

# Uncovering Local Impacts – The Influence of Transnational Municipal Climate Networks on Urban Climate Governance

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Henner Busch (Lund University), Lena Bendlin (Freie Universität Berlin), Paul Fenton (Linköping University)

Presenting author: Lena Bendlin, lena.bendlin@fu-berlin.de

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## Abstract

In recent years, many cities have joined transnational municipal climate networks (TMCNs), which were set up in response to climate change. Despite the fact that some of these TMCNs have been active for more than two decades, there has been no systematic investigation of the networks' impact on local climate governance. In this article we attempt to answer if and how local climate governance has been influenced by municipalities' memberships in TMCNs. Our assessment is based on an online survey conducted with staff from all German cities above 50,000 inhabitants with membership in TMCNs, fieldwork and interviews in seven German cities. Network membership mainly influences local climate governance through the following processes: (1) *Enabling internal mobilisation* (2) *Formulating emission reduction goals* (3) *Creating political-administrative lock-in* (4) *Enabling direct exchange* and (5) *Offering project support*. Our data suggests that the main influences of TMCN membership unfold in internal political processes in the member cities. External interactions, such as between cities or between network staff and cities is comparably less important. We also found that many of these benefits can be associated with laggards rather than pioneering cities. We conclude that TMCNs have considerable influence on local climate governance in Germany.

**Keywords:** transnational municipal climate networks, urban planning, local climate governance, climate change mitigation, climate change adaptation

# 1. Introduction

World-wide, the implementation of climate change policies for mitigation and adaptation is increasingly becoming a task for local governance. Cities are particularly challenged as they concentrate flows of physical materials (Anderberg 2012) and carbon (Bulkeley et al. 2013) and thus offer great potential for climate change mitigation measures. In the face of increasing numbers of climate change induced threats (Pachauri et al. 2014), questions of adaptation have in recent years also entered the urban climate agenda (Wamsler 2014). Consequently, there has been increasing demand for more or improved climate governance, which has been addressed through a range of approaches and initiatives: e.g. national programmes, regional cooperation, public-private partnerships and engaging communities (Bulkeley & Newell 2015).

In this context, several transnational municipal climate networks (TMCNs) have been established in recent decades. These are networks of local governments that voluntarily come together to improve climate governance (Kern & Bulkeley 2009). Some focus on either mitigation or adaptation; others combine these two interrelated topics (Busch 2015). TMCNs have gained much attention in the 2000s with an increasing number of publications focussing on their functions within and impact on multilevel climate governance (Bulkeley et al. 2003; Davies 2005; e.g. Bulkeley & Kern 2006; Toly 2008). However, investigations assessing how TMCN memberships influence local climate policies and governance are scarce (e.g. Davies 2005; Zeppel 2012; Hakelberg 2014).

Against this background, the aim of this article is to address this gap by identifying and assessing the major impacts of TMCN membership on local climate governance in a coherent and systematic manner. With this article we aim to increase the understanding of the impacts of TCMNs in academia as well as providing ideas to practitioners as how they can improve their work. We focus on the local level of urban climate governance which is reflected in the article's scope and the empirical.

Empirically, our inquiry builds on data from Germany. Germany was selected because it is the country within the European Union (EU) with the largest population and the largest economy. TMCN membership in Germany is widespread (Busch 2015). The country has a high number of cities above 50,000 inhabitants which are members of at least one TMCN (136 of 183). Simultaneously, Germany has considerably reduced its greenhouse gas (GHG) emissions and has initiated an ambitious transition of its energy system: the *Energiewende* (Gawel et al. 2014; Strunz 2014). Many cities have played an active part in climate governance through local measures such as local building codes (Kronsell 2013) or supporting renewable energy projects through local power suppliers (Busch & McCormick 2014). Due to these factors, Germany can serve as a critical case from which we can learn about the role of TMCNs in local climate governance.

We attempt to answer the following overarching research question:

*Which impacts do TMCNs have on municipal urban climate governance?*

We operationalise this question by posing and answering the following sub-research questions:

*Which aspects of local climate governance are influenced by membership in TMCNs?*

*How does this impact occur (what are mechanisms and channels of impact)?*

*What local conditions enable or hinder TMCN membership so as to have an impact on local climate governance?*

For this article we define “impact” as follows: a modification of urban climate governance which can be traced back to any aspect of TMCN membership.

This introduction is followed by a brief overview of the scientific literature on TMCNs and a short historical summary of the development of TMCNs over the last 25 years. Thereafter, we introduce the theoretical frameworks, which we chose for the analysis of local impacts of TMCNs. In the methodology section we present our approach, methods and data. In the sections that follow, we present and discuss our results, before we conclude by summarising our findings, placing them in the wider context of research on TMCNs and suggesting further trajectories of research on this topic.

## 2. TMCNs: History and conceptual underpinnings

An overview of the TMCNs we included in this research can be found in **Table 1**. The two largest networks Climate Alliance and the Covenant of Mayors are intertwined in several ways. Climate Alliance is part of the consortium running the Covenant of Mayors on behalf of the European Commission. The networks hold conferences jointly, e.g. the European conference of Climate Alliance 2013 in The Hague was at the same time used as assembly for members of the Covenant of Mayors. Several staff members are employed by both networks simultaneously. In addition, Climate Alliance and the Covenant of Mayors share the same address for their Brussels offices (Busch 2015).

**Table 1 TMCNs active in Germany**

Network	Focus	Members	Members in Germany	German members above 50,000 inhabitants
Mayors Adapt	Adaptation	137	11	10
Covenant of Mayors	Mitigation	5954	57	40
Climate Alliance (only full individual members)	Mitigation and Adaptation	1440	472	127
C40	Mitigation and Adaptation	80	2	2
Energy Cities (only full individual members)	Mitigation	171	8	6
Future Cities	Adaptation	8	2	1
Cities for Climate Protection Europe (ICLEI Programme)	Mitigation and Adaptation	176	11	9
World Mayors Council on Climate Change	Mitigation and Adaptation	131	1	1
UNISDR Resilient Cities	Adaptation	2827	1	1

Source: Adjusted from Busch (2015). Numbers updated Nov. 2015

In recent years, an increasing number of articles and book chapters which investigate TMCNs and their role in climate governance have been published. Political scientists and geographers dominate these publications but there are also examples of interdisciplinary cooperation contributing to the development of theoretical frameworks, which describe the roles and functions of TMCNs. Here, we will present some theoretical frameworks, aimed at understanding TMCNs' impact on climate governance, which have been developed by other researchers during the last 1½ decades. This section is followed by a short overview of empirically-based assessments of TMCN impacts on local climate governance.

### *2.1 Existing Theoretical Frameworks*

Several frameworks have been put forward that can help to investigate the impact of TMCN membership on local climate governance through presenting roles and functions that TMCNs fulfil. One of the earliest efforts to conceptualise TMCN impacts identifies four ways in which the policy process is affected: through a) knowledge dissemination, b) lobbying higher levels of the multilevel governance system, c) acting as implementing agencies for European policies and d) by creating and promoting policy initiatives throughout the multilevel governance system. (Bulkeley et al. 2003)

Andonova et al. (2009) suggest a model based on three main roles through which TMCNs can use “soft” governance instruments to influence European climate governance. The three roles are: a)

information-sharing, b) capacity building and c) rule setting. These roles are not mutually exclusive and some networks combine different roles while others do not (Bulkeley & Newell 2015).

A model which distinguishes four functions of TMCNs is put forward by Busch (2015). These four functions are networks a) as consultants, b) as advocates of municipalities, c) as platforms for municipalities and d) as commitment brokers of voluntary commitments. Table 2 serves as an overview for the different functions that are included in these frameworks. The order in which the functions are presented has been adopted to show similarities between the frameworks. All three frameworks share a function which refers to the horizontal flow of information (1). A function focussing on the implementation of policies is covered in row 2. The functions in the 3<sup>rd</sup> row all somewhat reflect the initiation of rules and the members' compliance with them. Finally, two out of three frameworks include the influence of TMCNs on higher levels of government such as national governments or the EU (4).

**Table 2**

Framework \ Function	Bulkeley et al (2003)	Andonova et al (2009)	Busch (2015)
1 (horizontal flow of information)	Knowledge dissemination	Information sharing	Platform for members
2 (implementation of policies)	Implementation of EU policies	Capacity building & implementation	Consultancy
3 (rules & commitment)	Policy initiation	Rule setting	Commitment brokering
4 (Lobbying)	Lobbying		Advocacy and lobbying

Overview of networks' roles and functions, adopted from Fenton & Busch (forthcoming [update])

All the roles and functions defined in these frameworks can be a useful basis for a theoretical discussion of TMCN impacts. However, for assessing the impacts of TMCNs on local climate governance an empirical investigation with substantial data is needed.

## 2.2 Impact Assessments

Despite the emergence of theoretical frameworks for understanding the functions of TMCNs, most studies remain on an abstract level and actual assessments of TMCNs impact on local climate governance are scarce. Several empirically-based studies come to the conclusion that the impact of TMCNs membership and functions on local emissions is not significant or at least impossible to measure (Davies 2005; Fay 2007; Bulkeley & Newell 2015). Other studies come to the opposite result: Zeppel finds that one of the TMCNs, namely the CCP, has “played a significant role in urban climate programmes” in Australia (Zeppel 2013, p. 226). Hakelberg (2014) concludes that TMCNs

have “clearly promoted the spread of local climate strategies among European cities between 1992 and 2009” (p. 123).

Betsill and Bulkeley (2004) find that the CCP attracts active members not because it is serving as a knowledge platform but rather due to the access it offers to financial and political resources, as well as enhancing the legitimacy of climate protection. A study on the impacts of TMCNs in Ireland found that municipalities mostly perceive the TMCNs’ role of disseminating information as being the most important (Davies 2005), and Toly (2008) finds that the two most important functions of TMCNs are inter-municipal dialogue and the pooling of global influence.

Beyond the contested question regarding which impacts of TMCNs are most important, it also remains unclear which member cities are actually subject to that influence. Naturally, the impact of TMCNs on local climate governance would differ depending on the degree to which cities engage with TMCNs. But according to Kern and Bulkeley (2009 p.329), TMCNs are mostly networks of “pioneers for pioneers”. This might be the case for networks which explicitly aim to unite leading cities or municipalities like the C40 network. However, since Kern’s and Bulkeley’s study, the Covenant of Mayors (founded in 2008) was launched in Europe. This network has a constantly increasing number of members (currently 6738) and would seem to be a network of more than only "pioneers." The Covenant, just like Climate Alliance, is a network which attracts many small municipalities, seemingly being attractive for municipalities that could rather be characterized as being laggards. We argue, therefore, that the assessment of TMCNs as networks for and by pioneers must be reevaluated in light of the development of the last years.

The review of literature on TMCNs produces three preliminary findings. The first is that TMCNs at least have the potential to have an impact on local climate policy (Busch 2015). Secondly, the impact of TMCNs has been identified to take on different shapes in differing research approaches within the literature. And thirdly, recent and ongoing developments and changes within the network landscape have not yet been taken into consideration.

What all former studies have in common is that either a) they are several years old and thus potentially outdated; b) they are based on a few case studies, often of high performers and not a systematic investigation of a bigger population (e.g. Oppowa 2015); or they are c) only focussing on one specific aspect of TMCN governance, e.g. the link between TMCN membership and the development of local climate strategies (e.g. Hakelberg 2014); or d) focus on the work of the networks’ staff and not on the member municipalities (e.g. Van Egmond 2011). We attempt to address this gap through the following research strategy.

### 3. Research strategy

In the face of the presented diverse and even contradicting results, we decided to approach the research question in an explorative manner. We also decided to refrain from turning to any of the presented frameworks and instead chose an inductive approach in the initial phase of the data analysis to not miss impacts that were not accounted for in previous frameworks. Through an iterative process, themes emerging from our data were then compared to roles and functions of named frameworks (cf. section 3.1).

The focus of this article is on the impact on local climate governance. Thus, our main focus lies on the cities and not the networks. We acknowledge that network staff dedicate a considerable share of their time to activities that influence actors on levels other than local (such as through lobbying). However, our approach implies that impacts by TMCNs on other levels of the multilevel governance system (e.g. national, EU) are only included here, if they have been mentioned by our respondents and interviewees on the municipal level.

#### *3.1 Data Collection*

We collected data in Germany and applied a mixed methods approach (Bryman 2008). The methods we applied included: an online survey, interviews, field visits, identification and analysis of relevant documents and homepages and observations at network conferences.

The potential respondents of the survey were sampled as follows: we first identified all German cities with more than 50,000 inhabitants that are a member of at least one of the TMCNs (see table 1) active in Germany (n=136). We then searched the homepages of these cities to identify personnel or departments concerned with climate policies and contacted them via email to identify the staff members responsible for liaison with TMCNs, if any. A link to the online survey was sent to the relevant staff members that we identified, once they had agreed to take part in the survey. The survey included general questions about the city, more specific questions about climate policies (mitigation and adaptation) and the impact of TMCNs on local climate governance. We received 61 responses, corresponding to a 45% response rate but single questions had lower a response rate.

We then went on field visits to four cities (Bielefeld, Bonn, Hannover and Frankfurt am Main), which had been identified through the survey as pioneers by their peers. Additionally, we drew from three field visits to German cities (Heidelberg, Mannheim und Stuttgart) which had been conducted in an earlier research project. These cities had been identified as particularly active in their respective regional municipal associations. In all cities we conducted interviews and made observations. For additional information we analysed material disseminated by cities and TMCNs, mostly consisting of webpages. Finally, we attended three TMCN conferences<sup>i</sup> where we made observations and spoke to

city delegates and staff of TMCNs. The conference visits were particularly valuable as they enabled us to observe and speak to potential informants and to gain insights into what topics they prioritise when directly interacting with partners in the networks.

### *3.2 Data Analysis*

The analysis of our empirical data began with an inductive approach. After an initial analysis of the data from our survey we compared our findings with the frameworks outlined above which have been suggested as analytical tools for the investigation of the impact of TMCNs on local climate governance (see section 3.2). Based on this comparison we developed our own categorisation of main TMCN impacts on local climate governance (see 5). After developing the new categorisation of impacts, we turned to our qualitative data to find explanations for the observed impacts and to answer further questions which were spurred by reviewing the results from the survey. For this we analysed our interviews with staff from German cities and TMCNs. Finally, we complemented the analysis with data from observations at TMCN conferences.

### *3.3 Limitations*

One limitation of our analysis is that we cannot differentiate which TMCN brings about what kind of impact. The reason for this is that many German cities are members of more than one network simultaneously. Of the 136 cities considered as potential respondents, 37 were members of more than one TMCN. At the same time the survey was conducted in a way that ensured anonymity of our respondents. Our data is dominated by members of Climate Alliance: only 5 of the 136 cities are not members of Climate Alliance, reflecting the wide proliferation of this network in Germany. Climate Alliance was founded in Frankfurt in 1990 and has since then been dominated by municipalities from German-speaking countries. 36 cities of the 136 cities are member of the Covenant of Mayors.

The size of the population (136, response rate of 45%) does not allow for any sophisticated statistical analysis of our data. Therefore, we only present simple correlations as indicators for trends.

## 4. Network Impacts from a municipal perspective

Regarding our first research question: ‘Which aspects of local climate governance are influenced by membership in TMCNs?’ 32 of the respondent from our survey reported that the membership in TMCNs has had an impact on the content of local climate work. 5 did not answer the question. 9 reported that they do not know about such an impact, whereas 15 reported that TMCNs have not influenced the content of the local climate work. To identify the fields of local climate governance that our respondents deemed most influenced by TMCN membership, we asked an open question in



our survey: ‘How does TMCN membership influence local climate governance?’ As an answer respondents were asked to name the four most important factors starting with the most important. 31 of our 61 respondents answered the question. Some respondents supplied less than four factors. All in all, 101 factors were named by our respondents. We coded these responses according to categories which we generated from the data analysis. All categories reflect processes that occur due to the membership. The deductive approach to forming these categories lead to a situation in which impacts can influence different levels of climate governance and might be important for different kinds of cities. An overview of the categories can be found in table 3 (see 6).

Our data showed five main categories:

1. The category that most often occurred was *enabling internal mobilisation*, with 17 answers. Internal mobilisation encompasses awareness-raising in local politics and the local population and thereby constitutes a means of “soft” governance within the respective municipality. For example, respondents reported that through joining a TMCN the topic climate change mitigation had made it to the local political agenda. Participation in network activities can also be used as proof for a successful climate work of the environmental departments. In addition, the TMCN membership was used as a political argument to justify climate policies.
2. The second most important category was *formulating emission reduction goals*. Many networks require their members to commit to *formulating emission reduction goals*. For example, upon joining the Covenant of Mayors, municipalities pledge to deliver Sustainable Energy Action Plans (SEAP) that have to at least meet the EU goal of 20% CO<sub>2</sub> emission reduction by 2020. And members of Climate Alliance committed to cutting CO<sub>2</sub> emission by 10% every 5 years and to halve per head emissions by 2030 (1990 base year). Besides such commitments TMCNs support their members in formulating emission goals by enabling benchmarking.<sup>ii</sup>
3. The third category, which we named *creating political-administrative lock-in*, describes how actors in cities can use TMCN membership to create a lock-in that sets the frame for local climate governance. It encompasses answers that reflect the “institutionalised” counterpart of the *internal mobilisation* category. It came up 14 times and refers to the integration of climate change policies into local institutions. These can be binding documents of municipal decision making bodies, but also the institutionalisation of climate change policies into local administrative structures, e.g. in the form of new positions for climate managers that are being justified through TMCN membership. This *creating political-administrative lock-in* reflects the efforts of individuals or groups within the municipality to perpetuate climate-friendly politics and to limit the scope for local decisions that are harmful to the climate.
4. 14 answers fit into the category of *enabling direct exchange*. Direct exchange influences climate policies in a threefold way: firstly, it refers to the direct exchange of ideas between

cities. Secondly, it refers to the networking of the municipality staff to initiate regional or international cooperation with other municipalities. Thirdly, it refers to an important aspect that has so far not been taken up by the scientific literature. For many staff members it is important to have a regular exchange with people in a similar position and who fight similar battles in their municipality. The exchange at network events invokes a sense of working together towards a common goal. This motivational boost becomes particularly visible at network conferences where this common cause and a sense of companionship are stressed by many speakers. While this category was as frequent as the *formulating emission reduction goals* or *creating political-administrative lock-in* categories it has seldom been mentioned the most important of the four influencing factors by our respondents.

5. *Offering project support* encompasses all the help the networks' infrastructure and administration provides for the implementation of concrete activities. This comes e.g. in the form of ready-to-use project ideas or competitions within the network such as Climate Alliance's *Stadtradeln*, a bike competition amongst German members. Networks not only provide ideas and material for these projects, their staff is also available for helping with the implementation. This category came up in 14 answers; however, no respondent mentioned it as the most important impact of TMCNs.

We identified several additional categories. These have not occurred as often as the previous ones. Nevertheless, they describe ways in which TMCN membership influences local climate governance:

6. *Exchange of best practice* examples which were promoted by the networks' own information systems (e.g. homepages, conference presentations, newsletters) was named by five respondents.
7. *Helping with greenhouse gas accounting* was named by five respondents. TMCNs help municipalities to generate knowledge of local emissions by providing methodologies such as GHG accounting software. The resulting emission data can then be used to identify intervention points for local climate policies. *Offering project support* and *greenhouse gas accounting* can both be framed as consultancy services which are provided by the networks. However, we decided against grouping these two services together because they constitute very different services from the point of view of municipalities. While *accessing project support* helps with the implementation of concrete measures to cut emissions or adapt to climate change, *greenhouse gas accounting* builds a knowledge base for a municipality to quantify and measure GHGs.
8. Three respondents answered that TMCNs influence local climate policies by *referring to a global context* by providing information on international climate policy. In this context, one respondent referred to Climate Alliance's partnership with the indigenous people of the

Amazonian rainforest. But networks also provide information on global policy processes such as documentation of COP negotiations on social media.

9. *Enabling access to funding* was named by three respondents. TMCNs do not provide funding themselves, so this category refers to the networks providing access to funding by other entities. For example, the Climate Alliance hosts workshops at their international conferences where staff from member cities learns how to best file applications for EU funding schemes
10. One respondent named the work the networks are doing in the context of *advocacy and lobbying* as an important factor influencing local climate policies. This is related to the work networks do to influence the climate policies on higher levels such as the national or the international level to create favourable conditions for local climate work. This point is reflected in several of the frameworks described above.
11. Opportunities to advertise the city through *enabling green city branding* activities was named by one respondent. TMCNs offer their members a number of channels such as newsletters, press releases, space on homepages, conferences and printed material to highlight cities' efforts. This final category does not refer to a direct influence of local climate governance but a side aspect of it. We included it in this list as many TMCN name branding or branding related activities as a benefit for members.

A further 11 answers could not be placed in any category as they named fields of climate policy (e.g. "climate change adaptation" or "green public procurement") and not processes or mechanisms in which the network membership influenced local policies and governance.

## 5. How impact occurs

In the following section we focus on the ways in which the impact from TMCNs occurs on the local level to answer our second sub-research question. For this analysis we use findings from the survey and data collected during field and conference visits.

TMCNs have developed a number of channels for communicating with their members as well as facilitating communication between members. These channels include newsletters, leaflets and network conferences. These channels of communication influence the members' climate policies as they enable some of the categorized mechanisms and functions (see 5) to occur. In addition, TMCNs can impact their members' climate work by offering consultancy services in the form of individual "TMCN to member support" or through tools and activities. The survey results show that the main impact of TMCNs on urban climate governance occurs independently of these channels.

The three most frequent categories of impact were *internal mobilisation*, *formulating emission reduction goals* and *political-administrative lock-in*. All these occur internally in the member municipalities. While communication between TMCNs and cities or amongst cities can support these processes, they are first and foremost the result of internal political processes. While the continuous input from the networks does not seem to be necessary for these impacts, they only occurred with the help of TMCN membership. This finding also means that acquiring TMCN membership might have considerable impact on climate governance even in cities which can be characterised as “dormant” within the network because they do not take part in conferences or other network activities. The fourth most important category, *direct exchange*, reflects communication and cooperation between the members of TMCNs. Only the fifth most important category, *project support*, refers to the flow of information from TMCNs to members.

In the survey we asked the respondents if and how local climate governance was influenced by the *direct exchange* with other network members. Of 55 respondents who answered the question, 35 stated that the local climate work had been influenced by the *direct exchange* with other members. 13 saw no influence and 7 were uncertain. We asked the respondents to describe this influence and categorised the replies into three mechanisms to see if any of them could be provided by direct exchange between TMCNs and members. The most important category (named 16 times) was that *direct exchange* with other members brings “new ideas” to the city administration. 15 respondents named “drawing on other members’ expertise”. An additional 8 named “synergies” in the form of joint projects or shared costs for the analyses of the potential for the generation of renewable energies. The importance of *direct exchange* is confirmed by observations made on network conferences. One aspect of *direct exchange* became visible during several presentations, speeches and discussions during conferences, namely, that these network meetings had a very important motivational effect. Many climate managers feel that they are faced with a constant struggle with other departments in their own municipality. Attending the conferences works as a motivational boost, because ideals and values are shared with other delegates and they are reinforced through invoking a positive spirit during the meetings. Consequently, the network conferences were named as the most important channel for our respondents to learn about other cities’ climate work (35 out of 41 stated that they had learned about other cities’ efforts).

A surprising result of our analysis was that both *advocacy and lobbying* as well as conscious *green city branding* did not play a major role in the cities’ work with TMCNs (both were only named once in our survey). The impact of *advocacy and lobbying* by TMCNs on higher levels of governance such as the nation states or the EU has been emphasised as one of the most important functions of these networks by many authors (e.g. Oppowa 2015). Consequently, it has been one of the main functions in previous conceptualisations of TMCNs (cf. Bulkeley et al. 2003; Busch 2015). Oppowa (2015) finds in connection with a study on TMCN impacts that lobbying constitutes the most important

function of TMCNs, however, his assessment is mainly based on data collected directly from network staff and a few major German cities. Networks themselves stress the aspect of *advocacy and lobbying* when describing their work. One explanation for the discrepancy between our results and the perception of other researchers and the network staff is the level of analysis. A more systemic approach to the role of TMCNs within European climate governance will of course emphasise the question of lobbying more than our approach which explicitly focusses on local impacts as perceived by municipal staff. It is still remarkable that the impact of *advocacy and lobbying* by TMCNs seems rather irrelevant or not visible to actors on the local level.

The second unexpected result came in the marginal role which was assigned to *green city branding* on the municipal level. Networks offer multiple channels and opportunities (newsletters, homepages, conferences) for cities to market their climate change policies and sustainability achievements. This finding, however, is in line with a more focused analysis of this issue by Busch and Anderberg (2015) who find that German cities barely use their membership in TMCNs for green city branding.

These results lead us to the understanding that TMCNs play an important role in internal decision making processes within member municipalities. Betsill and Bulkeley describe this role for the CCP as a “legitimacy tool” for local governments. They argue that the membership in CCP was used to confer “*particular norms about climate protection*” (Betsill & Bulkeley 2004 p. 471). At the same time, many functions identified by former frameworks (see 3.1) like “access to funding”, “green city branding” or “advocacy” which focus more on the interplay of municipalities and external actors, are less important.

Our data reveals that for several of the main impacts to unfold, the act of joining and the status of remaining a member are more important than a continuous involvement in network activities. The initial commitment to cut emissions that is made by municipalities upon joining TMCNs often serves as the basis for an ongoing commitment to emission reduction goals. One of our informants, a former staff member of Climate Alliance, explained: “*the proponents of more ambitious climate policies in the municipality often argue: ‘we signed this, so now we have to live up to it’*”. This quote reveals an additional aspect of cities’ work with municipalities: local actors within the municipality are required for the membership to have an impact. The act of joining is not sufficient.

8 of the 136 cities we contacted in the context of our survey reported that they either a) are overworked and have no time for surveys or b) do not actively work with TMCNs. This shows that TMCN membership does not only affect the local climate work positively. The fact that the work with TMCNs binds resources of municipalities is an aspect that often is overlooked in the literature. Municipalities can only utilise the opportunities for exchange and cooperation TMCNs offer if time and funds are directed at the TMCN work. Some networks such as the Covenant of Mayors demand regular emission reports of their members. These reports can become a cumbersome task especially if,

according to one of our interviewees, the municipality has to do similar reporting for several networks or initiatives. An example is the European Energy Award (eea), which uses a different methodology to measure similar things to the SEAP of the Covenant of Mayors. This double reporting binds resources which could otherwise be used to implement actual improvements and projects in the city and it can lead to “mainstreaming overload” (Wamsler 2015 p.13). In face of this extra workload, it is not surprising that a number of cities take a rather passive role in the work with the TMCNs they are members of.

## 6. Who benefits from what?

In this section we attempt to answer our third sub-research question on the characteristics of municipalities which enable benefitting from TMCN membership. In the context of TMCNs the literature often divides member cities into two groups: laggards and pioneers. Laggards are underperforming in comparison to a certain group, say members of a TMCN, whereas pioneers are spearheading the field of climate governance. In the past, TCMNs have mostly been seen as networks which are beneficial for pioneers (Kern & Bulkeley 2009). And due to their soft government mechanisms (Andonova et al. 2009), they only have limited influence over laggards (Hakelberg 2014). While these laggards fail to live up to their commitments they can, according to Hakelberg, still use their TMCN membership “*as a publicly visible signal for climate-related activity*” (Hakelberg 2011 p.123).

However, all of the three most frequent impact categories (*internal mobilisation*, *formulating emission reduction goals* and *political-administrative lock-in*) rather concern laggard than pioneer cities. Well-established climate pioneers can rely on their many years of successful climate policies and are not dependent on employing their membership in TMCNs to mobilise citizens or local companies. The same applies to emission reduction goals. Pioneers are spearheading the trend and have probably already formulated and adopted all reduction goals TMCNs suggest. One respondent from a city which had been identified as well-performing through the survey reported that the different emission commitments along with the differing reporting tools of TMCNs actually produce additional work. Finally, a long standing history in successful climate work and a *political-administrative lock-in* tend to go hand in hand. Based on these considerations, we argue that the assessment that TMCNs are mostly beneficial for pioneers is not confirmed and should thus be reevaluated.

In contrast to the first three categories, *direct exchange* poses an attractive opportunity for both pioneers and laggards. While laggards can learn from municipality staff with more experience in

implementing climate policies, pioneers can reach beyond the municipal borders and implement more ambitious projects through cooperation. However, as pointed out above, the aspect of *green city branding* through TMCNs does not play an important role for German cities (Busch & Anderberg 2015). Like *direct exchange*, the impact of *project support* is something both laggards and pioneers can benefit from. Our respondents stressed that it is very convenient for staff in municipalities if ready-made projects can be implemented easily.

**Table 3 Network functions**

<b>Category (process occurring through TMCN membership)</b>	<b>Occurrence</b>	<b>Function more relevant for laggards or pioneers</b>
<i>Enabling internal mobilisation</i>	17	Laggards
<i>Formulating emission reduction goals</i>	14	Laggards
<i>Creating political-administrative lock-in</i>	14	Laggards
<i>Enabling direct exchange</i>	14	Laggards & Pioneers
<i>Offering project support</i>	14	Laggards & Pioneers
<i>Exchange of best practice</i>	5	Laggards & Pioneers
<i>Helping with greenhouse gas accounting</i>	5	Laggards
<i>Referring to a global context</i>	3	Laggards & Pioneers
<i>Enabling access to funding</i>	3	Laggards & Pioneers
<i>advocacy and lobbying</i>	1	Pioneers
<i>enabling green city branding</i>	1	Pioneers

## 7. Where is the agency?

As argued, our findings do not confirm the assessment of former research which described TMCNs as networks by pioneers for pioneers (Kern & Bulkeley 2009; Hakelberg 2014). One explanation for this discrepancy is the development of the TMCNs and their members in recent years. Hakelberg's analysis e.g. is based on data from 2009 and earlier and thus is no longer fully valid. Since then the Covenant of Mayors (founded in 2008) has attracted many small municipalities. At the same time new networks have emerged, like the UNISDR Resilient City (founded in 2010) or the Mayors Adapt (founded in 2014). These two networks also reflect the trend that climate change adaptation has increasingly entered the agenda of local climate governance (cf. Wamsler 2015). While smaller municipalities and cities might be hesitant to contribute to mitigation efforts due to their limited impact on this issue, they have to provide adaptation measure just like bigger cities as they will be hit by climate change induced disasters just like big cities.

While the scene of TMCNs has certainly changed in recent years, the presented frameworks from earlier studies (see 3.1) suggest another explanation. The role of TMCNs in internal political

processes in cities has not received much attention in former research. Instead the scale of the analysis was chosen so that the networks as separate entities with their roles and functions were investigated and not the processes in member cities. This also raises an important question about where, in the complex interactions related to TMCNs, agency is located. Former research on TMCNs dominantly treated cities as internally homogenous actors. The division into laggards and pioneers is an example for this approach by which a city is treated like a single actor with a coherent agenda. Operationalisation of cities is beneficial for comparability, especially when dealing with a group of cities. However, this approach reduces the social and political complexity of internal processes within cities, which in turn leads to a “blind-eye” for the mechanisms and processes which dominated our data. Our approach which focussed on the cities’ climate managers as main actors revealed that networks can be an important tool for internal processes in the member cities.

A recurrent theme during our interviews was the importance our informants assigned to single actors within the city. In most cases these were staff members in the municipal environmental or planning departments or local politicians who had pushed the issue of climate change onto the local agenda and who had over many years directed great efforts into local climate governance. These actors, their actions and the internal use of TMCNs in local politics were not the focus of previous research, which instead took the TMCN and not the member cities as point of departure.

## 8. Conclusions

TMCNs are wide-spread in Germany, especially amongst bigger cities (see table1). However, they differ greatly in number of members. At the same time staff in German cities which are members of one or more TMCNs dominantly report that the networks have influenced the cities’ governance, policies and measures which address climate change. Not surprisingly, this impact was stronger in the field of climate change mitigation than adaptation. Mitigation has been on the agenda of TMCNs for up to 25 years while adaptation only entered the scene in recent years. Correspondingly, our survey showed that considerably more cities have a strategy for climate change mitigation than for climate change adaptation (53 vs 26 of 55 who answered the question).

Our analysis showed that staff in cities mostly uses TMCNs for internal political purposes for *internal mobilisation*, *formulating emission reduction goals* and creating *political-administrative lock-ins*. This means that the act of joining and the fact of being a member are perceived as more important than services which are actively provided by the networks’ own staff and infrastructure. It also means that actors in cities that can be characterised as “dormant” members of the network can still use the membership to positively influence local climate governance. Other network functions such as



offering opportunities for city branding did not come up to the same degree. This is to some degree surprising as the networks themselves stress these functions when describing their own roles and functions.

Our data further shows that staff in municipalities see the main impact of TMCN membership in functions that would rather be associated with the needs of laggards than pioneering cities (*internal mobilisation, formulating emission reduction goals* and *political-administrative lock-in*). In face of these findings, former assessments of TMCNs as networks for and by pioneers do not seem to hold true any longer (Kern & Bulkeley 2009; Hakelberg 2014). It can be questioned if this is due to an evolvement of TMCNs or a different focus we chose for this research. Irrespective of the reason, our results have confirmed us in the conviction that any assessment of TMCN impact on local climate governance needs to adopt the local level as its starting point.

Furthermore, staff in German cities does not evaluate the function of *advocacy* by TMCNs as an important impact on the local climate work. In contrast, many TMCNs see *advocacy* as a very important aspect of their work (Oppowa 2015). For the staff of TMCNs, it could be important to investigate the discrepancy between the perception of *advocacy* by members and by the TMCN staff themselves. However, this finding is consistent with our finding that actors in cities use the membership in TMCNs mostly for internal political reasons, while interactions with other actors on different administrative levels are not of utmost importance.

During the course of conducting the research for this article a number of new questions and issues arose which are crucial for exploration in future research. As indicated, our methodology was limited in that we were unable to assign a specific impact to a certain TMCN. Future research could thus look into the question of which impacts are particularly strong in municipalities that are a member of different TMCNs, so that local impacts can be assigned to certain TMCNs. While our study mostly sheds light on the impact of TMCNs on climate policies in cities, future research could focus on the impact of TMCNs on rural and in particular small municipalities. It would also be interesting to investigate how municipalities, which - due to the size of their administration - have limited resources, can develop strategies to tap into the potential TMCNs offer. This focus is particularly interesting in the context of Southern Europe where many small municipalities have joined the Covenant of Mayors.

We conclude that TMCN membership plays an important role in internal decision making processes in municipalities. We therefore suggest that future research should, most of all, focus on exactly these internal processes. Research in the past has focussed too much on the wrong levels of governance (the networks as such or European climate governance). Thus, the most important aspect of TMCNs impact, namely the internal use of TMCN membership, was systematically neglected. An approach

which focusses on these internal processes could for example draw from theories on policy entrepreneurs.

Apart from the scientific contribution our research can also inform staff from networks and city administration. Network staff can use our findings to underline the positive impacts TMCN membership brings about. In particular TMCNs should reconsider how advocacy and lobbying efforts are presented to network members. Our findings suggest that despite the fact that TMCNs communicate their activities in this field actively, climate managers in German cities seem unable to link these efforts to actual impacts on the ground. It might help actors in cities to clearly understand how lobbying translates into tangible benefits in their daily work. Finally, staff in networks might find it encouraging knowing that TMCN membership has the potential to unfold positive effects on local climate governance even in cities which seem to be “dormant” due to their low involvement in continuous network activities.

Finally, it might be an important finding for actors in cities that TMCNs can positively impact the local climate governance in all kinds of cities, irrespective of where they are in their development. TMCN membership offers benefits for laggards and pioneers alike.

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<sup>i</sup> 21<sup>st</sup> International Annual Conference and General Assembly in Den Haag, Netherlands, May 2013; 14<sup>th</sup> Internationale Klimaschutzkonferenz in Lübeck, Germany, Nov 2014

<sup>ii</sup> In English the term “benchmarking” refers to setting goals in relation to other actors’ performances. These goals are often derived from analysing best practice examples. The German use of the term differs slightly. The benchmark is rather understood as a goal that is derived not from competitors’ performances but from general aspirations. We therefore moved the reference to benchmarks from the “best case” to the “formulating emission reduction goals” category.

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