Hajer (2003, p.175) defines the institutional void as a situation where 'there are no clear rules and norms according to which politics is to be conducted and policy measures are to be agreed upon'. Hajer (2003) also describes climate change as a political issue in an institutional void. Problems arise, he suggests, when political action confronts existing rules and norms of government officials and other parties. Because of the dependency on resources embedded in the existing institutional structures, e.g. the annual municipal budget, Koornstra (2010) argues that governing institutions cannot function within such a 'void' (ibid: 6). As Koornstra also argues, the challenge associated with governing in an institutional void is the lack of resources and legitimacy, with the consequent lack of governing capacity.

Suchman (1995, p. 574) defines legitimacy as '(…) a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions'. Legitimacy building is a necessity when acting in an institutional void. As the municipalities in both Denmark and Norway do implement climate change adaptation actions, they must build legitimacy in other ways than through the institutional hierarchy, i.e., state direction.

Hajer (2003) sees this as a learning process for the parties involved. In the process of finding solutions to the actual problems, the actors negotiate, develop and agree new institutional rules and norms, and build legitimacy. This process is necessary to create an institutional basis within the existing municipal institutional system (Scott 2008). In a political organisation, these actions may be constrained by the unwritten institutional

rules and norms termed 'rules of appropriateness' (March and Olsen 1989). Actions should be perceived as appropriate, and institutional routines are therefore often followed even when it is not obviously in the individual's interest. March and Olsen (1989) label this 'obligatory action', characterizing the expected choice of action. The weak institutions of climate change adaptation involve legitimizing actions in a way that is perceived as appropriate in the specific municipality. However, the choice of action may also be made from another perspective; i.e. 'anticipatory action' characterising the choice of the best alternative (March and Olsen 1989), in which the rules of appropriateness are weaker.

In viewing legitimacy building in local adaptation as a local learning process, legitimacy may be built differently according to the choice of action, obligatory and anticipatory, respectively. Berkhout *et al.*'s (2006) four steps of organisational learning is useful here. They include: 1) interpretation of external signals, 2) search for solutions, 3) articulation (new rules, norms, organisational changes), and 4) feedback (learning from experience). The four steps form a cycle of continuous learning (see Table 1). The interpretation of signals is, according to Berkhout *et al.* (2006, p. 138), important to change: 'In studies of organizational learning, change in routines comes about in response to direct organisational experience. However, before change can be initiated, a signal needs to be recognized as evidence of a novel situation, in response to which existing routines are inappropriate or ineffective'. Starting to adapt to climate change may be regarded as a challenging organisational change due to its demand for a multidisciplinary approach (Lemos and Morehouse 2005). Making such a change is thus dependent on signals, such as experiences that prompt a reaction: third party scientific assessments, best practice guidance, revised regulatory standards, or others that initiate a recognition and acceptance of change.

Using the distinctions of March and Olsen (1989) and learning cycle of Berkhout *et al.* (2006), we create our analytical framework. This approach makes it possible to examine the four cases in terms of: the processes determining their climate change adaptation actions; which level they have reached in the learning cycle; and how they seek legitimacy.

Table 1. Theoretical framework: learning in anticipatory versus obligatory actions.

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| **Phases in the learning process** | **Anticipatory actions** | **Obligatory actions** |
|---|---|---|
| Interpreting signals | Bringing in signals from a variety of sources seen as relevant | Relying on signals from central government |
| Search for solutions | Looking for new innovative solutions, learning from networks | Assessing central guidelines within local setting |
| Articulation | Developing new local rules, norms, regulations | Implementing standardised procedures and reliance on higher authority |
| Feedback | Learning from own experiences | Implementing new norms and regulations |

Previous case studies from Norway and Denmark indicate that the *first step* in the learning cycle (to interpret signals) is very important to explain municipality variation in adaptation practices (Saglie 2009; Winsvold *et al*. 2009). Weak national signals – in the reality for both countries with respect to adaptation – can create an opportunity for different local level interpretations. While institutions, rules and norms are important to explaining organisational behaviour, there is also an element of the individual acting within these rules and norms. To understand how organisations change their way of operating, and how organisational learning occurs, one must also focus on the individuals within the organisation. Because local learning and action can happen in the context of signals from different sources, these signals are to be interpreted in regard to the specific circumstances, in this case climate change adaptation; otherwise there will not be a learning cycle. Which source local actors opt for and act upon is important; section 6 examines this.

Because, there are only weak direct signals from the two states, the municipalities must build legitimacy for climate change adaptation in other ways. We explore legitimacy building through a learning framework: legitimacy can be built through a learning process and, dependent upon the process and context, result in either anticipatory or obligatory actions.

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## 4. Methodology

The four municipalities in Denmark and in Norway were selected because they have promoted climate change adaptation in different ways and contexts. Two of the cases represent the anticipatory approach: actions go beyond the standard response in the municipalities. The two other cases represent the more obligatory and thus more standard approach to climate change adaptation. The initial assessment of whether the cases represent either anticipatory or obligatory action is based on visible actions taken by the municipalities. The choice is based on whether or not the municipalities have implemented other types of actions or more actions than the average municipalities. The choice is unrelated to questions of *why and who* initiated or implemented the actions, as the analysis explores these mechanisms. However, the analysis has confirmed consistently that the cases can be labelled as anticipatory and obligatory, respectively. The assessment is based on the authors' background knowledge. The range of cases should illuminate the mechanisms in the anticipatory and obligatory approaches and the differences between these approaches in Denmark and Norway.

The empirical material for the Norwegian cases comes from embedded case studies of five Norwegian small and medium-sized coastal towns. This research was a sub-project called 'Adaptation to Climate Change in Urban Planning and Waterfront Development', which was part of a larger research programme on 'Potentials and Limits to Adaptation in Norway', financed by the Norwegian Research Council under the NORKLIMA programme. The study included 23 in-depth interviews with local politicians, council planners, developers and consultants. These were partly individual and partly group interviews. In all, 44 persons were interviewed. The interviews were conducted in two stages, in the autumn of 2008 and spring of 2010. The first stage aim was to establish the views of local politicians and planners of municipal master planning, and to select detailed plans for concrete development in which the adaptation to climate change had been an issue in the decision-making process. As there were few projects in which concerns about climate change actually were raised, the total number of projects was 11. The next round entailed interviewing the developers, consultants and council planners involved in developing these projects.

The Danish empirical material comes from two different research projects. One was a PhD project examining different aspects of climate change action in Danish municipalities, seeking to uncover how they work on climate change and integrate it into their planning procedures, water management and environmental assessments. 10 in-depth interviews were carried out in 2008–2010 with planners and environmental professionals in the administration. The other study investigated eight Danish municipalities and their approaches to integrating climate change into planning procedures and into the municipal organisation. It involved a document study of municipal climate change plans and 11 in-depth interviews with planners and environmental professionals in 2009.

This aggregated empirical data did not include specific coverage of the Danish political representatives as is in the Norwegian cases. This absence of empirical material covering the political level in the Danish cases has been taken into account, e.g., in regard to how legitimacy is created for climate change adaptation and whether the political level is used for legitimacy building. However, in this regard, no differences are found between the Norwegian and Danish interviewee statements. Moreover, the interview questions have varied somewhat; the interview transcripts have therefore been re-examined from the point of departure of the analytical framework. The four cases are presented in the following section with letter codes to protect the reputation of the municipalities and the interviewees' anonymity. Municipality A and B are Norwegian municipalities; Municipality C and D are Danish municipalities. A and C represent anticipatory cases, and B and D represent obligatory cases.

## 5. Four cases of local practice in Denmark and Norway

*Municipality A* has 10,000 inhabitants and is located in Northern Norway in a harsh and very exposed setting on the Barents Sea coast. Winters are long and the municipality has experienced crisis situations, including the need to evacuate inhabitants due to extreme snow levels. Landslides, increased and different precipitation patterns, rising wind and sea levels are challenges produced by climate change. The municipality has grown lately due to the utilisation of gas resources in the sea. This revenue has allowed the council administration to hire highly skilled staff. A particularly dedicated individual in the municipal administration clearly wanted the municipality to be a front runner in climate

change adaptation. The municipality has also hosted a national competence centre to promote the integration of climate adaptation thinking into building and construction plans, and has participated in several research projects on climate change adaptation.

*Municipality B* is also a coastal town, but is situated on Norway's west coast, at the Norwegian Sea, with around 40,000 inhabitants. Including several islands, its topography on the mainland is characterised by steep hillsides. The climate change challenges are landslides, rising sea level, more frequent and more severe storms and increased precipitation. The municipality has not participated in any research projects, nor is it signed up for any learning networks connected to climate change. 2008 saw a notable landslide, which destroyed an apartment block. Some people were killed and several more injured. Whether climate change was to blame is more uncertain, but this landslide has led to increased focus on geological surveys in planning procedures and in the handling of building applications.

*Municipality C* is situated in the southern Denmark in a mainly rural and agricultural area with approximately 45,000 inhabitants. It is fairly scarcely populated and located at the margins of mainstream Danish economic development. With jobs declining, the municipality needs to facilitate economic growth. Like most Danish municipalities, it has a coastline and a third of the municipality situated behind dikes. It is particularly vulnerable to sea level changes and severe storm surges. C has prepared a *Strategy for climate change and energy* that draws up actions for both mitigation and adaptation. Some of the adaptation-related projects from the strategy involve: screening of areas for flood risk, test fields for new and climate-robust crops, contests for developing recreational areas with water, and methods for adaptation in spatial planning.

*Case D* is a municipality in northern Zealand, in a mixed urban and rural area with agricultural as well as natural areas with approximately 47,000 inhabitants. It is part of greater Copenhagen. The municipality is located on the coast and has experienced problems of flooding and extreme precipitation. The local council has prepared a climate strategy, comprising both mitigation and adaptation. Regarding adaptation, the municipality believes that it is well prepared for climate change; it plans to work further on wastewater drainage, spatial planning, and emergency planning.

## 6. Case analysis

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This section uses the framework established in Table 1 to analyse the four cases. We assess the **front runner** municipalities before examining the municipalities with the more standard approach.

### *6.1. The front runners – building legitimacy of anticipatory adaptation actions*

When we scrutinise the introduction of and work on ***interpreting signals*** on adaptation in municipalities A and C, both had a strong individual actor – an institutional entrepreneur – who led the climate change adaptation work and determinedly strove to secure municipal front runner status. The driving force in municipality A was the environmental officer; in case C, the institutional entrepreneur was employed in the development and business unit. Municipality C saw climate change as a business strategy, and the institutional entrepreneur was very proactive in promoting climate change efforts. Thus, very different units in the municipal organisation viewed the work on climate change as relevant.

Clear differences were also found. Municipality C viewed climate change as an economic and technical opportunity. For municipality A, harsh climate and a well-developed capacity to withstand extreme weather events made an appropriate setting. |Nevertheless, protection from the impacts of unwanted and unprecedented events was important to both municipalities.

Building legitimacy for climate change adaptation measures was a main task for the institutional entrepreneur. However, it helped little to refer to signals about the necessity to adapt if one meets resistance or indifference within the rest of the municipal organisation. As Suchman (1995) argues, persuasive organisational communication is necessary. Legitimacy needs to be built, not only in one unit, but across units and among all actors. In both cases, A and C, perceptions of vulnerability were important. The experience of extreme weather events was important to municipality A; the fact that one third of the land needs dike protection makes the sea level rise a pressing concern for municipality C. Although national signals are weak, being proactive makes sense in the local context. Juhola *et al.* (2011), Compton (2009), and Lindseth (2004) found similar framings of climate change adaptation: they describe how different actors on national and subnational scales use vulnerability as means for legitimising adaptation actions. Lindseth (2004) criticises this way of legitimising climate change action, stating that framing climate change as a local risk is not a very easy task since the issue is very complex and the

causal links are unclear. However, in the cases presented here, the approach seems effective. The sense of being a front runner also was important in both cases. Municipality A had an established and shared understanding of the necessity for the local community being prepared for extreme weather conditions. The environmental officer stated:

*'Both the municipality and the local branch of the State Housing Bank have worked to facilitate adaptation to extreme weather conditions since the 1980s. But even before that the municipality had to adapt to a harsh climate.'*

Climate change scenarios only underlined the necessity to pursue the issue in the municipality. However, as the environmental officer admitted, it had been a challenge to bring the rest of the municipal organisation along. He argued:

'I cannot solve this on my own. It has been a challenge to bring the others along, but things are starting to move. The planning department has been particularly important in marshalling support.'

Interestingly, municipality C had a positive outlook on climate change, because they see economic development opportunities. This is exemplified by the vision the climate and energy strategy described: it will 'create energy and growth' in the municipality. The municipal actors were clearly looking beyond the municipality as an enterprise, as one argued:

*'You can view this community as a completely normal municipality, with normal everyday lives, but other than that, [the authorities] spend a lot of time with citizens on implementing facilities for testing renewable energy and environmental technology. That is why it is atypical; it is not only about laying out land, it is simply part of living in our municipality*'

The culture permeating the climate change adaptation in municipality C is one of experimentation and innovation, which breaks with conventional norms and transcends traditional barriers.

Both municipalities had the necessary resources to address climate change. Indeed, their front runner status brought in additional funding gained through triple-helix collaboration

and regional funds, increasing the legitimacy of climate action in the municipal organisation.

The ***search for solutions*** often requires additional resources brought into the daily organisation routines; financial and/or human resources. The case A institutional entrepreneur managed to recruit external expertise and secured funding for the work towards climate change adaptation in the municipality, through externally funded research projects and networks. These networks and projects gave the entrepreneur direct contact with climate researchers, whom he could ask for downscaled scenarios on issues considered important in the local context. The access to an international network of northern coastal municipalities engaged in an international climate adaptation project was another way to search for solutions. The environmental officer considered the downscaled scenarios as extremely useful to the municipality:

'This is the Bible for us now, and we will build on this when preparing our climate and energy plan.'

The main idea of the municipality A entrepreneurial officer was to secure shared ownership of the idea of adaptation among local stakeholders. Local actors were brought together to develop a shared understanding of threats and opportunities set out in the various climate change scenarios. Being in the forefront internationally and not waiting for central government movement were central elements of the chosen action, as in case C.

For municipality C, searching for solutions meant access to regional development funding from the EU and from the local Danish regional authority. This funding has been used to create large projects, which gather knowledge resources from different partners. The municipality has partners worldwide; e.g., several universities, research institutes and large companies who are interested in product development. Specifically, an independent foundation was established, originating from the municipality and working closely with it on, e.g., project management, communications, *etc*. Consequently, the climate change discourse has become institutionalized and has enabled tangible organisational changes.

In both municipalities (A and C), the importance of network engagement and, through these, accessing knowledge and resources is clear. When the hierarchical structure is

weak, these horizontal networks become increasingly important. Strengthening both knowledge and resources also reinforces legitimacy.

In municipality C, the driving force was the development and business unit, which acts fairly independently and works alongside external project partners. Notably, the planning department was not part of the development and business unit, but rather the unit of technical and environmental services. For the institutional entrepreneur in development and business, this meant that, in searching for solutions, the unit was not constrained by what the 'traditional' planning department produced. The unit could keep on working with its own project. Accordingly, the initiatives are fairly independent of organisation's hierarchical systems.

Learning is finally manifested in ***articulation*** and actions. Generally, the proactive adaptation to climate change scenarios is a new challenge, and the emphasis has mostly been on interpreting signals and searching for solutions - in our case municipalities. But there are some signs of articulation. The preparation of the climate and energy plan by municipality A was seen as an important milestone. But the most concrete articulation so far occurs in the municipal land use plan. As a precaution, the municipal land use plan included a compulsory minimum height for the lower levels of buildings along the coastline. The feedback stage had not yet been reached, but, when revising the municipal master plan for land use, the council was intending to revise the height in line with new scenarios for climate change and sea level rise.

As for articulation, the fourth step in the learning cycle, ***feedback*** and learning from experience were not very clearly present, as climate change adaptation is a relatively new challenge to local municipalities. Municipality C, though, is a pilot case for climate in its region and collaborates with the regional authorities on establishing a regional climate strategy, underlining the municipality's status as an independent front runner attempting to build on experiences when designing a regional framework.

Municipalities A and C confront two situations in which institutional entrepreneurs play an important role; they helped build the legitimacy of the institutionalization process of climate change adaptation, amongst others resulting in financial funding for pilot projects. However, institutional entrepreneurs cannot be expected to be present in all municipalities. Cases B and D will help illuminate legitimacy building for climate change

adaptation in local authorities that may not be front runners, but are more representative of the local authority activities in the two countries.

### *6.2 Obligatory action – Reacting to weak hierarchical signals*

Municipalities B and D are municipalities fulfilling requirements by reacting to state signals. These municipalities rely on the ordinary hierarchical channels *for* ***interpreting signals***. The environmental officer in municipality B was the main actor, tending to pick up the various signals concerning climate change adaptation. The local actors' knowledge about climate change scenarios was based on information obtained via ordinary hierarchical channels, such as seminars and conferences arranged by the county governor or the Directorate for Emergencies and Civil Protection. There was little interest in building internal legitimacy beyond acting according to the national signals. Information and expertise were unevenly distributed in the municipal organisation. The municipality did not as such share a common understanding of the issues. This is contrary to expectations, because a sea level rise could affect the town centre, and frequent storms had already caused the authorities to amend a policy on building construction. In case D, the municipality viewed climate change as a problem. It became a municipal agenda item following some unfortunate incidents related to climate change.

In its ***search for solutions***, Municipality B has not attempted to learn more about climate change; no particular resources have been allocated for climate change adaptation work. The resources were used to ensure 'business as usual'. Municipality D had a pragmatic, practical approach to climate change. As stated in the case description, adapting to climate change was viewed as a solvable problem, which should be embedded in existing procedures in the different departments. This included the planning department, as one representative stated:

'Good planning includes this! It has been a long and gradual process to incorporate environmental issues in the planning process.'

The municipality actors were thus working to embed an understanding of climate change as a relevant issue into existing structures and procedures. In regard to wastewater, one actor for example stated:

'We have included climate in maintenance works, e.g., larger pipes for sewage, for many years. However, the point of departure is more ordinarily practical than it has something to do with climate.'

Also, in case D, climate change is not prioritized in terms of resources:

'We have cut back on staff, so we have fewer resources for addressing climate strategy.'

In their search for solutions, the municipalities do not appear to have worked with external parties. Commenting on the internal situation in Municipality D, one official said 'the politicians are worried, but have not made it a budgetary priority'. Municipality D primarily relied on existing expertise within the organisation, and did not seem to have proactively sought outsider expertise.

Municipality B sought concrete solutions in a reactive manner, i.e. responding to events already occurring. When a new plan for the former harbour area was being prepared, sea level rise was merely mentioned late in the process, after the publication of a Directorate for Emergencies and Civil Protection report on sea level rise. After several e-mail exchanges between the environmental officer, the chief planner and the chief port authority officer, the course of action was decided. They chose to amend the local plan by increasing the minimum height over sea level. Any uncertainty was addressed by allowing a maximum and minimum range, with the actual specification determined prior to commencing construction.

Municipality D is establishing decentralized arenas in which the relevant areas and departments in the organisation can discuss climate change work. The aim is to delegate the responsibility for addressing climate change and ensure the integration into the procedures of all relevant departments and actions. As one actor observed, rather than working on large projects, the municipality tried to 'sneak climate in through the backdoor'.

So far there is little sign of feedback or learning to complete the learning cycle in these two municipalities. Both seem to typify the municipal organisational bureaucracy, with climate change as an add-on to their daily work, without delegating special resources. None of the officials are institutional entrepreneurs, compared to municipalities A and C. Municipalities B and D do not use climate change to create opportunities for learning and development; instead they stick to existing norms. The legitimacy of action to address

climate change adaptation in these organisations therefore must comply with existing procedures and norms.

## 7. Conclusion

By comparing the national policies on climate change adaptation in Denmark and Norway, this article has shown how four municipalities approach climate change adaptation differently in the context of weak national incentives. The scale of adaptation actions rests on local factors and arguments, rather than central government demands or requirements. Based on this, we have diagnosed the climate change adaptation endeavours in local municipalities as existing in an institutional void.

The article examined two different approaches to addressing climate change adaptation in two municipalities in both Denmark and Norway, and looked at how local actors legitimise climate change actions to enable practical implementation. The article developed and applied a new analytical framework on the basis of decision-making and learning theory. There is scope for further exploring the institutional dynamics and mechanisms that occur when climate actions are developed and implemented at the local level: the framework should prove useful in future research, including outside the Scandinavian setting. Table 2 summarises the main empirical findings.

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Table 2: Main empirical findings

| **Phases in the learning process** | **Anticipatory actions** | **Obligatory actions** |
|---|---|---|
| Interpreting signals | Bringing in signals from a variety of sources seen as relevant<br><br>Institutional entrepreneur acting as driver for climate change adaptation<br><br>Building legitimacy by developing a narrative to create consensus on the purpose of climate change adaptation<br><br>Building legitimacy through awareness of vulnerability, business opportunities and being a front runner | Relying on signals from central government<br><br>Legitimacy created through national and regional authorities and regulation<br><br>No strong narratives are built around the purpose of climate change adaptation |
| Search for solutions | Looking for new innovative solutions<br><br>Engaging in networks to search for knowledge and establish funding<br><br>External funding creates legitimacy for action<br><br>Legitimacy created through networks, comparison with others, and the narrative that other actors deal with climate change adaptation | Assessing central guidelines within local setting<br><br>Integrating climate change in existing planning procedures where it is found relevant<br><br>Using existing expertise within the local government<br><br>Legitimacy gained through sector-based approach, where legitimacy is not created across sectors<br><br>Seeking legitimacy through smaller, internal projects |
| Articulation | Developing new local rules, norms, regulations<br><br>Implementation of climate change adaptation measures in spatial regulation | Implementing standardised procedures and relying on higher authority |
| Feedback | Learning from own experiences<br><br>Using experiences to develop regional strategy | Implementing new norms and regulations |

The article highlights the importance of individuals as institutional entrepreneurs in explaining why two municipalities became front runners, taking proactive and independent measures to promote climate change adaptation. Institutional entrepreneurs can be characterised as: 'a few individuals who have the full-blown ability to discover, create and exploit opportunities that lie beyond the reach of most' (Garud and Karnøe 2003:277). 'Institutional entrepreneurs' (Garud, Hardy and Maguire 2007, Beckert 1999, Mutch 2007) differ from entrepreneurs more generally because they act in an entrepreneurial fashion within an organisation's existing institutional setting. Institutional entrepreneurs are not only the 'alert individuals' who discover new opportunities;

'entrepreneurial behaviour involves the creation of new opportunities by a collective' (Garud and Karnøe 2003:280). In two cases, these institutional entrepreneurs were central in acting on external signals and bringing in climate change knowledge to the organisation. They played a key role in creating cross-sectorial relations internally in the municipal organisations and thus were important in building local legitimacy for climate adaptation processes. Furthermore, these individuals initiated external partnerships with universities and businesses.

This cross-institutional interaction proved important in creating a learning process and a shared understanding of future impacts. The local arguments and reasoning for adaptation varied. In case C, legitimacy was built through reasoning for the possibilities of economic development and green growth. This is interesting in the light of other studies that have highlighted other economic aspects: that the risk of negative economic repercussions acts as a driver for adaptation (Juhola *et al.* 2011) or that climate change policies may incur negative impacts on economy and business (Compston 2009). In case A, a long-standing mastery over adaptation to harsh climate was important to building legitimacy. Institutional entrepreneurs must deviate from how things are normally done, otherwise they may not be able to create collective excitement and generate momentum for their initiative (Garud and Karnøe 2003). To the degree they deviate from existing norms, institutional entrepreneurs are not committed to existing ways of doing things and may be interpreted as engaging in anticipatory action rather than obligatory action. To be successful then involves gaining legitimacy for the new ideas and related initiatives (Garud, Hardy and Maguire 2007).

The two more conventional municipalities viewed the climate change challenge in a traditional way and sought to integrate climate change in existing governance structures and procedures. Juhola *et al.* (2011, p. 456) found similar approaches: adaptation reinforces existing practices 'and becomes a supporting argument for policies and measures already undertaken'. These municipalities responded to the signals emanating from the hierarchical system and sought to legitimise climate adaptation through existing procedures and norms. Inertia characterised the process, and fragmentation characterised the integration of climate change adaptation in existing processes. Hierarchical separation of authority into different sectorial disciplines triggered this scenario. The legitimacy to act was not absent, but the municipalities found the process difficult.

The four cases show how local governments address climate change challenges in two different ways. The implementation process and the strategies they used to legitimise this process varied. Climate change adaptation was perceived as difficult to integrate in the organisation, when it was viewed as an environmental problem. However, when climate change was perceived as a means of social development led by an institutional entrepreneur and supported by partnerships and networks, implementation was not perceived as equally difficult.

Even though institutional entrepreneurs seem to be important in kick-starting the process, a stronger institutional capacity is probably needed to consolidate climate change adaptation. Not all local authorities can be expected to have one or more institutional entrepreneurs, and these advocates are only successful when their efforts are supported rather than constrained. Institutional entrepreneurs are critical in the initial stages of a process of change, but a broader institutional capacity building is needed to overcome the administrative structures, party politics, political timetables, and reliance on individuals (Bulkeley 2010:234). The often very independent nature of the institutional entrepreneurs can also be problematic in terms of embedding the philosophy in the rest of the organisation. Our four cases are municipalities whose focus on climate change ranges from “strong” to “medium”. We have not examined municipalities with a “low” or “non-existent” focus. This research suggests strengthening the institutional frames and supportive policies of climate change adaptation in order to galvanize and mainstream the collective awareness and preparedness for present and future challenges facing local level planners.

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