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A Municipal 'Climate Revolution'? The Shaping of Municipal Climate Change Policies

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Abstract: *Two research questions structure this article: 1) what climate change policies have been formulated by Danish municipalities? and 2) why is there such a huge variation in the scope and ambition of these policies? In answering the first question it is demonstrated that climate change action plans have been developed and integrated into many Danish local governments' plans as a result of climate change policies. In all 72% of all municipalities have some kind of climate change action plan, and 28% do not. We also find a large variation in goals for the reduction of CO₂ emissions in the municipalities as a geographical unit, which varies from 0.9% to 5.9% annually with a mean value of 2.5% per year. In explaining this variation two strategies are adopted: one is looking at the importance of structural factors, the other is looking at actor-level factors. Concerning structural factors it is found that both the size of the municipality as well as the incorporation of climate change policies in municipal administration matter as bigger municipalities and municipalities with good integration of policies are more ambitious than others. Party politics is not found to be important as municipalities with 'left wing' Mayors are not found to be more ambitious in their climate change policies than municipalities with 'right wing' Mayors. Concerning actor-level factors we find that the most important actors in local climate change politics are the climate change personnel. Lacking guidance from national government they are inspired by two other groups of actors in formulating local climate change policies. These are groups of citizens more or less well organized in 'green' organizations or projects, and national or international climate networks. While collaborating with the first groups creates variation, collaborating with the networks produces uniformity in some areas of municipal climate change policies.*

Key words: *climate change, CO₂-reduction, Denmark, municipalities*

1. Introduction

In the wake of the disillusion following the wrecked attempts at reaching global agreements on climate change mitigation measures at the Conferences of the Parties (COP15 in Copenhagen, COP16 in Cancun and COP17 in Durban), both academic and policy communities have increasingly shifted

their focus to the local level. Thus, even though it is recognized that greenhouse gas emissions emanate from the activities and decisions of individuals and corporations operating at international, national, regional and local levels, and that multilevel governance solutions are therefore called for in order to mitigate such emissions, there is an increasing

interest among both practitioners and academics on how the local or 'urban' level can contribute to this endeavour (Bulkeley & Kern 2006, Bulkeley & Betsill 2005, 2003, Kousky & Schneider 2003, Lindseth 2004). Indeed, many individuals and grass-roots organizations now seem to invest much of their hope for the future in local politics, developing local projects and finding local solutions to the challenge of climate change (e.g. Transition Towns and local Agenda21 projects).

Municipal government on the other hand is hard put in trying to face the challenges of climate change. Firstly, climate change is a complex issue cutting across established sectors in municipal government (environment, housing, utilities, transport, etc.), making action plans and their implementation a difficult affair. Secondly, the current situation of financial austerity makes it difficult for municipal governments to boost capacities in this area in traditional ways, like hiring personnel or investing in, for example, renewable energy. This has led to innovative municipal governments using new forms of 'environmental governance' (Lemos & Agrawal 2006), drawing heavily on resources and competencies outside municipal government itself in the form of public-private partnerships, initiating citizen driven or co-managed projects, and encouraging private-social partnerships.

In this article we shall look at how Danish municipalities have tackled the issue of climate change. Even though some research has been carried out concerning how municipalities have incorporated environmental policies in their administrations (Agger 2010, Læssø 2007) little is known about how Danish municipalities incorporate climate change policies. In this article we will try to fill this void, using different types of empirical data.

Our effort will be guided by the following two research questions: 1) *what climate change policies have been formulated Danish municipalities? and 2) why is there such a huge variation in the scope and ambition of these policies?*

2. Theory, Data and Method

Theoretically, this way of approaching the issue of local climate change policies is indebted to Giddens (1984), and his concept of the 'duality of structure'.

Thus, we see the interplay between actors at various governmental levels, and especially between actors at the local level as decisive for how local climate change policies are formulated and implemented. However, we realize that their actions are confined by already existing policies and administrative structures at different administrative levels. None the less, we see –for reasons that will be clear below – local actors in this area as being able to form local climate change policies to a considerable extent, thereby being able to 'make a difference.' Also, we are theoretically informed by the literature on governance and policy networks (Kickert, Klijn & Koppenjan 1997, Rhodes 1997) as well as the literature on ecological modernization (Hajer 1995).

The data used in the analyses below are all produced as a part of the Citizen Driven Environmental Action (CIDEA) research project. It consists of:

- 1) Quantitative data from a nationwide survey on municipal plans and priorities in the area of climate change conducted in May-August 2011, carried out with the aim of estimating the ambitions of Danish municipalities in this field and how well climate change policies are anchored in municipal administrations (N=72)¹
- 2) Qualitative data from semi-structured interviews with municipal civil servants and politicians involved in climate change politics and administration. These interviews were all carried out from March to December 2011, in four of the seven municipalities involved in the CIDEA project (19 interviews, 45-90 min.). These interviews have been analyzed carefully using a discourse theoretical method inspired by, among others, Maarten Hajer (1995) and E.Laclau & C. Mouffe (1985). This analysis has made it possible to locate the 'nodal points' in the different municipal discourses concerning climate change policies, and to track the so-called 'equivalence chains' constituting the discourses. A concrete example of the nodal points is the different 'logics' or 'rationalities' discussed below.
- 3) Plans, reports, etc. from some of the seven municipalities. Due to the different data sources we use data triangulation in an attempt to provide a narrative of climate change governance in Danish municipalities

3. Municipalities and Climate Change Policy: Lack of Direction

Recent Danish governments have set ambitious goals both in terms of CO₂-abatement and renewable energy. Thus, signing the Kyoto protocol in 1998 the national government committed Denmark to reducing greenhouse gas emissions by 21% in 2012 compared with 1990; and in the EU Denmark is committed to reduce non-ETS emissions by 20% by 2020 from the 2005 level. Furthermore, in 2011 the government proposed an 'Energy Strategy 2050' to become independent of fossil fuels by 2050 (Danish Ministry of Climate, Energy and Buildings 2011). This vision is endorsed by most political parties in Parliament.

However, when it comes to municipalities, climate change mitigation and adaptation is considered a voluntary task. Municipalities have the freedom to choose to what extent they want to be active in this area, and if so what kind of measures they want to implement. One explanation often given for this 'lack of direction' from national government is the so-called 'DUT-principle'², which essentially states that if national government imposes new duties on municipalities they have to be compensated economically. In a time of budget restraint national government will therefore be very reluctant to pass laws or executive orders, which demand action from local governments in new areas (MM27, 2010).

This 'lack of direction' from central government in the area of climate change policies is not unique to Denmark, but seems to be the rule in many countries, such as Germany, the UK, the USA, Canada, Australia and New Zealand (Bulkeley & Kern 2006, Gore 2010, Zahran *et al.* 2008, Hoff 2010). This should not be mistakenly taken to mean that there are no laws, which can be seen as placing responsibilities to consider effects of climate change on local councils. Thus, in some countries there are Local Government Acts, which place general responsibilities concerning the environment and sustainability on local government (for example in Australia and New Zealand, see Hoff 2010). In other countries, for example the UK and Denmark, laws or central regulations in such areas as building code, energy provision (regulating utility companies), renewable energy, and land use planning contain elements relevant for climate change policies (Bulkeley & Betsill 2003). In Denmark, the general Municipal Govern-

ment Act is also seen as very important in this area by the municipalities, as it limits their possibilities of entering into public-private partnerships due to concerns about unfair competition.

4. A Municipal 'Climate Revolution'?

The headline of a series of articles in the Danish magazine *Mandag Morgen* (MM) in 2010 was 'The municipal climate revolution' (MM27, MM31, MM32). The main thrust of the articles was that CO₂-reductions and energy savings have become a 'municipal mass movement', and that Danish municipalities were now leading a 'green national revolution.' These claims were substantiated with figures showing that almost half the population in Denmark are living in municipalities which have climate action plans that are at least as ambitious as the EU common goals of a 20% reduction by 2020. Furthermore, 14 municipalities constitute the 'municipal avant-garde' with plans that are considerably more ambitious.

Other sources are more sceptical. In a recent broadcast by Copenhagen Regional Radio³ it was pointed out that even though the lion's share of municipalities in the greater Copenhagen area (28 out of 35) are committed to an annual 2% reduction of CO₂-emissions, more than half of them are not able to achieve this goal. Some of the reasons stated are that proper CO₂-inventories have not been in place, making it difficult to calculate reductions or making calculations unreliable, and that the 'low-hanging fruits' have now been reaped, making further reductions more difficult and costly.

The data from our survey makes it possible for us to intervene in this discussion thereby answering our first research question: 'What climate change policies have been formulated by local government in Denmark?' More specifically related to the MM argument, it also enables us to answer the question of how ambitious the climate change action plans of the municipalities really are, and in a more tentative fashion to also evaluate the municipalities' capacity for future action.

Looking first at the municipalities' climate change action plans we find that 72% of all municipalities have some kind of climate change action plan while 28% have no such plan. However, this aver-

age covers big discrepancies between different types of municipalities. Thus, while 95% of the large municipalities (>60,000 inhabitants) have a plan, this only goes for 56% of the small municipalities (<40,000 inhabitants)⁴ (Table 5). Looking further at the contents of the plans (Table 1) we find that out of the 52 municipalities with a climate change action plan 40 (or 77%) have a plan covering the municipality as a geographical unit. This can be said to be the most ambitious type of plan as it aims at covering all activities within the municipality (transportation, dwellings, businesses, agriculture, etc.). Such a plan might also include goals specifically for citizens' expected behavioural change, which 35% of the plans do. The municipalities own activities are the area most often included in the plans (83%).

Looking at whether specific CO₂-reduction goals are present in the plans, we find that all of the municipalities, which have a plan covering the municipality as a geographical unit, have also set specific reduction goals. These goals vary between 0.9 and 5.9% annually with a mean value of 2.5%, and a median value of 2.0%. (Fig.1).

As the figure shows there is a huge variation in annual reduction goals, but also a certain clustering around the median value. This clustering is not surprising given that fact that quite a few municipalities have signed the EU's Covenant of Mayors, promising a

Table 1. Coverage of municipal climate change action plans and related CO₂-reduction goals. Percentage of municipalities that have a plan (N=52).

	Municipalities with plan including this area %	Plan has specific reduction goals %
Municipality as geographical unit	77% (40)*	77% (40)
Municipality's own activities	83% (43)	56% (29)
Specific municipal sectors	23% (12)	----**
Citizens	35% (18)	21% (11)

*Figures in parenthesis are absolute numbers.

** Missing data.

2% annual reduction within the municipality as a geographical unit. Furthermore, 66% of Danish municipalities have signed an agreement with the Danish Society for Nature Conservation (Danmarks Naturfredningsforening; hereafter DN), while others have signed so-called 'curve breaker' agreements (kurveknækraftaler) with the Ministry of Climate, Energy and Building (Go' Energi)⁵ However, these agreements only cover the municipalities own 'corporate' emissions. The commitment periods for the various agreements vary quite a bit from a few years to 25-30 years. For the plans covering the municipal-

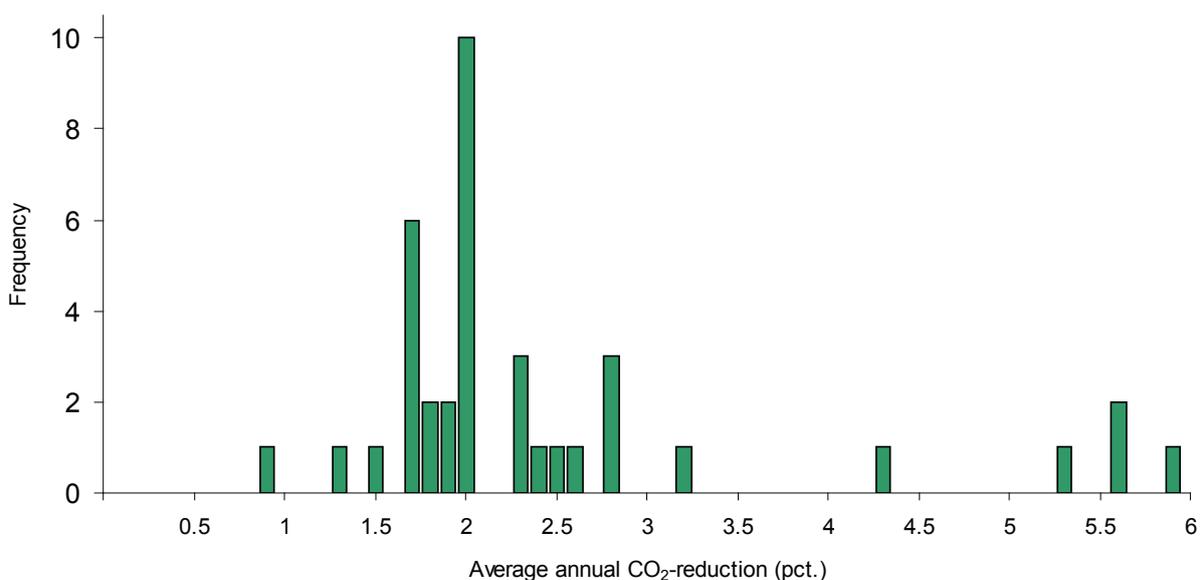


Figure 1. Distribution of CO₂ abatement targets in Danish municipalities. N=38.

ity as a geographical unit a typical time horizon is 2020, which is in accordance with the current EU commitment period.

Concerning the municipalities with plans covering their own activities, around three quarters have set specific reduction goals for these activities. These goals vary between 1% and 4.5% annually, and the commitment period varies considerably more than the plans for the municipality as a geographical unit.

For the municipalities which have a plan that covers citizens around 66% have set specific reduction goals. These goals are quite difficult to specify, as they might be split between areas, types of energy, types of housing, etc.

Taking a look at the areas prioritized in the climate change action plans we see (Table 2) that *energy savings* is the area most often mentioned in the climate change action plans. No less than 90% of all municipalities with a plan target this area. Renewable energy is an area within which 83% of municipalities have planned or already have initiatives to curb CO₂-emissions, while 69% are looking towards sustainable transport, and 60% towards actions that can contribute to more sustainable forms of living, only 29% of plans include waste reduction. The category 'other' includes a number of different measures not least climate change adaptation measures.

Table 2. Areas included in municipal climate change action plans. Percentages of municipalities with a plan (N=52).

Means of action	Municipalities %
Energy savings	90
Renewable energy	83
Sustainable transport	69
Sustainable living	60
Waste reduction	29
Other	29

Asking municipalities how they prioritize between these areas we find that priorities are consistent with this ranking. Thus, 59% of municipalities with an action plan responded that energy savings have the highest priority in the plan, while renewable energy (especially district heating) has the highest priority

with 21% of the municipalities. Probing further for the criteria upon which the municipalities base their priorities we find that the dominant criteria for selecting the area(s) of intervention are 'long-term economic savings' (27% of municipalities) and 'biggest CO₂-reduction per Danish krone spent'.

Before we draw a conclusion as to the variation and level of ambition in the climate change action plans and activities of Danish municipalities, we shall take a brief look at two other dimensions of such activities and plans: 1) the extent to which municipalities engage citizens in such activities, and what means they use to this end, and 2) how climate change policies are anchored within municipal administrations.

Concerning the engagement of citizens, we find that 85% of the municipalities have used one or more 'instruments' in an attempt to engage citizens⁶ in changing to more climate friendly behaviour. The most commonly used instruments to do this are citizen meetings and workshops (58% of municipalities) and collaboration with organizations or associations in order to engage citizens (56%).

While these figures seem to reflect a sincere wish to engage citizens in climate change governance, quite a few municipalities are none the less sceptical towards the effect of doing this. Thus, while 52% of municipalities think that citizen involvement has helped the municipality and the citizens themselves to reduce their CO₂ emissions, 45% of municipalities disagree with this. This scepticism towards the effectiveness of engaging citizens can also be seen in the instruments used to engage citizens. These are in most cases quite traditional (Table 3), and only

Table 3. Instruments used by municipalities to engage citizens. (N=72).

Instruments	Municipalities %
Citizen meetings or workshops	58
Collaboration with organizations or associations	56
Events	47
Stakeholder consultations	46
Educational programs for schools	29
Energy audits, etc, targeting businesses	19

between 1% and 6% of municipalities use such digital means of communication as blogs, Facebook or text messages to communicate with citizens on the issue of climate change. This wariness towards more 'uncontrolled' forms of citizen participation might also be due to the fact that as many as 27% of all municipalities have encountered resistance against the implementation of their climate change action plans. The resistance comes to the fore especially in relation to the location of bigger windmills/windmill parks and biogas facilities.

Turning towards the question of how climate change policies are incorporated in local government administration we see firstly that in 47% of all municipalities the responsibility for action in the field rests with a leading civil servant (Table 4).

Table 4. *Who is responsible for implementation of climate change policies in local government administration? (N=72).*

Responsible person/unit	Municipalities %
Leading civil servant	47
Certain organizational unit	21
Shared between different persons	21
No information	11

In 21% of all municipalities, the responsibility does not rest with a single employee but with an organizational unit, and in another 21% of municipalities the responsibility is shared between different employees.

These figures indicate that in at least 68% of all municipalities, climate change policies have been incorporated quite firmly by the administration. Another indicator of how well climate change policies are incorporated in municipal government is the extent to which climate change action plans are integrated in a municipality's overall strategy plan. This is the case in 72% of all municipalities which are all municipalities that have climate change action plans.

Another way of estimating how well incorporated climate change plans are in local government is to look at how much money is allocated to this area in local government budgets. This has not been possible, but it is the impression from our interviews

that local governments are reluctant to spend much money in this area. This impression is underpinned by a question on how local government finance their climate change initiatives, which shows that municipalities are using many different sources to finance these initiatives (apart from own money, funds come from grants from other public authorities, public-private partnerships, foundations, etc.).

5. Explaining Variation Through Structural Factors

It is tempting to assume that the great variation between the climate change policies of municipal governments is caused by the lack of regulation of the area by central government. While our survey data does not permit us to pursue this hypothesis, this is possible through our interview data, and we shall do that in the next paragraph. However, it is also possible to imagine a number of structural factors at the local level, which might explain this variation. Such factors could be the political affiliation of the Mayor, the size and thus the resources of the municipality, and the anchorage of climate change policies in local administration. Our survey data permit us to investigate the effect of these factors on local climate change action. Thus, we will use these factors as independent variables in bivariate analyses. As measures of climate change action we will use the question of whether local governments have climate change action plans or not, and in what areas they have such plans. Also, we shall use the actual reduction goals of local governments, as well as whether climate change action plans are integrated in the overall strategy plans of municipal government or not as dependent variables.

The reason for choosing the political affiliation of the Mayor, the size of the municipality, and a measure of the incorporation of climate change policy in the administration as independent variables is that it is possible to formulate plausible hypotheses about how these factors might affect the level of ambition of local climate change action plans. Thus, it is reasonable to assume that municipalities with a 'red' Mayor will have more ambitious climate change action plans than municipalities with a 'blue' Mayor, as action on climate change has consistently been higher on the political agenda of the center-left parties than on that of the center-right parties.⁷ Concerning size, we will assume that

bigger municipalities have more ambitious climate change policies than smaller municipalities as bigger municipalities have more resources and bigger networks than smaller municipalities. This will make them better equipped to tackle a new policy field like climate change. Finally, we will assume that the better climate change policies are integrated in municipal administration, the more ambitious such policies will be.

In testing these hypotheses we find some surprises. First of all we find no evidence that municipalities with a 'red' Mayor are more ambitious than those with a 'blue' Mayor in the area of climate change policies. Only when it comes to the question of whether the municipality have set reduction targets for citizens' activities do we see that considerably more 'red' than 'blue' municipalities have done this (50% against 15%). This might be explained by a more 'bottom-up' approach to the issue in the 'red' municipalities.

Looking at the importance of size, we find that size matters but only in certain respects. Thus, when it comes to the question of whether the municipality has a climate change action plan or not, and whether the municipality has set reduction goals for the municipality as a geographical unit or not, bigger municipalities have done this to a greater extent than smaller municipalities (Table 5). However, when it comes to the question of

whether municipalities have set reduction goals for the municipalities' own emission or for the citizens separately, we find no differences between big and small municipalities. Also, if we only consider municipalities, which have set reduction goals for the municipality as a geographical unit, we find no difference in the level of ambition between big and small municipalities.

Finally, we will take a look at whether the character of incorporation of climate change policies in municipal administration plays a role for how ambitious the climate change actions of municipal governments are. Our assumption here is that if a leading civil servant or a certain organizational unit is responsible for climate change action, plans in this area will be more ambitious than if responsibilities are shared between different persons.

This assumption is confirmed by our data. Thus, looking at the relationship between administrative incorporation and whether the municipality has a climate change action plan or not, we find that in municipalities where the responsibility rests with a leading civil servant or an organizational unit 75% or more municipalities have climate change action plans, while this is only the case in around 50% of the municipalities where responsibility is shared or rests with an organizational unit rather than a specific employee.

This picture is confirmed if we look at the areas covered by the climate change action plan. Here we find that in 92% of the municipalities where the responsibility rests with a leading civil servant, the climate change action plan covers the municipality as a geographical unit. This is only the case in 45% of municipalities where responsibility is shared. However, when it comes to the question of annual reduction goals, we find no statistical significant difference between municipalities with different levels of incorporation of policies. This is not very surprising given that the municipalities which have set reduction goals for the municipality as a geographical unit are a smaller and more uniform group.

6. Explaining Variation Through Factors at the Actor-level

In this paragraph we shall try to explain the variation found in municipal climate change policies 'bottom-

Table 5. Comparison of big and small municipalities in terms of climate change action plans. (N=72)

	Has climate change action plan %	Has no plan %	No of municipalities N=
Small municipalities (up to 39,999 inhabitants)	56	44	25
Middle sized municipalities (40,000-59,999 inhabitants)	70	30	27
Large municipalities (over 60,000 inhabitants)	95	5	20

Gamma = -.576 Sign. = .0001

up' departing from our interview data. By doing this we are adding an actor-perspective to the structure-perspective depicted above thereby providing a fuller and more coherent narrative of why local climate change policies look the way they do in Danish municipalities.⁸ The explanation provided below comes in two steps: Firstly, it is demonstrated that the lack of national regulation in this area is experienced as a clear 'lack of direction' by the municipalities. This creates an opening for divergent local interpretations of the climate challenge. Secondly, we demonstrate that this interpretation is first of all made by local climate change personnel who therefore come to play a pivotal role in the formulation of municipal climate change policies.

It is quite clear from our interviews that municipalities do not feel an urgent need to synchronize their policies in the field with national policies, or give the question of how their policies contribute to the realization of national goals much thought. Thus, one of the interviewed Mayors states that: *'I don't think that there is a very good interplay between national climate change action plans and local action plans concerning environment and climate'* (IP K4). Also, climate change as a political issue in itself is not very high on local political agendas, and has not played much of a role in municipal election campaigns at the latest local elections in 2009 and in 2005. However, in some places that have experienced flooding due to excessive summer rainfalls, the question of climate change adaptation (bigger sewers, private drainage, etc.) has played a small role in such campaigns, and may be expected to play a larger role in the upcoming 2013 local government elections. However, generally the area can be characterized as what in political science is known as a 'low salience' arena in municipal politics.

In analyzing our interview data we have looked carefully at whether and how different actors like Local Government Denmark, green organizations, business, etc. try to influence municipal climate change policies (Hoff & Strobel 2012 (forthcoming)). From this analysis it is quite clear that municipal climate change personnel have a considerable influence on municipal climate change policies, and can probably be said to be the most influential group in this respect.

This has to do with the fact that there are things that these persons 'must do' as well as things that they 'should do.' Thus, municipal administration must ensure protection against climate change, especially in the form of short term adaptation. In order to be able to do so, administrations need to acquire knowledge about needs and possibilities. Such knowledge is also required in the area of 'should do', as municipal climate change administrations are established in order to propose initiatives in the area of climate change mitigation and adaptation. In the current political and economic climate in the municipalities it is important that such initiatives are economically sound (i.e. can demonstrate a positive cost-benefit ratio; preferably in a short-term perspective).

This knowledge asymmetry between politicians and administrators and the 'plight of initiative' means that in most cases it will be the administration which designs municipal climate change policies. As one of our interviewees stated: *'I wish I could say that it is the politicians who take the initiative but that's not the way it is'* (IP Ko3). And in an interview with one of the Mayors this division of roles is confirmed: *'You need to have some (environment/climate change) managers who inspire the politicians to look into the crystal ball'* (IP M1). So even though it seems to be the case in most of the municipalities investigated here, that one or two engaged politicians have at one point or another tried to set an agenda concerning climate change and sustainability, the normal state of affairs is that the initiatives come from the administration⁹.

Lacking guidance from national government, such initiatives are inspired by other groups of actors. One group is local green organizations in or around the local Agenda 21 boards and/or other groups of environmentally engaged citizens. Another group is the climate networks that many municipalities have joined. Thus, no less than 82% of the municipalities in our survey are members of a national or international climate network. A good number of these are members of two or more networks. National networks with many members are: DN's Climate Network, Local Government Denmark's Climate Network, Green Cities and Cogita, while international networks with a number of Danish municipalities as members are EU's Covenant of Mayors and Eurocities. These networks seem to play an important role in the exchange of knowledge

between their members. Thus, in our survey we have asked to what extent the municipality share knowledge with other municipalities in the area of climate change. Fifty three per cent of municipalities answer, that they do this to a 'high' or 'very high' degree, and another 35% answer, that they do it 'to some extent'. So, while the lack of direction from national government, and the different goals and ambitions of local green organizations and local Agenda 21 boards contributes to great variation in local climate change action plans, the networks referred to seem to push municipalities towards some kind of uniformity. This is clear in the case of for example the EU Covenant of Mayors, and the agreements with DN mentioned above, both of which 'guide' the municipalities towards a 2% annual reduction goal for their 'corporate' as well as geographical CO₂-reductions.

One can speculate about the causality between these agreements and the municipal climate plans. Thus, it might be the case that the municipalities choose to sign the agreements which are most in accordance with their plans. In this case the agreements are therefore not really consequential for the municipal climate plans. However, we do not find this explanation very likely as a lot of municipalities rushed to sign different agreements in order to 'look good' in the period leading up to COP15 in Copenhagen, and only later formulated encompassing climate plans.

Having established that local climate change policies are normally formulated by local administrations in a relatively open process it is still necessary for such policies to be accepted by a majority in the local council in order for the policies to be official and take effect. In order to pass this political test policies have to follow certain 'logics' or 'rationalities.' From our interviews we have found these rationalities to be:

1) Political rationality. Because politicians want to be re-elected it is important for them that policies have visible results also in this area. This can typically be in the form of demonstration or building projects concerned with energy savings or renewable energy. Such projects can be used to brand the municipality, and to create a positive image of the politicians who voted for the projects, and especially for the Mayor.

2) Economic rationality. It is important for municipal administration that the climate change policies presented represents a good business case (i.e. can be demonstrated to have a positive cost-benefit ratio within a reasonable time frame).¹⁰ Especially in the current situation of financial austerity, policies that can be demonstrated to have a beneficial effect on the budget or on the local economy will be prioritized. Thus, asked directly about the motivation for passing a local climate change action plan one of the Mayors interviewed answered: '*Economy and branding*' (IP K4). That these two dimensions of climate change policies carry a heavy weight with local politicians can also be read from Table 2 above, from which it is clear that energy savings (economy) have the highest priority in municipal climate change action plans, while renewable energy has the second highest priority (economy and branding).

3) Governance rationality. Co-working with citizens and businesses in the area of climate change policies has turned out to have many beneficial effects both in terms of goal attainment and political legitimacy, so local politicians are ready to support such policies.

Thus, if the climate change action plan suggested by the municipal administration follows these rationalities, it stands a very good chance of being accepted by a majority in the municipal councils. Most climate change action plans do this, and it is therefore no wonder that they are normally passed with no or very little resistance in the councils.

7. Conclusions

In this article, we have tried to answer two research questions: 1) what climate change policies have been formulated by Danish municipalities? and 2) why is there such a huge variation in the scope and ambition of these policies?

In answering the first question we found that 72% of all municipalities in Denmark have some kind of climate change action plan, while 28% have no such plan. Out of the 72% of municipalities with an action plan around 75% have an plan, which covers the municipality as a geographical unit. Most municipalities (83%) have a plan that covers the municipalities' own (corporate) activities, while less

than 50% have a plan that covers citizens' activities. However, we also found that these averages cover big discrepancies between different types of municipalities. Thus, while 95% of large municipalities have a climate change action plan, this is only the case for 56% of the small municipalities.

Furthermore, big variations in the specific CO₂-reduction goals present in the plans were found. Thus, for all the municipalities that have a plan covering the municipality as a geographical unit these goals vary between 0.9% and 5.9% annually with a mean value of 2.5% p.a. Variations were also found in terms of how climate change policies are integrated in municipal administrations, and how such policies are financed.

In trying to explain this variation we followed two strategies. On the one hand we tried to explain this variation by looking at a number of structural factors at the local level, and on the other hand we tried to explain the variation by looking at factors at the actor-level. This approach was not used in order to judge one type of explanation as better or more valid than the other, but to provide a fuller and more complete understanding of why climate change policies look the way they do in Danish municipalities.

Concerning the structural factors we found that size matters in the sense that big municipalities are by and large more ambitious than small municipalities concerning their climate change policies. Also, we found that if a leading civil servant or a certain organizational unit is responsible for climate change action plans these will be more ambitious than if this is not the case. Surprisingly, party politics does not seem to be of importance, and we found no evidence of, for example, municipalities with left wing Mayors being more ambitious in this area than municipalities with right wing Mayors.

Concerning the actor-level factors we found that the most important actors in local climate change politics are the climate change personnel working in local administration. Lacking guidance from national government these employees get their inspiration from two other groups of actors, namely groups of citizens more or less well organized in green organizations or projects, and more or less integrated in the work of the local Agenda 21 board, and the climate networks that many municipalities

have joined. While the former groups contribute to great variation in local climate change action plans, the networks seem to push municipalities towards uniformity concerning certain goals; for example average annual CO₂-abatement, which cluster around 2%.

We also found that even though it is by and large the municipal climate change personnel who formulate local climate change policies, these policies have to follow certain 'rationalities' in order to get accepted by a majority in the local council. These rationalities were: a political rationality, demanding short-term and visible projects; an economic rationality demonstrating that climate change policies are also economically beneficial; and a governance rationality supporting co-working with citizens and businesses as such partnerships and projects have beneficial effects in terms of both goal attainment and political legitimacy.

We shall end this article by looking at the policy implications of the above analysis. First of all there is little doubt that the 'lack of direction' from national government in the area of climate change policies creates a lot of uncertainty about the scope and content of such policies at the local level. What is needed to reduce this uncertainty is firstly more guidance and support from national and regional authorities. Thus, at the regional level some regions are developing supportive structures, and other regional supportive units also exist, such as for example the freestanding Energy Service Offices. Secondly, there is a rather sharp divide between the 72% of all municipalities, who have more or less elaborate climate change action plans, and the 28% of all municipalities that have no such plans. The latter are predominantly smaller municipalities with little capacity to formulate and implement plans in this area. Thus, if the goal is to have more uniform and ambitious goals in this area, institutional capacity in the area of climate change must be improved in these smaller municipalities. Finally, it is difficult to imagine improvements in local climate change policies especially in the areas of transportation and energy savings without further involving citizens, businesses and research institutions. As illustrated above (Table 3) most municipalities use rather traditional instruments to communicate with and engage citizens and businesses, and 'triple helix' arrangements also involving research institutions are

very rare. In order to take advantage of the resources of civil society and the research community these instruments must be modernized and new forms of participation developed.

Notes

- 1 An electronic questionnaire (25 questions) was sent to the person in charge of climate change action in all of the 98 Danish municipalities. We received valid responses from 72 municipalities, which is equivalent to a 73% response rate.
- 2 In Denmark municipalities receive around 66% of their funding from national government. These grants are negotiated annually based on a number of key figures. When new tasks are allocated to the municipalities these grants are normally regulated upwards in order to neutralize the economic burden of the new tasks for the municipalities. This mechanism is known as the 'DUT-principle'. (DUT is an acronym for 'Det Udvidede Totalbalanceprincip', which means that it is attempted to reach an overall balance between burdens and costs).
- 3 Copenhagen Regional Radio Broadcast 12/01/2012. Available at: <http://www.dr.dk/P4/Nyheder/RegionHovedstaden/2012/01/12/083953.htm®>
- 4 Approximately one third of Danish municipalities have less than 40,000 inhabitants and approximately one third have more than 60,000 inhabitants.
- 5 The 'curve breaker' agreements have now (summer 2012) denounced in connection with the closing down of Go' Energi; a campaign organization within the Ministry of Climate, Energy and Building.
- 6 Citizens include independent associations and companies
- 7 'Blue' and 'red' are the colours normally associated with the centre-right and the centre-left parties in Danish politics. In a municipal context 'blue' Mayors are Mayors from either the Conservative or the Liberal party, while 'red' Mayors are Mayors from the Social Democratic, the Radical Liberal or the Socialist Peoples Party. In our survey we have two Mayors elected on local lists, but as these both rule on the basis of a coalition of centre-left parties, they are counted as 'red' Mayors.
- 8 The format of this article only allow us to use a small part of the rich material we have produced by interviewing climate change personnel, climate change managers and politicians in the municipalities we collaborate with through the CIDEA project.

- 9 This makes the area of climate change policy different from many other municipal policy areas where the degree of freedom is much smaller for the administrative personnel, i.e. employment policies, welfare and pensions.
- 10 The concept of 'business case' in relation to discussions about climate change mitigation is also used in Bulkeley and Newell 2010:102.

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