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THE CHILDREN'S INVESTMENT FUND FOUNDATION (CIFF)

STRATEGIC REVIEW OF INTERNATIONAL CITY CLIMATE NETWORKS

DRAFT FINAL REPORT

COWI

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1 Introduction

This review has been initiated by the Children's Investment Fund Foundation (CIFF) as a third-party strategic review of the underlying assumptions and theory of change of international city networks.

The overall objective of this review is to analyse to what extent international city networks like C40 may leverage cities activities in relation to effective and efficient GHG abatement.

The underlying assumption for the review is that city networks add value by reducing transaction costs (efficiency hypothesis) and accelerate learning, replication and scale (network hypothesis), e.g. by:

- › lowering transaction costs and accelerating partnerships formation (one-stop-shop-approach)
- › improving the evidence base (data and sharing of lessons learned)
- › prioritizing and catalyzing demonstration efforts and accelerating the process of replication and scale-up,
- › reducing political risks (as working across a number of cities rather than focusing on one or two)
- › acting as an honest broker (an independent unbiased approach to finance, etc)
- › empowering cities as a group by supporting joint advocacy
- › ensuring peer accountability for the worst performers
- › triggering competition among the best performers
- › facilitating peer-to-peer learning.

The outset of the review involved seeking answers to the following key questions as formulated in the terms of reference for the review:

- 1 Whether/how can a network of cities such as C40 more efficiently and cost-effectively deliver large transformative impactsⁱ than working with each city individually?
- 2 Whether/how can large transformative impacts be delivered by providing a platform for rapid best practice sharing as C40 is proposing to do?
- 3 What sorts of transaction costs and efficiencies can be garnered from working with a network of willing cities (i.e., C40) as opposed to working with each city individually?
- 4 How are city networks like C40 perceived by cities? For example, are they seen as cost-effective and impartial sources for advice on finance and services?
- 5 How can city networks like C40 provide an evidence base that is used to develop improved interventions? Under what conditions?
- 6 What are the risks mitigated in creating a portfolio of projects in multiple cities e.g. so that any political change in one city will not derail the total effort? In other words, how sustainable are the positive benefits garnered from city networks?
- 7 How does the concept of peer-to-peer accountability ensure greater city adherence to their commitments as compared to other models for compliance?

1.1 Acknowledgement

This review has been carried out by Mr Anders Richelsen and Ms Dinne S. Hansen from COWI A/S in Denmark. The COWI team benefitted greatly from a wide range of consultations with city network representatives and city government representatives and wishes to thank all participants for their valuable inputs.

Special thanks goes to Professor Harriet Bulkeley and Mr Andres Luque (PhD), Durham University, who have provided input to the literature study, to the C40 secretariat for providing contacts to city representatives, to Paul Gunaratnam (CIFF PME), Shirley Rodrigues and Yaki Wo (CIFF Climate Team) and Harriet Bulkeley for having peer reviewed the entire review and provided excellent comments through the process.

1.2 Methodology

The review is based on a desk study of recent research literature and interviews with city officials from 13 major global cities responsible for network cooperation, and interviews with key staff from the following six city networksⁱⁱ:

- > C40
- > ICLEI
- > Urban Sustainability Directors Network (USDN)
- > Covenant of Mayors
- > Metropolis
- > CAI-Asia.

Cities were selected for interviews based on a set of criteria such as memberships of major networks such as C40 and similar networks, size of city, geographical representation. Likewise, the city networks were selected based on criteria like size, importance and geographical scope. City governments and city networks were interviewed based on semi-structured interviews tailored to their respective roles.

COWI conducted the desk study and the interviews, which was supplemented by an independent literature review on climate change, cities and networks carried out by Professor Harriet Bulkeley and Mr Andres Luque. A summary of this literature review is attached in Appendix A.

1.3 Structure of the report

Section 2 outlines the role of cities and city networks in relation to climate governance.

Section 3 analyses the added value of city networks and discusses the key questions outlined above under the following sub-headings:

- > Cities' perception of city networks (cf. question 4)
- > Information and knowledge sharing (cf. questions 2 and 5)
- > Transaction costs and efficiencies (cf. questions 1, 3 and 4)
- > Peer-to-peer accountability (cf. question 7)
- > Risk mitigation (cf. question 6).

Section 4 provides the synthesis of the findings regarding the potentials of city networks to deliver large transformative impacts in relation to GHG abatement and climate adaptation.

The summary of the literature review conducted by Professor Harriet Bulkeley and Mr Andres Luque is attached in Appendix A.

The list of cities and city networks interviewed is attached in Appendix B.

The literature list is attached in Appendix C.

2 Role of cities and city networks in climate change mitigation

Why focus on cities and city networks as drivers in the climate change agenda? Why do cities engage in and join climate change city networks? This section provides a short introduction to the role of cities and city networks as well as most recent achievements made by local city governments and city networks in reducing GHG emissions at city scale.

As pointed out by the C40 network, ICLEI, and other major stakeholders working on climate change issues through city networks, cities are emerging as a leading force for global action on climate change, irrespective of the progress in international climate negotiations.

Though it is impossible to state definitively the exact scale of urban GHG emissions, several international studies have sought to provide estimates on global emissions by cities: The World Bank assumed in 2010 that "cities are responsible for as much as 80 percent of global greenhouse gas emissions while at the same time city residents face significant impacts from climate change".ⁱⁱⁱ

The global city network C40 states that cities consume over two thirds of the world's energy and account for more than 70% of global CO₂ emissions. Cities are growing, with more than half of the world's population living in cities, and by 2050 this figure is expected to raise to three quarters. Last, cities are vulnerable to climate change; 75% of urban settlements are located in coastal areas at risk from sea-level rise.^{ivv}

Most recently, the World Economic Forum has in its Global Risk 2013 report stated that rising GHG emissions are among the top five global risks that are most likely to occur within a decade, along with the risk of failure of climate change adaptation, thus advocating for climate-smart decision-making and synergies across climate change mitigation- and adaptation-related efforts where possible.^{vi}

Cities have the will and the capacity to act both locally and collaboratively through networks and partnerships^{vii} however in varying degrees and depending on the subject matter.^{viii} At the recent COP18 held in Doha, major city networks emphasized that rapid, cost-effective, urgent, and equitable reduction of GHG

emissions can be achieved based on clear partnerships with local and subnational governments.^{ix}

The underlying general assumption for this review is that city networks add value by reducing transaction costs and accelerating learning, replication and scale.

Literature and the increasing number of high-profile demonstration projects and initiatives at city level show that cities are a critical part of response to climate change. Climate change mitigation and adaptation are strategic issues for local city governments and city networks like ICLEI believe that networks have facilitated the ways and the speed with which cities have been able to establish actions locally and globally, however have not been able to provide conclusive evidence.^x

Certain parts of academic literature have looked into the motivation for and challenges of local climate governance. As cities have increasingly set climate change on their local agendas the number of cities engaged has rapidly increased. Literature thus points inter alia to cost savings, lack of expertise and need for policy entrepreneurs as parameters for engaging more into the climate change agenda locally.^{xi} Older studies indicate that there may be a link between a local government's city networking activities and the success of local climate governance, e.g. membership of more than one city-network on climate change.^{xii}

However, literature seems to have focused mainly on the history of urban responses to climate change, the network's governance context and the role and abilities of cities and city networks to engage in the climate change agenda. In contrast, the group of literature focusing on actual achievements and approaches by cities in terms of GHG reductions, e.g. the potential to support, replicate or scale up efforts of local governments and city network is more limited.^{xiii}

Both our literature review and our interviews have confirmed the complexity of how cities are able to engage.^{xiv} Early findings and lessons learned from networks such as the CCI and the C40 have shown that there is no 'one-size-fits-all' and that targeted and structured support is needed both in terms of global outreach and at the same time expertise on solutions that are locally relevant and appropriate.^{xv} This seems also to be valid for networks that are more regional by nature, such as the Urban Sustainability Directors Network (USDN) and the Covenant of Mayors. This is also emphasized by several cities in the interviews, where cities point to the need for specific targeted efforts that they can immediately engage in and benefit from.

A majority of the cities interviewed also find it a key benefit to work with city networks rather than the city working by itself. Most city officials find most networks to provide significant resources, in terms of additional human resources and assistance in fundraising as well as a more cost efficient approach than using e.g. external consultants. Also, resources are provided in the form of knowledge banks and best practice networks.^{xvi} Evidence is found both in literature and repeatedly stated in interviews with city governments.

2.1 City network governance

Over the past two decades transnational networks of cities working on climate, energy and environmental issues have played a critical role in the transformation of urban responses to climate change (Bulkeley and Betsill, 2003; Kern and Bulkeley, 2009; Feldman, 2012; Gore, 2010). Networks have enabled cities to multiply their influence, horizontally across cities as well as vertically with other levels of government (Betsill and Bulkeley, 2006; Bulkeley et al., 2009)

The article *Cities and Multilevel Governance of Global Climate Change* by Betsill and Bulkeley (2006)^{xvii} highlights that national level efforts on climate change will not be sufficient in meeting international climate change commitments without engagement with sub-national action. The article points to networks as a specific form of governance that plays an important role in global environmental governance and for which existing international relations regime theory provides limited conceptual space for considering the potential role of such networks, e.g. city network may de facto bypass levels of governance taking place directly between the local and the international level.

One of the main roles that transnational networks play in supporting cities in responding to climate change is related to their ability to garner widespread support and develop partnerships with a variety of stakeholders across civil society. Networks play an instrumental role in creating multisector partnerships within urban areas, including with the private sector (Bulkeley and Schroeder 2012) and the third sector (Bontenbal, 2009).

Through structures that represent local governments, transnational networks enrol the support of NGOs, community groups, scientists and other stakeholders often not properly represented at the national level, thus increasing the capacity of the local level to make better use of development/environmental funds. Furthermore, networks may promote policy responses that are flexible, decentralized, publicly acceptable, and innovative (Feldman 2012)^{xviii}

City networks take different forms but also have a number of similarities.

The following differences were identified among the networks interviewed for this review:

- › Some networks focus exclusively on climate issues, e.g. C40 and the Covenant of Mayors. Other networks have a broader urban environmental perspective, such as ICLEI and CAI-Asia, and include climate issues as one element among others in their work. As cities interviewed had different needs and preferences, it cannot be concluded that one approach was better or more efficient than the other.
- › Some networks, e.g. C40 and ICLEI, have a global outreach, while others have a regional perspective such as Covenant of Mayors (Europe), Urban Sustainability Directors network (USDN) (USA) and CAI-Asia.

- › Some networks are open to all cities, e.g. ICLEI, whereas others are restricted to cities with special characteristics, such as C40, which is only for megacities. In the article *Cities and Climate Change: the role of institutions, governance and urban planning. Report for the World Bank Urban Research Symposium: Cities and Climate Change* Bulkeley, H., Schroeder, H., Janda, K., Zhao, J., Armstrong, A. Chu, S. Y. and Ghosh, S (2009), the three authors point to the different approach by these networks that are not focusing on accumulating an ever-larger membership base, but rather on developing specific 'clubs' of cities with privileged access to information, funding and project implementation.

In relation to the structures and functions of city networks, *Kern and Bulkeley (2009)* highlight the following similarities:

- › They have an international secretariat, consisting of a secretary or a managing director, who, together with secretariat staff, assumes the functions related to the internal governing of the network, including day-to day routines and external relations.
- › They have national and or sectoral coordinators.
- › They have a presidency and a Board responsible for the general directions between General Assembly meetings. Often, board members represent their cities and are directly involved in the local politics and policy-making. In many cases, it is the mayors or vice mayors of the most active cities. The board members often also represent the network externally, e.g. at international conferences, and in some instances they engage directly in lobbying activities.
- › They have a General Assembly.

These similarities also cover the networks interviewed for this review apart from the USDN, which is different, as it does not have a secretariat as such but a network coordinator.

Furthermore, *Kern and Bulkeley (2009)* outline the following characteristics:

- › Member cities are autonomous and free to join and leave the networks
- › They appear to be non-hierarchical, horizontal and polycentric
- › They are often characterised as a form of self governance
- › Decisions taken within the networks are directly implemented by their members.

2.2 Recent accomplishments by city networks

What actions are happening on the ground? Are the instruments, tools and mechanisms developed by the city networks being used?

A number of significant actions and accomplishments driven by cities and city network can already be registered at the global scene. These processes, tools and mechanisms driven by climate city networks have been instrumental in facilitating further city efforts and have raised the level of ambition for further mitigation efforts. These include *inter alia*

- › the Local Government Climate Roadmap, where local governments signed the World Mayors and Local Governments Climate Protection Agreement and initiated as response to the Bali Action Plan with the purpose of mirroring the UNFCCC climate roadmap designed for nations with ICLEI, UCLC; Metropolis, WMCCC and C40 as global partners, The partners work to design and implement a strong and ambitious global climate regime in the post-2012 period.^{xix}
- › The City Climate Catalogue prepared for COP15 launched by the City of Copenhagen and ICLEI as a supportive element of the Local Government Climate Roadmap as the first global collection to centralize facts and figures on community climate action inviting mega-cities, small cities, towns, villages and counties around the globe to share their climate change mitigation targets and actions for the municipality (government / corporate) and whole community in terms of GHG reduction targets and renewable energy targets as well as achievements: CO₂ emission reductions, energy savings and switch to renewable energy (RE).^{xx}
- › The Global Cities Covenant on Climate - the Mexico City Pact^{xxi} launched in November 2010 and signed by 200 local governments worldwide making voluntary commitments to reduce carbon emissions, adopt and implement mitigation measures to achieve these targets and, with a view to launch and follow-up on these commitments, entering these climate actions in the carbonn Cities Climate Registry.
- › The carbonn Cities Climate Registry (cCCR) as a global mechanism encouraging local governments to regularly and publicly report in accordance with the Mexico City Pact on their GHG reduction commitments, GHG emissions inventories and climate mitigation/adaptation actions consistent with standards of the global climate regime.^{xxii} In 2012, the cCCR has become the world's largest global database of local climate action and has been complemented by further local action, inter alia the Local Government Climate Registry Japan was launched on 9 February 2012 as the first national supplement of the cCCR. The Japan Registry captures information from 33 prefectures and 91 cities. This represents 84% of the country's population and 74% of its reported GHG emissions ^{xxiii}
- › The launch of the pilot version of the Global Protocol for Community-scale GHG emissions (GPC). The GPC is established by C40 and ICLEI in collaboration with World Resources Institute (WRI), World Bank, UNEP and UN-HABITAT aiming at helping cities around the world measure and report GHG emissions.^{xxiv} The GPC may assist in further cooperation between cities and national governments, promotes a further harmonization between various levels of government as well as bottom-up linkages for regional

methodologies. The adoption of the GPC and its very the existence may also assist in filling the current gap between the proportion of city GHG emissions and lack of financing for city measures, leading more investors and funders to see the potential for investing in GHG emissions reductions at the city level. Most importantly, the GPC allows for one-to-one comparison between cities and benchmarking of actions and emissions reductions and is thus a tool that can further prompt cities to further action.

- › City networks have also made an effort to cooperate closer with donors showing increasing interest and commitment in city networks initiatives in order to provide access to relevant financing sources. E.g. in 2011, the C40 partnered with the World Bank in an agreement announced during the C40 Mayor’s Summit in Sao Paulo, in order to strengthen cooperation between the two organisations by establishing a consistent approach to cities’ climate action plans and GHG measurement and reporting. The World Bank offers a single entry point for C40 cities to access World Bank climate change-related capacity building and technical assistance programs, and climate finance initiatives. This one-stop shop approach provides cities with streamlined access to over a dozen investment and financing instruments—ranging from climate investment funds to development policy lending—that can help cities overcome the expensive but often necessary upfront costs of green infrastructure. The window additionally offers enhanced access to 14 knowledge-based services, ranging from standardized sustainability metrics to tools that help assess a city’s energy reduction opportunities. Where cities do not meet the eligibility criteria of these programs (for example, having completed GHG inventories and climate action plans), the C40 and World Bank will work with local governments to put these building blocks in place.

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These and similar instruments provide clear evidence of the cities’ and city networks’ commitment with the local climate agenda and accomplishments in terms of development of mechanisms and methodologies that may not have proven possible if not driven and heavily supported through climate change city networks. City networks have been instrumental in developing and designing tools in areas where there has been a global gap which could not have been targeted by individual cities. These tools will considerably improve the quantitative monitoring of GHG reductions as well as improve the understanding of the qualitative impacts of GHG emission reductions. Further, the tools are directly as well as indirectly enhancing the peer to peer accountability, as further discussed below.

City networks have contributed to creating a political movement as well as political commitment to local climate change action, supported by specific instruments and mechanisms that aim to improve accounting practices and promote national and sub-national acceleration of climate mitigation actions. In addition, they may further mobilize financial resources from national, regional and global levels e.g. facilitate the matching of international financing with relevant city governments, having the overview and resources to bring the relevant stakeholders together where relevant. Networks such as Regions of climate action (R20) and to some

extend also CAI-Asia are trying to create strategic partnerships with relevant funds and investment facilities and are acting as 'matchmakers' between private financiers and cities.

Given that these are new instruments, it is still to be seen how big an implementation effort cities will be able to make. However, for instance the first 2011 Annual Report of the carbonn Cities Climate Cities Registry^{xxvii} presented at COP17 in Durban showed the potential of city action from the following findings, compiling the climate information of 51 cities from 19 countries, representing 83 million inhabitants that report 447 million ton CO₂e/yr, 90 GHG inventories and 555 actions.

Key findings of cCCR demonstrate that cities and local governments:

- › express their willingness to quantify actions and achievements (78% of cities have reported at least one GHG inventory)
- › have a significant role in controlling global GHG emissions (with 447 mtCO₂e/yr, cCCR would be ranked in the Top25 List of UNFCCC, if all reporting cities were considered as one country)
- › have the capacity to help raise ambitions of global GHG reductions
- › are mainly mobilizing their own resources but are looking for additional financing as well (92% of implemented actions are financed locally).

By May 2012, the progress in reporting to cCCR had increased substantially, thus the cCCR had been joined by many more cities and had doubled its coverage in terms of inhabitants and million tCO₂e/yr.^{xxviii}

Also the *CDP project 2012*^{xxix} shows local governments' annual climate change reporting with notably 75% of C40 Cities reported. C40 members report on energy, transport, waste, sustainable communities, water and finance. Conclusions from the reporting to the CDP indicate that the network provides a motivation for increased and intensified climate change efforts through its global measurement framework:

- › "C40 cities demonstrate slightly more awareness...we may be seeing a quantifiable "network effect"...increased awareness from other members"
"...C40 cities outperform the overall average, suggesting that there may be a relationship between C40 participation/affiliation and higher awareness of the risks and opportunities from climate change than cities not in the network"
- › 71% of C40 cities report emission reduction targets; in comparison with 63% of all reporting cities. "City governments with emission reduction targets report three times as many emissions reduction activities as cities without targets"
- › 78% of C40 cities report city-wide emissions; in comparison with 70% (51 out of 73) of all reporting cities [what gets measured gets managed]

- › 84% of C40 cities (38 cities) report that climate change presents economic opportunities for their city, compared with 79% of non-C40 cities.
- › 71% of C40 cities report that they have identified economic risks from climate change, compared with 61% of non-C40 cities.
- › Over half of C40 cities (51%) report activities with their supply chains, compared with 39% for non-C40 cities.
- › Finance activities comprise just 3% of all C40 actions reported. Non-C40 cities report a lower percentage".

Key findings:

- › Significant actions and accomplishments driven by cities and city network can already be registered at the global scene. Processes, tools and mechanisms developed and driven by climate city networks have been instrumental in facilitating further city efforts and have met a global gap in the market. These may not have proven possible if not driven and heavily supported through climate change city networks.
- › City networks have been instrumental in developing and designing tools in areas where there has been a global gap which could not have been targeted by individual cities. Given that these are new instruments, it is still to be seen how big an implementation effort cities will be able to make.
- › The use and reporting by a rapidly increasing number of cities to the cCCR and the CDP shows a clear engagement by cities in drawing upon such tools when available, in order to show their efforts and results. The development of the GPC will provide a common reporting format which will form the ground for better comparison between cities and the possibility of more focused action targeted these findings.
- › City networks have contributed to creating a political movement as well as political commitment to local climate change action, supported by specific instruments and mechanisms that aim to improve accounting practices and promote national and sub-national acceleration of climate mitigation actions.
- › City networks have furthermore increased cooperation with main IFIs and donors such as the World Bank, bringing increased understanding what financing mechanisms and resources exist and how cities may tap into these.

3 Added value of City Networks

3.1 Cities' perception of City networks

This section seeks to address how city networks are perceived by cities, for example, are they seen as cost-effective and impartial sources of advice on finance and services? Are networks a means of advancing their strategic agenda in relation to climate change (locally/nationally/internationally)?

The general perception in literature is that cities have found city networks to offer significant resources, especially in terms of political capital, finance and knowledge (Bulkeley 2010, Bulkeley et al. 2009, Feldman 2012, Gore 2010).^{xxx} This view is widely confirmed by majority of cities at the interviews, as well as by the interviews with the networks. City networks do not have at their disposal the traditional tools of policy-making and government, but are instead dependent on a range of 'soft' regulation, persuasion and enabling (Kern and Bulkeley 2009).

It takes a certain level of time and human resources to take advantage of network membership. (Kern and Bulkeley 2009; Holgate 2007). In literature, there is some evidence indicating that the more flexible the networks are in terms of establishing and developing agendas, the more likely the participation (Gore 2010). Interviews with cities further documented that city administrations have to invest substantially in networks to be able to draw on their full potential, but cities can also tap in at many levels according to their capacity, needs and preferences.

Cities regard networks as a means of advancing their strategic agenda on climate change - such as economic growth, addressing air pollution or congestion. During interviews, a large number of cities declared that they would not have been able to implement the desired tasks and projects had it not been for the support, quick access to best practices, expertise on the subject matter, process guidance and or extra human resources that the relevant city network had delivered. Cities have also used the events produced by networks and recognition awards to garner momentum for action – networks provide critical 'windows of opportunity' through which action can be galvanised ([Bulkeley et al., 2009](#))

Benefits from networks are seen to be uneven (Kern and Bulkeley 2009; Gustavsson et al. 2009) found that it is not necessarily so that cities in the North perceive there are valuable lessons to learn from the South. In the case of north-south cooperation, it is perceived that cities from developing countries receive most benefits, often in the form of funding and resources (Irawati and Marcotullio 2009: 170; Bontenbal 2009). In addition, there is a risk that northern cities are not open to learning from the south, and that north-south city-to-city cooperation is seen as development assistance rather than cooperation (Bontenbal 2009: 222). The interviews conducted did not provide further information on these issues.

Cities also see city networks as a means to influencing other forums - e.g. at national or at EU level. Especially at the European level, networks are perceived as an avenue for cities to gain new room for political manoeuvring at national and even international levels.

- › “European cities gain new room for political manoeuvring because the process of Europeanization implies the opening-up of a new political sphere in which cities can play a new multi-level game or traditional structures of domestic policy making can - at least partly - be bypassed” (Heinelt and Niederhafner 2008: 174)
- › In the case of Europe, cities have privileged access points to the European institutional systems, allowing them to influence policy making at a European level. Cities are seen as knowledge holders, watchdogs, instrumental in the monitoring of European policy, and key for gaining legitimacy for European policy proposals. This increases the political leverage of cities at the domestic level, where the national level is likely to pay more attention to the voice of these cities as they point to their European connections (Heinelt and Niederhafner 2008: 184).
- › However, research suggests that some cities use networks “mostly for formal and informal cooperation but not for influencing multilateral decision-making for sustainable development (Happaerts et al. 2011: 321), and it is further suggested that greater impact on multilateral policy making (external) could result in greater strength in the network (Happaerts et al. 2011: 336). The latter point is backed up by findings from the interviews, where cities have mentioned the need for a stronger voice by city networks in the international negotiations, and preferably by additional representatives beyond ICLEI, in order to better influence international negotiations and policy making and to show progressive actions and results from the city level.

Also, Luque and Bulkeley point to authors in their review who state that the greater the flexibility of the network (objectives, mechanisms, others), the greater the possibility for municipalities to engage with it.

- › “Municipalities can engage with or participate in the network as they see fit. Hence, while a loose network conception proves challenging analytically, it resonates pragmatically” (Gore 2010: 37).

The city interviews conducted revealed a somewhat more nuanced picture of the above literature. Thus, many cities expressed the advantage to them of the city network being as specific and targeted as possible in their approach and target area, in order to benefit the most and found those the most cost-efficient ones. Some cities pointed out e.g. that ICLEI seemed having difficulties in forecasting and focusing on concrete initiatives due to their very broad group of participants and that C40 was more attractive to them and in a better position to identify the big cities’ policies through their programmatic approach and structured support. However, some cities also found C40 faced the challenge of establishing a more clear focus and better defining its value proposition. ICLEI is seen as offering a clear advantage to cities in providing access to and visibility at the UNFCCC negotiations. A number of cities are raising the point that cities need to stand even stronger in the negotiations than as of today. Again, the networks are seen by cities as offering different things and cities join and participate in these networks for many different reasons, and thus there is no conclusive evidence in favour of one model to the other.

Key findings:

- › Cities find city networks to offer significant resources in terms of political capital, finance and knowledge.
- › City administrations find that they have to invest substantially in networks to be able to draw on their full potential, however, cities can and prefer to tap in at many different levels according to their capacity, needs and preferences.
- › Where literature primarily states that the more flexible a network is then the more likely cities will participate, the interviews have provided evidence that many cities do find specificity and targeting of a network’s offering is more valuable and cost-efficient to cities. There is no conclusive evidence in favour of one model to the other.
- › Many cities have benefitted from the support, quick access to best practices, expertise on the subject matter, process guidance and/or extra human resources that the relevant city network had delivered. Without this many cities claim that action on climate would not have occurred.
- › Cities also see city networks as a means to influencing other forums - e.g. at national, EU and international level.
- › Establishing leadership structures that place value on the experience of cities in the South, and which look explicitly to develop the exchange of information from the south to the north will be vital in ensuring that the full potential of networks is realised.

3.2 Information and knowledge sharing

Information and knowledge sharing refers to the ability of city networks to provide a platform for rapid best practice sharing and to provide an evidence base to be used to develop improved interventions by the cities

Information and knowledge sharing is an important aspect for all the city networks studied, and mentioned as the main added value of networks by most of the city officials interviewed, as it helps the cities improve interventions and transformative impacts. This is on the one hand not surprising, as it is what the city networks are supposed to do. On the other hand, there is only little evidence in the literature of how this improvement takes place in practice. However, from the interviews it appears that information and knowledge is a crucial parameter both in relation to policy development/policy changes and in relation to developing effective adaptation and mitigation measures.

Lack of information available for municipal staff working on the environmental sector has, according to literature review by Bulkeley and Luque, November 2012, been identified as one of the key challenges that cities face when developing responses to climate change. Whilst over 60% of local policy analysts in the health sector rely in evidence based data for decision making purposes, only 33% do so in the environmental sector ([Howlett and Joshi-Koop, 2011](#)). The literature review also identifies that cities want to learn from examples. Whilst formal research on the costs and benefits of possible climate change responses may provide an initial guidance, it does not provide for “the inspirational or deadlock breaking role that examples from elsewhere bring” ([Marsden et al., 2011: 510](#)). In the context of limited resources, city practitioners rely more on trusted first hand accounts from municipal workers elsewhere about what works and what does not.

To most cities interviewed, the way of providing impartial information in a fair and unbiased way has been very important. City governments highly value that the networks provide unbiased information and third-party credibility when they need it, that information is trustworthy and further that it is easy to access information as well as high-level processed data, which would otherwise be very difficult and time consuming to obtain for the individual cities.

[Kern and Bulkeley, 2009](#), find that networks are an important means through which understanding is shared and learning takes place. Networks have several means through which best practice is developed and shared, such as formal case studies, recognition events, awards and informal ties.

With regards to information flows, the literature review found that there is mixed evidence as to whether the information generated by transnational networks are effectively used or whether the local officers involved have the ability to incorporate the knowledge generated in their day-to-day work. This is explained through issues of training, employment patterns, and work activities (Howlett and Joshi-Koop, 2011)^{xxxix}.

However, the evidence concerning how learning takes place shows that this limitation can be overcome. The extent to which the evidence produced by

networks is used in cities is partially dependent on the connectivity of the network, and in particular the relationship between the network and a pool of officials locally (Kern and Bulkeley, 2009; Bulkeley et al., 2009; Marsden et al., 2011)^{xxxii}. Most evidence shows that the tools produced by networks have been actively used by cities, particularly those tools that provide accounting mechanisms capable of verifying or adding weight to the actions that are already being pursued by the municipality (Bulkeley and Betsill, 2003; Gore, 2010)^{xxxiii}. These findings also lend support to the finding that the tools and techniques that networks use are critical in terms of their overall effectiveness, and that these need to be carefully designed not only with goals of ‘efficiency’ and ‘information’ in mind but also in terms of the work of building trust, relations and securing political support that they will enable.

Lee, T. and van de Meene, S. 2012 find that city networks provide opportunities for learning, information sharing, networking, generating legitimacy, exchanging values and collaboration. Therefore, they contend that city networks are potential sites where policy learning can take place or actually occur.

They define policy learning as the use of information and knowledge to forecast future developments, which are used as a decision basis.

According to the article, policy learning involves three stages:



Information seeking is the core activity of policy learning and particularly important when developing causal models of factors influencing a policy problem, which then form the basis of policy learning.

Adoption focuses on evaluating and making sense of information in relation to the specific policy programme.

Policy change focuses on the outcome of the information seeking and adoption stage. In response to the new insights obtained, policy change in a learning process involves adjusting policy goals and techniques.

According to Lee, T. and van de Meene, information seeking and adoption of information do not automatically change policy objectives, contents or measures in a direct manner. Rather, it can be used indirectly as a source of inspiration to act.

The city networks facilitate information sharing and learning in different ways:

- › Through collection and dissemination of information by the secretariats, including gathering of best practice and case studies from the member cities
- › Through research undertaken by the networks themselves
- › Through facilitation of peer-to-peer exchange, e.g. through working groups and conferences and personal contacts
- › Through capacity building, e.g. through network representatives in the member countries or regions and peer-to-peer capacity building.

Some networks provide information sharing and learning in all four ways like e.g. C40. Other networks focus on two or three of the different approaches, while a network such as the USDN almost entirely focuses on peer-to-peer exchange.

In relation to collection and dissemination of best practice and case studies, C40 has recently re-focused their approach. Previously they, like most networks, developed and tested different projects together with one or more cities, and then disseminated the successful results from the case study to other cities, replicating the main features of the projects. However, C40 found that their scalability model and the traditional way of replicating case studies did not provide as much added value as first anticipated. C40 took the initiative to carry out a horizontal mapping of cities based on a number of city specific factors such as the power structure of the mayors and the cities' GHG reduction potential, making a much better decision basis for designing projects to a large number of cities having the same features. Now C40 group the cities according to these different factors in order to maximise the impact of the projects and in order to better address the cities needs through a global assessment framework.

From the data gathered for this review, it is not possible to say if one of the four approaches mentioned above is more successful than the other. However, almost all cities interviewed emphasise in one way or the other that they get a lot of value from gaining an easy access to the experience of their peers.

Access to trusted first-hand accounts from municipal workers about what works and what does not is, according to Marsden et al.2011: 501^{xxxiv}, highly valued by those involved in networks: "Officials therefore rely on their trusted networks of peers for lessons as they can access the 'real implementation' story and the unwritten lessons". This is with different formulations confirmed by several of the cities interviewed.

Cities from the north and south respectively look for different types of knowledge. According to Bontenbal 2009^{xxxv}, professional learning in the north is mainly linked to acquiring and improving work skills and reflecting on one's own work, whereas learning in the south is largely based on gaining technical knowledge. In the interviews conducted for this review, there are some indications that cities from the south are looking for answers to more technical questions while cities from the north are more interested in policy responses^{xxxvi}.

As outlined above, there are significant overlaps between the services offered to members by the different networks. As many cities are a member of two or more of the networks, it might on the one hand suggest that resources could be utilised better if they were concentrated on fewer networks. On the other hand, several of the cities interviewed state that they get different value from the different networks. If the networks focused on coordination of their activities it could save resources, while the specific strengths of each network was better utilised. This is confirmed by the interviews, as several cities have suggested that more resources could be put into inter-network cooperation.

All of the cities interviewed are C40 members, and most cities are also member of ICLEI^{xxxvii}. Several cities state that they have benefitted a lot from their membership of ICLEI over the years, but after the establishment of C40, they rely more on this network as this network has specifically been set up to focus on fewer big cities, and therefore suits their needs better^{xxxviii}. This indicates a certain division of target groups.

The degree to which a city's membership of a network actually leads to transformative impacts depends not only on the effectiveness of the network but also on the city's activity level in relation to utilising the services offered by the network.

Kern and Bulkeley (2009) point to the fact that policy changes on the ground depend on what they call network brokers or policy entrepreneurs who connect the transnational network with the local policy network. These network brokers or policy entrepreneurs are the most active members of the Trans Municipal Networks that participate in the meetings of the General Assembly, and they have frequent contacts to the secretariat. Kern and Bulkeley claim that the majority of the members in large networks are relatively passive. Membership in these networks may be only symbolic - for instance, a city may have joined the network only after or because neighbouring cities, similar cities or sister cities did so.

Kern and Bulkeley's analysis builds on the analysis of three European networks focusing on climate protection - the *Climate Alliance*, *Cities for Climate Protection and Energy-Cities*. From the interviews, we cannot decide if Kern and Bulkeley's findings are valid for the networks included in this review. On the contrary most of the interviewees seemed quite enthusiastic about their work within the city networks. Also, several of the networks included in the review have procedures in place to sanction passive members, as further discussed in the section below on peer-to-peer accountability.

Key findings:

- Information and knowledge sharing is an important aspect for all the city networks studied, and mentioned as the main added value of networks by most of the city officials interviewed, as it helps the cities improve interventions and transformative impacts.
- City governments highly value that the networks provide unbiased information and third-party credibility when they need it, that information is trustworthy and further that it is easy to access information as well as high-level processed data, which would otherwise be very difficult and time consuming to obtain for the individual cities.
- City networks provide opportunities for learning, information sharing, networking, generating legitimacy, exchanging values and collaboration, and that city networks are potential sites where policy learning can take place or actually occur.
- Almost all cities interviewed emphasise in one way or the other that they get a lot of value from gaining an easy access to the experience of their peers.
- Access to trusted first-hand accounts from municipal workers about what works and what does not is highly valued by those involved in networks.
- Several of the cities interviewed state that they get different value from the different networks and having benefitted from membership of one network (ICLEI) have moved to another (C40) which more suits their needs. However more resources could be put into coordination of the activities between the different networks.
- Emerging signs that city network, based on lesson learned, has started addressing cities needs in more holistic and programmatic ways, providing added value to the cities.

3.3 Transaction costs and efficiency

This section seeks to address the ability of networks to reduce transaction costs and create efficiencies including what sorts of transaction costs and efficiencies can be garnered from working with a network of cities as opposed to working with each city individually.

The networks interviewed especially mention the following issues in relation to how networks reduce transaction costs and create efficiency.

- Facilitating quick and easy contacts between partners (e.g. funders and NGOs) and the right persons in the cities.
- Providing easy access to information

- › Providing harmonised tools.

The literature review by Bulkeley and Luque, November 2012 shows that the central means through which transaction costs appear to be reduced by networks is through the development of common policy goals without extensive and often lengthy local deliberation (e.g. over emissions reductions, adaptation). This is achieved through (a) common methodologies and targets; and (b) identification of potential ‘co-benefits’ for addressing climate change in particular locations. Also, transnational networks have been instrumental in securing a multiplicity of resources for cities towards the development and implementation of climate change strategies, from financial resources and knowledge to political capital.

Networks have been shown to provide important political support for the selection of targets and policy approaches, as well as resources to ensure that a start can be made in this direction, reducing the need for local negotiation and financial commitments, which can increase local transaction costs (Betsill 2001; Bulkeley and Betsill 2003; Betsill and Bulkeley 2007)

Literature is also showing that efficiencies are gained (when sharing information) thanks to the ability to bypass limitations imposed by national level governance structures when implementing new knowledge:

- › [Cities] join together to facilitate diffusion of knowledge and local experience regarding prevention, mitigation, and adaptation to global climate change. This information can be formally shared and applied by local and regional governance groups without awaiting action by national governments or international organisations to initiate diffusion - (Feldman 2012: 788).

Literature shows furthermore that efficiencies in transaction costs are achieved via the provision of a common platform for a multiplicity of diverse stakeholders to interact

- › “By providing a platform for local and regional policy-makers, scientists, government agencies, and non-governmental organizations to exchange information on both climate impacts and climate mitigation measures (e.g., innovations to better use energy and resources, and/or to conserve or improve end-use efficiencies) these networks also empower local levels of governance to develop the capacity to manage problems, prompting what we term “glocal” cooperation (globally extensive, inter-local communication and information dissemination systems) - or glocalization” (Feldman 2012: 788).

Parts of literature is also emphasizing that key functions generating benefits in transaction costs: information, evaluation, initiating local response and replication elsewhere

- › Networks perform three vital functions in regard to environmental problems: (1) generating and diffusing information; (2) undertaking effective policy evaluation strategies; and (3) initiating local response efforts without waiting for national efforts (Feldman 2012: 789).

- › Whatever the state learns about abating the risks of climate change in a single region can be adopted by other regions, cities, provinces and states worldwide, lessening the global risks of climate change and creating a win-win situation for vulnerable areas across the globe (Feldman 2012: 790).

The literature review by Bulkeley and Luque, November 2012, shows that networks have the ability to mediate information transfer between scientists and policy makers, engage stakeholders in the development of knowledge and tools, and promote the development of a type of information that is useful for local authorities:

"Boundary spanning is important for three reasons. First, it allows networks to 'mediate' communication between supply and demand functions for particular areas of societal concern, second, it enhances communication among stakeholders by incorporating them in the development of knowledge and tools - in effect, inviting local officials to help identify for scientists precisely what kinds of tools they need, third, boundary spanning is important because most information regarding the global environment, bio-physical, biological, and even social has traditionally been a producer, rather than a user-driven process. Social scientists who study this process refer to it as a 'loading dock model' of decision support. In effect, scientists merely put out pre-packaged information for whoever needs it, hoping that they will find it useful for making decisions" (Feldman 2012: 792).

The literature review by Bulkeley and Luque, November 2012, also shows that efficiencies are generated when networks share information, thanks to the ability to bypass limitations imposed by national level governance structures when implementing new knowledge, such as the need to secure time, resource and politically intensive national policy agreements.

Literature, World Bank and UN studies also point to a particular role for cities climate networks to be further explored in relation to projects under the Kyoto Protocol flexible mechanisms:

- › Cities may benefit more from working with city networks when exploring the potential for flexible mechanisms at city-level, than when being on their own, as cities are often faced with barriers of economic, informational, institutional and political nature^{xxxix}. Based on a case study of the city network ICLEI and its experience with cities' participation in the CDM, the authors conclude amongst others that new forms of cooperation between municipalities and project developers, potentially facilitated by networks such as ICLEI, are required to help to realize the urban CDM potential.

The interviewed cities and city networks have added further findings in terms of the qualitative aspects of transaction costs and efficiency question. Almost every city interviewed stated that participation in the networks save resources in comparison to not being a member and that the learning from each other is the true value of networking. Several cities claim that working with the city network has become an integrated part of the city's work, rather than an add-on. However, it was not possible for the cities to quantify their statements, but savings were clearly

perceived by the cities due to *inter alia* quick access to information and best practices, expertise on the subject matter, process guidance and extra human resources that city networks had provided. Cities thus mainly see the reduced transaction costs in terms of the working hours (and associated financial costs) saved by their staff e.g. one city claimed that their participation in USDN saved them hundreds of hours and proved the incredible potential of the networks. However, it should be noted that there are some networks which charge an annual membership fee – this will obviously reduce the financial savings to a city.

Most cities claim to have found learning through networks a more efficient process compared to a situation where they would have had to gain experience and draw lessons on an individual basis, which would have been much more resource intensive ("the time, money and ability to get things done"). This statement is common both to getting quick introduction to best practices in an area and to more detailed work on specific themes. Cities thus generally say that the participation in networks has improved their own work and planning ability.

Findings are supported by the following quotes from city government officials:

- *We don't want to see this as new work, we want rather to target our participation in the areas where we are working already. As an integrated part of our work, not an add-on.*
- *If we did not participate in the networks we would have to hire externals to collect this, so in this respect we save resources, but it would not be so efficient as through the C40 and ICLEI networks.*
- *in networks you get a quick sense of best practices, if you did not have a network and had to speak to individual cities on your own, you would not get a good sense of what has been done or the accomplishment, it would be a lot more resource intensive to do it by yourself without a common umbrella. The learning process is straight forward with a high learning curve. Other key advantage of the network is that you can involve a lot more people from our different agencies to lock in and share experiences much broader.*
- *USDN saves a lot of time as they get access to knowledge of what he is working with. Saved hundreds of hours. Prove the incredible potential of networks*
- *It saves resources for sure. Through the C40 network I was able to meet with the Tokyo Green buildings network and learn from each other, very beneficial in connecting people working on similar projects. We immediate connect.*
- *Everything would take more time, and cost more, e.g. the waste study I would otherwise have to hire a consultant, if I did not have these relationships. I would not be able to get certain thing or it would take more time. It is time money and ability to get things done.*
- *ICLEI and C40 are very good for the channels and connections, without participation in these two networks we would not be able to exchange as much information on climate change policies. It would be very difficult by ourselves to run this up. It is really essential for our activities.*

Some European cities highlight networks as a means of bringing them closer to and more aligned with the EU adaptation agenda.

Resource savings are also found through the quick, direct contacts to key experts in other administrations working on the same subject, and the possibility for connecting within few working hours. This is in particularly relevant to networks like C40 and similar networks that offer direct contact to peers and support to further investigations into a given subject.

A few cities claim that they are able to solve issues or carry out projects through the networks for which they would otherwise have needed external consultants. Even with external consultants, this would not be as efficient as through the city networks.

Another benefit of the networks, which was highlighted, is the possibility to involve much more people from the different agencies of the administration that can lock in and share experiences on a much wider scale.

Others - mainly US and Asian- cities - state that it is still a challenge to benefit to the full of the current technologies among cities and that it would be possible to boost the cooperation within networks even further if digital platforms and more digital cooperation were introduced and implemented. The C40 platform initiative is here seen as an important step in the right direction.

A few cities states that the networks do not save money or resources as such and emphasize that the network participation is much more about value-adding by sharing own city experiences at a high level and demonstration projects that have given added value to the city's core services.

Interviews also showed that scalability and replicability of successful case studies or pilot studies is not always possible. E.g. C40 said that based on their experiences, less than 25% of city projects carried out by city networks are transferable from one region to another in the traditional sense. This was also part of the reason for the C40's change in approach towards a much deeper scrutiny of mayors' powers and cities GHG reduction potential.

Key findings:

- > Efficiencies in transaction costs are achieved via the provision of a common platform provided by the city networks.
- > Literature shows that networks help reduce transaction costs in developing common policy goals; providing important political support for the selection of targets and policy approaches; and by implementing new knowledge without awaiting action by national governments or international organisations to initiate diffusion: provision of a common platform for a multiplicity of diverse stakeholders to interact.
- > Almost every city interviewed stated that participation in the networks save resources in comparison to not being a member and that the learning from each other is the true value of networking. Cities are not able to quantify their savings on transaction costs, but savings were clearly perceived by the cities

due to *inter alia* quick access to information and best practices, expertise on the subject matter, process guidance and extra human resources that city networks had provided. Resource savings are also found through the quick, direct contacts to key experts in other administrations working on the same subject, and the possibility for connecting within few working hours. This is in particularly relevant to networks like C40 and similar networks that offer direct contact to peers and support to further investigations into a given subject. However, a few cities state that the networks do not save money or resources as such and emphasize that the network participation is much more about value-adding by sharing own city experiences at a high level and demonstration projects that have given added value to the city's core services.

- › Replication of pilot projects elsewhere does not necessarily save transaction costs or provide added value. Some networks claim a low degree of possible transfer of best practice case studies as all projects have to be re-designed for the city-specific context. This one-size fits all approach has been dispensed with by C40 who prefer to take a more tailor-made, customised approach to implementing best practice in cities. This may prove to be more beneficial in terms of transaction costs and efficiency as there will be less need to retrofit projects which were replicated without taking into account city specifics.

3.4 Peer-to-peer accountability

Peer-to peer accountability relates to the extent to which membership of a city network ensures greater adherence to the cities climate commitments. i.e. if the cities feel obliged by their involvement in city network.

The focus on peer-to peer accountability varies across the different networks.

From the interviews with city networks, we have identified three issues that have an impact on the peer-to peer accountability:

- › Application of specific requirements to the cities
- › Preparation and reporting of emission inventories
- › Branding.

3.4.1 Requirements to the cities

The more radical way to hold peers accountable is to exclude members of the network that are not sufficiently ambitious and active. This is done by the USDN and is a possibility for Covenant of Mayors (CoM) and C40. The USDN has a strict procedure for admission of new members where the future member has to agree in writing to membership conditions. One of the conditions is that all members have to take an active part in the network and give value back to their peers in the

network. If a member is found not to live up to these conditions, the city is ultimately asked to leave the network, which had happened a few times.

To become a signatory to the CoM, local authorities have to commit to reducing CO₂ emissions by more than 20% by 2020 through energy efficiency and renewable energy actions. To reach this objective, local authorities are committed to:

- › Developing a baseline Emission Inventory
- › Submitting a Sustainable Energy Action Plan (SEAP), which is the key document in which the Covenant signatory outlines how it intends to reach its CO₂ reduction target by 2020.
- › Reporting on the SEAP implementation every two years after the action plan has been submitted. These implementation reports aim at checking the compliance of results with the CO₂ reduction objectives.

So far 2517 cities have submitted SEAP's of which 1106 have been accepted, and the rest is pending the approval.

C40 adopted a set of membership standards in 2011. These standards include among others requirement to:

- › Report on the city's climate change related data, preferable to the Carbon Disclosure Project (CDP) by filling in the answers to an online questionnaire.
- › Attend to the C40 Mayor summit at senior level
- › Participate actively in at least 2 C40 initiatives/networks
- › Participate in a regional network collaboration
- › Establish short and long term climate mitigation and adaptation goals and associated action plans.

It is still too early to assess the results of the C40 membership standards.

3.4.2 Emission inventories

Preparation of baseline inventories and reporting on progress in relation to the reduction objectives will help strengthen the peer-to-peer accountability per se, as it can be used by the cities to benchmark their achievements against each other if reporting on performance is independent and transparent.

Sippel (2011) analysed German cities in relation to their adoption of emission reduction targets, the types of targets; the cities' emissions trends, and how they perform in terms of target achievements. The author concludes that even though emission inventories are popular in Germany, the emission data from the various

cities are hardly comparable because frequency and methodologies for reporting vary considerably. The author therefore points to the important role of city networks in supporting and establishing the development of a common GHG emission reporting formats.^{x1} The situation with lack of comparability is likely to change with the common GHG reporting formats as well as the common global protocol.

As mentioned above, CoM requires that a baseline inventory be prepared by the cities and that they report on their progress. Also, ICLEI has worked with such inventories for a number of years, but it is not a requirement for cities to provide such inventories.

In 2011, C40 and ICLEI published a Global Protocol for Community-scale Greenhouse Gas Emissions (GPC) for cities, which is an approach to harmonize emissions measurement and reporting across cities of all sizes and geographies to internationally recognised and accepted community-scale greenhouse gas accounting and reporting standards. The aim is to provide a tool for effective climate action planning and financing. This is being piloted for launch in 2013.

As mentioned above, C40 member cities are required to report on their climate change related data, preferable to the Carbon Disclosure Project by filling in the answers to an online questionnaire. It is not mandatory to make the data public available, but data are made public by almost 90% of the C40 cities. This is, according to C40, an important way of ensuring peer-to-peer accountability^{xii}.

According to C40, based on the CDP reporting, cities are 85% more likely to have an action, if they have a target. Another important finding from the reporting process is also that each city seems to substantially improve its reporting even in just a two year time frame, e.g. by improving its qualitative data and by adding more sectors.

ICLEI's Bonn Centre for Local Climate Action and Reporting operates the Carbon Cities Climate Registry, which allows cities to ensure accountability by publicly reporting their commitments, actions and emissions. cCCR has steadily been joined by more cities and had doubled its coverage in terms of inhabitants and million tCO₂e/yr, a trend which is foreseen to continue.^{xliii} Also the CDP project 2012^{xliii} report a continuing increase in participants and sectors joining the CDP reporting and that the cities report more data already in their second year of reporting and most of them decide to make their reports public, thus the global measurement framework and peer to peer function motivate further efforts among the cities.

3.4.3 Branding and internal networking

Cities branding themselves as frontrunners in relation to climate policies might be held accountable by NGO's and the press, if they don't live up to their commitments.

Some networks have a more explicit focus on the branding of member cities than others. Networks restricted to selected cities/front runners, such as C40, are in a

better position to brand members than networks that are open to all. However, the effect will depend on the networks' attitude to branding cities. C40 describes itself as "a network of the world's megacities committed to addressing climate change" and promotes the member cities at the front page of the website as the "the global leadership on climate change". Because of the exclusivity of membership of networks like C40 it may be easier to hold member cities accountable for their actions given their public commitment to its aims. Members of networks open to all cities, like ICLEI, do not have the same possibilities of using membership for promotion purposes although through their membership they too could be held accountable for signing up to the network's aims.

The peer-to-peer accountability also depends on the exchange of knowledge within the network. Several cities interviewed emphasize that in comparison with the other networks, one of C40's strengths is that it focuses on mega cities as these cities face many of the same problems and challenges.

Key findings:

- › Peer-to- peer accountability to ensure greater adherence to climate commitments could be encouraged through the strict application of requirements such as membership standards, and through the preparation and reporting of emission inventories facilitating informal comparison between the cities.
- › It is not possible from this review to say which of these factors are most influential for the time being, however the reporting of cities' GHG emissions and the effort to increasingly report on a globally harmonised scale e.g. through the GPC will be of increasing importance for the peer-to-peer accountability.

3.5 Risk mitigation

This section seeks to investigate how working with city networks mitigates the risks of working in one city, especially regarding political change, e.g. so that any political change in one city will not derail the total effort? How can such risks be mitigated? In other words how sustainable are the positive benefits gathered from city networks?

Changes in political leadership have been identified in literature as a risk to the development of effective cooperation:

- › Policy entrepreneurs have often been critical to the emergence of the climate change agenda in particular cities, and when/where these are no longer present can give rise to a reduction in emphasis on climate change policy (Bulkeley and Betsill 2003; Bulkeley and Kern 2006; Schreurs 2008)

- › “Cooperative efforts between governments can extend into years. If senior officials change often... projects can take longer and suffer as inexperienced personnel not convinced of the merits of the effort take command. Even if they agree, new staff members must be trained in both the spirit and the substance of the cooperation. If leadership is consistent, C2C [city-to-city cooperation] exercises have a greater potential to succeed” (Irawati and Marcotullio 2009: 168).
- › It is not clear that membership of networks can help a city survive this change in political leadership; where sufficient policy work has been done to embed climate change within the municipality, or within a broader local policy constituency/network, the issue may stay on the agenda, but allegiances and commitment with particular networks (especially where this has been high profile or where there are several networks to choose from) may not be sustained to the same degree -or at all
- › Working with networks can mean that such political capacity issues are overcome by providing an alternative source of political support in any one city where a change of leadership occurs; or enabling an external agency to switch the specific urban focus of their activity readily as political fortunes of climate change wax and wane in different contexts. Thus, it may be a venue for city administrations to continue the work however in a setting with a lower profile.

Despite political changes, ensuring that networks are working with a broad spectrum of stakeholders beyond the staff members of the municipality can play a key role in securing long-term support and sustainability despite different 'political winds'. As also supported by interviews, a number of city governments consider their network effort to bring a greater share of sustainability into their work as efforts and sharing of lessons learned are communicated to a larger group of stakeholders through the network support.

- › “C2C is not confined to the participation of local governments, but also includes a range of urban actors from the civil and private spheres. As such, entire local networks may be engaged in international municipal cooperation” (Bontenbal, 2009: 249).
- › Promoting participation on the network as a tool for human resource development can also play a key role in securing long-term support despite political changes
 - › “The voluntary status makes [city-to-city] vulnerable as municipal task, and as such political interest and will are crucial factors. Moreover, support from staff may benefit from promoting [city-to-city] as human resource development instrument. Generally, however, political and staff support remain quite passive, in which C2C is tolerated and approved rather than being driven by pro-active involvement and political interest” (Bontenbal, 2009: 252).

Donors, such as the World Bank, have stated that they see clear advantages in working with cities network from a ‘design and conceptualization’ point of view and in terms of larger outreach to cities, e.g. in order to facilitate access to carbon finance for cities (such as developing new market-based mechanisms for climate finance; for identifying relevant business models, institutional arrangements, financial mechanisms and methodological approaches); and to develop design for piloting potential city-level interventions. However, cooperation with networks provides also other challenges than working with individual cities and there is thus no concluding evidence that working through cities network mitigates the risks of working in one city.

Key findings:

- › In literature, changes in political leadership have been identified as a risk to the development of effective cooperation.
- › The risk of political leadership changes is only raised to a very limited extent by interviewed city governments.
- › It is not certain that membership of networks can help a city continue action on climate change from one political administration to another unless climate has been embedded in a city’s policy. If it does continue it may not be to the same degree but could provide a venue for officer action to continue work however in a setting with a lower profile.
- › Nonetheless, cities consider city networks to bring a greater share of sustainability into their work as efforts and sharing of lessons learned are disseminated to a larger group of stakeholders through the network support, also anchoring their efforts within external partners such as NGOs, civil society, private sector and other administrative departments.
- › Donors mainly see the benefit of working through cities network in terms of scalable design and conceptualization of projects and in terms of outreach to a much larger group of cities.

4 Discussion and conclusion

This review builds on a literature study, interviews with five climate city networks as well as interviews with 13 cities active in C40 and other climate city networks. The literature related to climate city networks mainly deals with the networks' role in relation to governance issues and only provides limited evidence of the transformative impacts of the networks. The interviews conducted supplement the literature review, and provide more specific findings on how the impacts of working within international networks are seen by the cities and the networks themselves. However, the limited number of interviews conducted influence the robustness of the findings. Thus, a number of the findings should be seen only as indicative evidence of the transformative impact of the networks seen from the perspectives of the larger cities. More research into the role of international city networks in relation to cities' implementation of sustainable climate related policies and programmes is needed to explore fully their potential.

In the following, we briefly summarise and discuss the main findings from each of the specific questions formulated in the terms of reference for the review:

- › Whether/how can a network of cities such as C40 more efficiently and cost-effectively deliver large transformative impacts^{xliv} than working with each city individually?
- › Whether/how can large transformative impacts be delivered by providing a platform for rapid best practice sharing?
- › What sorts of transaction costs and efficiencies can be garnered from working with a network of willing cities as opposed to working with each city individually?
- › How are city networks perceived by cities? How can city networks provide an evidence base that is used to develop improved interventions? Under what conditions?
- › What are the risks mitigated in creating a portfolio of projects in multiple cities?

- › How does the concept of peer-to-peer accountability ensure greater city adherence to their commitments as compared to other models for compliance?

The first question - how networks more efficiently and cost-effectively can deliver large transformative impacts than working with each city individually would deliver - is more or less a function of the findings relating to the other questions. Thus, this question is discussed as the last in the end of this section.

Whether/how can large transformative impacts be delivered by providing a platform for rapid best practice sharing? And how can city networks provide an evidence base that is used to develop improved interventions?

We find that these two questions need to be dealt with together, as the provision of a platform for rapid best practice is an important, and integrated, part of providing an evidence base, which can be used to improve interventions.

The most important aspect of city networks work is found to be their ability to facilitate information and knowledge sharing, as input to the cities' policy learning and as evidence base to provide improved interventions. Information and knowledge sharing is found to increase the effectiveness as well as the efficiency of cities' climate work. Although the interviews have pointed to a number of concrete examples, it has been beyond the scope of this review to go into further details with these. All networks studied focus on information and knowledge sharing, however, it is done in different ways by the different networks. The methods include:

- › Information collection and dissemination by the secretariats, such as collection of best practices and case studies from the member cities
- › Own research by the networks
- › Facilitation of peer-to peer exchange and capacity building, e.g. through network representatives in the member countries or regions.

Most networks combine the different approaches and thereby they supplement each other. Thus, it is not possible to say if one approach is more effective than the other. This is also confirmed by the interviews where several of the cities seem to prefer to be able to make use of the various approaches.

Almost all cities interviewed emphasise in one way or the other that they benefit much from gaining easy access to the experience of their peers, including access to trusted first-hand accounts from other city officials of what works and what does not.

Several of the cities interviewed state that they get different value from the different networks; thus there is not any scope for consolidation of networks. However, more resources could be put into coordination of the activities between the different networks.

Furthermore, the review shows that in order to ensure the highest possible effect of information and knowledge sharing, it is important to keep in focus that:

- › Information and knowledge disseminated by the networks - generated either from own research or collected through other sources - must be trustworthy, impartial and easily accessible.
- › Peer-to-peer exchange through personal contacts can be an effective and efficient way to ensure real knowledge sharing, but it builds on personal trust among the involved parties, which should be facilitated by the networks.
- › Capacity building is most important in the early stages of a city's policy development.

What sorts of transaction costs and efficiencies can be garnered from working with a network of willing cities (i.e., C40) as opposed to working with each city individually?

The findings from the review show that efficiencies from working in networks are achieved via the provision of a common platform.

City networks reduce transaction costs mainly by:

- › Facilitating easy contacts primarily between members i.e. finding the right person with the right experience in other cities but could also be with funders and NGOs
- › Providing easy access to information
- › Providing harmonised tools.

Though cities are not able to quantify their savings on transaction costs, savings are clearly perceived by the cities due to *inter alia* quick access to information and best practices, expertise on the subject matter, process guidance and extra human resources that city networks had provided. They also provide political support for policy and target selection and speed up knowledge transfer to and between cities without having to wait for national or international organisations efforts on dissemination.

However, interviews also indicate that cities have to invest a substantial amount of work in the networks to be able to reap the full potential but can and will tap into different levels of a network's offering according to their capacity, needs and preferences. Many cities indicate that they found learning through networks a more efficient process and action on climate change would not have occurred without accessing a city network's offering.

Replication of the same pilot projects elsewhere may not necessarily *save* transaction costs. Though transferability of projects is seen as a benefit, several networks claim a low degree of transfer of case studies as projects will have to be *re-designed* for the city-specific context. However, some networks are taking a

more nuanced and tailor made approach e.g. taking account of different mayoral powers and GHG reduction potential to increase the chances of replicability among cities of a certain typology (rather than taking a one-size fits all approach) which would produce some reduction in transaction costs. This approach and point of view is in particular advocated by C40.

How are city networks like C40 perceived by cities?

City networks offer significant resources, especially in terms of political capital, finance and knowledge. Cities also regard networks as a means of advancing their strategic agenda on climate change.

City administrations find that they have to invest substantially in networks to be able to draw on their full potential, However, cities can and prefer to tap in at many different levels according to their capacity, needs and preferences.

Cities are more likely to participate in a network if it is flexible but find the more a network is specific and targeted the more valuable and cost-efficient it is to them.

Cities claim to have benefitted from the support, quick access to best practices, expertise on the subject matter, process guidance and/or extra human resources that the relevant city networks had delivered. They also claim that action on climate would not have occurred without accessing city network's offerings.

Cities also see city networks as a means to influencing other forums - e.g. at national, EU and international level.

What are the risks mitigated in creating a portfolio of projects in multiple cities

Risk mitigation is being done in different and parallel ways. Changes in political leadership are only to some extent perceived by cities' administrations as a risk to their GHG reduction efforts and thus less than stated by literature.

City administrations state that the development of effective cooperation with networks and the fact that the work it is supported by the networks allow reaching out to larger groups of stakeholders within the different administrations of a city, including the private sector, NGOs and civil society groups. The larger outreach through networks indirectly ensures long-term support and a higher degree of sustainability despite political changes.

Several of the cities interviewed has stated that they would not have been able to carry out specific project activities or raise specific flagship projects without the proper support from networks. Whereas the perspective of risk mitigation has been the focus of some literature, this was not a focus question in the interviews with the cities or the cities networks.

How does the concept of peer-to-peer accountability ensure greater city adherence to their commitments?

The review shows that the different networks have a different focus on peer-to-peer accountability. The ways networks are able to have an impact on peer-to-peer accountability include:

- › Application of specific requirements to the cities
- › Requirements to the cities to prepare and report emission inventories
- › Providing a platform for branding.

Stipulating specific requirements to the cities on ambition and action on climate change and enforcing them as requirements for network membership is the direct way of ensuring accountability. Preparation and reporting of emission inventories as well as branding are working more indirectly, through exposing the cities' objectives and results to the public and their peers, who may then hold the cities accountable.

Whether/how can a network of cities such as C40 more efficiently and cost-effectively deliver large transformative impacts than working with each city individually would deliver?

Cities play an important and increasing role in global action on climate change. The city networks are found to provide a strong lever for cities' ability to act locally as well as globally on the climate challenges, and thereby to possess the potential to deliver large transformative impacts in relation to GHG abatement and climate adaptation. This is highlighted by many of the cities interviewed, as they state that they would not have been able to carry out desired tasks and projects without the support of relevant city networks.

As it appears from the above, the transformative impacts are mainly ensured by the networks' ability to provide effective information, best practice sharing and knowledge management. A considerable, transformative impact is also shown by the increasing number of cities using the global tools for monitoring and reporting of emission reductions developed by the major city networks and set as a requirement for participation in the network by some of the networks (Covenant of Mayors, C40) or encourage to use on a voluntary basis (ICLEI).

The emerging global tools and mechanisms developed and supported by city networks allow for better comparison and benchmarking across cities. These tools have targeted the cities' needs for a standardised reporting framework and, to some extent, they have filled a global gap that would not otherwise have been addressed. However, there is a continued need for reviews that further collect lessons learned from the use of these tools and in terms of finding appropriate governance frameworks and approaches, policies and programmes that have proven to benefit cities locally or even globally when bringing action and best practices to scale in other cities. Such reviews may assist city administrations, city networks and potential funders in directing their efforts to areas that provide added value compared with a situation where cities work on their own.

New opportunities and roles for cities' climate change networks are emerging and may give rise to deeper involvement of the networks. Especially in interviews, cities repeatedly mentioned the issue of financing own city activities as well as city network activities for climate change activities. There seems to be a particular need for city networks to focus on financing options and financial models to facilitate even more the different financing mechanisms available and suitable to city projects. As an example, most cities have not yet been able to set aside resources for fundraising or for e.g. participating in the Kyoto Protocol flexible mechanisms at municipal level, and there seems to be a large demand for facilitating the development and use of financing mechanisms, such as Clean Development Mechanisms (CDM) and Joint Implementation (JI) or voluntary market mechanisms, city-wide emissions trading programmes or financing through national and international climate funds.

An increasing need raised by some cities, is the need for integrated approaches in terms of also assessing climate risks and urban development when planning for new mitigation efforts. Cities need an integrated approach that considers mitigation, adaptation and urban development at the same time. The improvement of city services is related to the ability of cities to adapt to climate change and reduce their GHG emissions. All stakeholders, including donors and financiers, would have to take into account that projects and investments that reduce GHG emissions may have implications for the city's resilience, and vice versa, thus planning of investments may have to check specifically that there are no unintentional impacts of an otherwise sound project that may increase GHG emissions or make a given city more vulnerable to climate change.

4.1 Conclusion

Based on a limited survey among cities that are all members of international city climate networks, and on the limited academic research previously made in this field, we can conclude that city networks leverage city activities on climate reduction as follows:

- › Significant actions and accomplishments driven by cities and city network can already be registered at the global scene, provided inter alia by processes, tools and mechanisms meeting a global gap in the market. These accomplishments may not have proven possible if not driven and heavily supported through climate change city networks.
- › In terms of finance, city networks have increased cooperation with main IFIs and donors such as the World Bank, bringing increased understanding of existing financing mechanisms and resources and of how cities may tap into these.
- › Literature states that the more flexible a network is, the more likely cities are to participate, whereas the interviews have provided evidence that many cities find the specificity and targeting of a network's offerings more valuable and cost-efficient. There is no conclusive evidence in favour of one model or the other.

- › Information and knowledge sharing is an important aspect for all the city networks studied, and mentioned as the main added value of networks by most of the city officials interviewed, as it helps the cities improve interventions and transformative impacts.
- › Participation in the networks saves resources in comparison to not being a member, and the learning from each other is the true value of networking. Replication of pilot projects elsewhere does not necessarily save transaction costs or provide added value. A tailor-made, customised approach to implementing best practice in cities seems to prove more beneficial in terms of transaction costs and efficiency as there will be less need to retrofit projects, which were replicated without taking into account city specifics.
- › The globally designed reporting formats such as cCCR and the CDP project are steadily joined by more cities and are increasing their coverage in terms of inhabitants and million tCO₂e/yr; a clear positive trend which is foreseen to continue with the launch of the Global Protocol for Community-scale GHG emissions (GPC).
- › Peer-to- peer accountability is encouraged through the strict application of requirements such as membership standards, and/or through the preparation and reporting of emission inventories facilitating informal comparison between the cities. It is not possible from this review to say which of these factors are most influential for the time being, however, the reporting of cities' GHG emissions and the effort to increasingly report on a globally harmonised scale e.g. through the GPC is assessed to be of increasing importance to the peer-to-peer accountability.
- › Cities consider city networks to bring a greater share of sustainability into their work. The advantage from the donor perspective is mainly seen in relation to scalable design and conceptualization of projects and in terms of outreach to a much larger group of cities.

Appendix A Summary review of the literature

CLIMATE CHANGE, CITIES AND NETWORKS

Harriet Bulkeley and Andres Luque, Durham University, January 2013^{xlv}

1. What role have city networks had in shaping urban responses to climate change?

Transnational networks of cities have been identified as a central player in the future structure of global environmental governance. Whilst cities are a critical part of the global responses to climate change, they are not doing this alone. Over the past two decades transnational networks of cities working on climate, energy and environmental issues have played a critical role in the transformation of urban responses to climate change ([Bulkeley and Betsill, 2003](#); [Kern and Bulkeley, 2009](#); [Feldman, 2012](#); [Gore, 2010](#)). Networks have enabled cities to multiply their influence, horizontally across cities as well as vertically with other levels of government ([Betsill and Bulkeley, 2006](#); [Bulkeley et al., 2009](#)). They are also perceived as a way for cities to gain new room for political manoeuvring, and, in responding to climate change, cities have seen in transnational networks a possibility for advancing broader strategic objectives and interests concerning their economic and social development ([Heinelt and Niederhafner, 2008](#); [Hodson and Marvin, 2009](#); [Kern and Bulkeley, 2009](#)).

One of the main roles that transnational networks play in supporting cities in responding to climate change is related to their ability to garner widespread support and develop partnerships with a variety of stakeholders across civil society. Networks play an instrumental role in creating multisectoral partnerships within urban areas, including with the private sector (Bulkeley and Schroeder 2012) and the third sector ([Bontenbal, 2009](#)). Thanks to the participatory nature of projects and initiatives supported by them, networks are able to “provide forums for discussing common issues and for building symbolic, as well as substantive political support at the grassroots level” ([Feldman, 2012: 788](#)). Such projects, by “acknowledging the long-term experience of citizens as ‘makers and shapers’ rather than ‘users and choosers,’” developed favourable conditions for civic engagement and strengthen civil society’s capacity to respond to climate change ([Bontenbal, 2009: 256](#)). Cities have also used the events produced by networks and recognition awards to garner momentum for action – networks provide critical ‘windows of opportunity’ through which action can be galvanised ([Bulkeley et al., 2009](#)). This ability to tap into a broad network of stakeholders and members of civil society within and outside the city facilitates and empowers cities to act, speeding up the deployment of urban responses to climate change. In addition, transnational networks can provide vital resources for municipalities – creating access to knowledge, financial resources, and key partners/business sectors. Transnational networks provide unique support by “assess[ing] information and data, evaluat[ing] innovative management options, and coordinat[ing] the activities of key actors at local and regional levels without having to first wait upon national

governments or international inter-governmental organizations to act” ([Feldman, 2012: 788](#)).

Finally, transnational networks have been instrumental in securing a multiplicity of resources for cities towards the development and implementation of climate change strategies, from financial resources and knowledge to political capital. Transnational networks provide cities with new knowledge modes and sources, assemble formal case studies, create common analytical tools, and provide for informal modes of sharing of experience ([Bulkeley and Betsill, 2003](#); [Betsill and Bulkeley, 2007](#); [Bulkeley, 2010](#); [Holgate, 2007](#); [Granberg and Elander, 2007](#); [Romero-Lankao, 2007](#)).

2. *What are the advantages of transnational networks as a means of urban governance?*

One of the ways in which transnational networks create an advantage over approaches based on one city at a time is through *the reduction of transaction costs*. Networks contribute to the reduction of transaction costs is through the development of common policy goals, avoiding extensive and often lengthy local deliberation (e.g. over emissions reductions, adaptation). This is achieved through (a) common methodologies and targets; and (b) the identification of potential ‘co-benefits’ for addressing climate change in particular locations. Networks have been shown to provide important political support for the selection of targets and policy approaches, as well as resources to ensure that a start can be made in this direction, reducing the need for local negotiation and financial commitments, which can increase local transaction costs ([Betsill, 2001](#); [Bulkeley and Betsill, 2003](#); [Betsill and Bulkeley, 2007](#)). In addition, networks perform three vital functions further contributing to lowering transaction costs when dealing with common environmental problems: (1) generating and diffusing information; (2) undertaking effective policy evaluation strategies; and (3) initiating local response efforts without waiting for national efforts ([Feldman, 2012](#)).

Networks are also an important means through which *understanding is shared and learning takes place*. Networks have several means through which best practice is developed and shared, such as formal case studies, recognition events and awards, events and informal ties ([Kern and Bulkeley, 2009](#)). When networks share information, efficiencies are generated thanks to the ability to bypass limitations imposed by national level governance structures when implementing new knowledge, such as the need to secure time, resource and politically intensive national policy agreements. Additional efficiencies associated to sharing information can be gained by providing a common platform for a multiplicity of diverse stakeholders to interact ([Feldman, 2012](#)). The results are often policies that are flexible, decentralised, publicly acceptable and innovative, “all supposedly salient features of local, as opposed to national governments” ([Feldman, 2012: 791](#)).

Through structures that represent local governments, transnational networks enrol the support of NGOs, community groups, scientists and other stakeholders often not properly represented at the national level, thus increasing the capacity of the local level to make better use of development or environmental funds. Networks

have the ability to mediate information transfer between scientists and policy makers, engage stakeholders in the development of knowledge and tools, and promote the development of a type of information that is useful for local authorities whilst understandable and ready to be used by other local stakeholders ([Feldman, 2012](#)).

3. What are the limitations of transnational networking for urban climate change governance?

The literature reviewed identified several risks and limitations associated to network functioning. First, there are concerns as to whether the agendas and political tools of networks are sufficient to realise their ambitions. For example, narrow agendas have been blamed for poor city involvement (Roman 2010) whilst a perception of sustainability as ‘soft politics’ is considered to play a role in limiting the amount of political support locally available for network actions ([Happaerts et al., 2011](#)). Second, with regards to information flows, the review found that there is mixed evidence as to whether the information generated by transnational networks are effectively used or whether the local officers involved have the ability to incorporate the knowledge generated ([Howlett and Joshi-Koop, 2011](#)). Finally, in the case of north-south cooperation, the extent to which networks provide equal benefits for all cities involved is questioned. Some of these limitations are further explained in the paragraphs below.

Transnational networks do not have at their disposal the traditional tools of policy-making and government, but are instead dependent on a range of ‘soft’ regulation, persuasion and enabling (Kern and Bulkeley 2009). In this context, limiting the thematic scope for intervention and setting agendas that are too focused or narrow in scope is seen as a key risk threatening successful cooperation. For example, in the case of the C40, a disproportionate emphasis on issues of climate mitigation over adaptation could be seen as creating a risk for alienating certain cities. In a similar way, the C40s emphasis on global procurement strategies is seen as a risk due to their limited ability to connect with locally specific technological needs, the limited contribution that this approach makes to local industry, and its possible lack of contribution to climate adaptation efforts ([Román, 2010](#)). Overall, there is evidence that the more flexible networks are in terms of how agendas are established and developed, the more likely the participation ([Gore, 2010](#)). At the same time, while there is a general perception that transnational city networks are most effective when supporting environmental agendas (followed by those related to issues of health/education and social/cultural topics) ([Tjandradewi and Marcotullio, 2009](#)), there is also a belief that the perception of sustainability as ‘soft politics’ hinders network impact through limited political support ([Happaerts et al., 2011](#)). Whilst cities also regard networks as a means of advancing broader strategic agendas, this can also generate controversy over how climate change is being used within particular urban contexts ([Hodson and Marvin, 2009](#)). There is therefore a need to ensure that networks establish appropriate agendas and the set of tools required to achieve them, and that they are able to generate political support both within and beyond city boundaries.

Second, some research suggests that there are limitations in the ability of municipal staff members to incorporate the lessons learned from transnational city networks

in their day-to-day work. This is explained through issues of training, employment patterns, and work activities ([Howlett and Joshi-Koop, 2011](#)). However, the evidence concerning how learning takes place shows that this limitation can be overcome. The extent to which the evidence produced by networks is used in cities is partially dependent on the connectivity of the network, and in particular the relationship between the network and a pool of officials locally ([Kern and Bulkeley, 2009](#); [Bulkeley et al., 2009](#); [Marsden et al., 2011](#)). Most evidence shows that the tools produced by networks have been actively used by cities, particularly those tools that provide accounting mechanisms capable of verifying or adding weight to the actions that are already being pursued by the municipality ([Bulkeley and Betsill, 2003](#); [Gore, 2010](#)). These findings also lend support to the finding that the tools and techniques that networks use are critical in terms of their overall effectiveness, and that these need to be carefully designed not only with goals of ‘efficiency’ and ‘information’ in mind but also in terms of the work of building trust, relations and securing political support that they will enable.

Finally, issues of trust, reciprocity, and shared interest in key issue areas are critical in establishing degree and nature of connection within the network, and influence the extent to which best practice is likely to be exchanged ([Tjandradewi and Marcotullio, 2009](#); [Román, 2010](#); [Marsden et al., 2011](#)). However, this exchange can be prevented by issues of path-dependency, political expediency and other general issues that have found to prevent policy transfer (see e.g. [Benson and Jordan, 2011](#); [Marsden et al., 2011](#)). In other words, the ability to learn from one another, and to achieve efficiencies in service delivery, can be shaped by the extent of institutional, political and technical barriers at the urban level. Whilst information on best practice is commonly shared, research points to the value of sharing failures as well as successes ([Marsden et al., 2011](#)). In the case of north-south cooperation, it is perceived that cities from developing countries receive the most benefits, often in the form of funding and resources ([Bontenbal, 2009](#); [Tjandradewi and Marcotullio, 2009](#)). There is a risk that northern cities are not open to learning from the south, and that north-south city-to-city cooperation is seen as development assistance rather than cooperation ([Bontenbal, 2009](#)). Establishing leadership structures that place value on the experience of cities in the South, and which look explicitly to develop the exchange of information from the south to the north will be vital in ensuring that the full potential of networks is realised.

4. What challenges do cities face in addressing climate change and how can these be overcome through transnational networks?

A wide range of factors have been identified as both ‘drivers’ and ‘barriers’ to realising urban climate change policy. For the most part, analysis has focused on the *institutional* and *political* factors that have shaped urban responses to climate change, although more recently the *socio-technical* factors that shape the possibilities of responding to climate change have also been recognised as important (Bulkeley 2010, 2013; UN-Habitat 2011).

Broadly speaking, *institutional* factors can be regarded as those that shape the capacity of urban institutions – both formal organizations, and more informal systems, codes and rules that guide social action – to respond to climate change.

These factors include issues of knowledge, financial resources, and the ways in which responsibilities for action are allocated and shared between different organizations. One critical issue has been the availability of knowledge and resource. In general terms, a lack of information available for municipal staff working on the environmental sector has been identified as one of the key challenges that cities face when developing responses to climate change. Whilst over 60% of local policy analysts in the health sector rely in evidence based data for decision making purposes, only 33% do so in the environmental sector ([Howlett and Joshi-Koop, 2011](#)). However, hard data on existing conditions is not the only valuable source of information for municipal decision makers. Interviews with municipal workers revealed that one of the main challenges faced when responding to climate change is their lack of 1st hand experience on the implications and factors for success or failure of the possible interventions. It has been identified that cities want to learn from examples. Whilst formal research on the costs and benefits of possible climate change responses may provide an initial guidance, it does not provide for “the inspirational or deadlock breaking role that examples from elsewhere bring” ([Marsden et al., 2011: 510](#)). In the context of limited resources, city practitioners rely more on trusted first hand accounts from municipal workers elsewhere about what works and what does not. The reliance on human contact for accessing information is also the result of a lack of consistent quality on the information available on possible climate change responses as well as limited information on project failures ([Marsden et al., 2011](#)). This evidence suggests that transnational networks are critical in addressing the *institutional* challenges facing cities in responding to climate change.

Second, it is important to recognise that such institutional barriers do not operate within a political vacuum and more often than not it is matters of *political* leadership and the urban political economies of climate change which matter most in enabling and constraining effective action. The political factors that shape urban responses to climate change mitigation can be broadly considered in terms of issues of leadership, of opportunity, of co-benefits and of broader processes of political economy. The creation of political champions and windows of opportunity are critical ways in which transnational networks can address these issues and provide political drivers for action. At the same time, networks need to be flexible enough to address political changes within cities, particularly in terms of leadership and the departure of key champions. Broadening the range of stakeholders involved in network activities, both within local government as well as outside of it, strengthens the possibility for extended engagement despite political changes ([Kern and Bulkeley, 2009](#); [Schreurs, 2008](#); [Granberg and Elander, 2007](#)). Ensuring that networks are working with a broad range of urban stakeholders can address this challenge ([Bontenbal, 2009](#)). In parallel, involvement of senior levels of leadership in the cities involved is key, as these “play important roles both in opening the window of opportunity for cooperation and in maintaining links” ([Tjandradewi and Marcotullio, 2009: 168](#)). Furthermore, networks are faced with addressing the fundamental political challenges that arise from how climate change is positioned with respect to other key urban agendas. Where action has been forthcoming this has been found to be due to the ability to ‘reframe’ or ‘localise’ climate change with respect to the co-benefits’ that could be realised (Betsill 2001). For example, in Canada, “actions to reduce GHG emissions are also deeply connected to other goals and co-benefits such as human health improvements through improved air

quality, cost savings, adaptability to real or potential vulnerabilities due to climate change, and overall improvements in short, medium and long-term urban sustainability” (Gore et al. 2009: 9). Networks need to have the flexibility to work through the range of political economic contexts found in diverse urban areas.

Finally, *socio-technical factors* “refer to the combined effects of the material and technical conditions of cities – the means by which energy is produced, water provided, buildings constructed etc. – and the social, cultural, political and economic means which sustain and reproduce these urban systems. This combination of social and material factors co-produces the urban landscape within which urban responses to climate change takes place, creating both possibilities and limitations on how such responses are conceived and enacted” (Bulkeley 2013: 103). Such systems tend towards obduracy (Hommels 2005), and as such achieving new configurations that can achieve the ‘low carbon’ provision of services is fraught with challenges, including the vested interests of incumbent providers and persistent cultural practices and habits that shape how we use resources (Shove 2010). The work of transnational networks in creating and demonstrating ‘experimental’ forms of urban design, development, transportation and energy system is critical in providing the forms of innovation that can achieve system change. As such, the pilot projects and demonstrations undertaken by networks matter not only because they create the basis for sharing best practice, but because they can act as ‘grit’ in the oyster, leading to reconfigurations in the infrastructure networks through which climate change mitigation and adaptation have to take place at the urban level and beyond.

REFERENCES

Benson D and Jordan A. (2011) What have we learned from policy transfer research? Dolowitz and Marsh revisited. *Political studies review* 9: 366-378.

Betsill M and Bulkeley H. (2007) Looking back and thinking ahead: a decade of cities and climate change research. *Local environment* 12: 447-456.

Betsill MM. (2001) Mitigating climate change in US cities: opportunities and obstacles. *Local environment* 6: 393-406.

Betsill MM and Bulkeley H. (2006) Cities and the multilevel governance of global climate change. *Global Governance: A Review of Multilateralism and International Organizations* 12: 141-159.

Bontenbal M. (2009) *Cities as partners: the challenge to strengthen urban governance through North-South city partnerships*: Eburon Uitgeverij BV.

Bulkeley, H. (2013) *Cities and Climate Change: Critical Introductions to Urbanism and the City*, Routledge

Bulkeley, H. and Schroeder, H. (2012) Beyond state/non-state divides: global cities and the governing of climate change, *European Journal of International Relations*, 18 (4): 743-766

Bulkeley H. (2010) Cities and the governing of climate change. *Annual Review of Environment and Resources* 35: 229-253.

Bulkeley H and Betsill M. (2003) *Cities and climate change : urban sustainability and global environmental governance*, New York: Routledge.

Bulkeley H, Schroeder H, Janda K, et al. (2009) Cities and Climate Change: The role of institutions, governance and urban planning. *World Bank Urban Symposium on Climate Change*.

Feldman DL. (2012) The future of environmental networks—governance and civil society in a global context. *Futures*.

Gore CD. (2010) The limits and opportunities of networks: Municipalities and Canadian climate change policy. *Review of Policy Research* 27: 27-46.

Granberg M and Elander I. (2007) Local governance and climate change: reflections on the Swedish experience. *Local environment* 12: 537-548.

Happaerts S, Van den Brande K and Bruyninckx H. (2011) Subnational governments in transnational networks for sustainable development. *International Environmental Agreements: Politics, Law and Economics* 11: 321-339.

Heinelt H and Niederhafner S. (2008) Cities and organized interest intermediation in the EU multi-level system. *European Urban and Regional Studies* 15: 173-187.

Hodson M and Marvin S. (2009) 'Urban ecological security': a new urban paradigm? *International journal of Urban and Regional Research* 33: 193-216.

Holgate C. (2007) Factors and actors in climate change mitigation: A tale of two South African cities. *Local environment* 12: 471-484.

Hommels, A. (2005). Studying Obduracy in the City: Toward a Productive Fusion between Technology Studies and Urban Studies. *Science, Technology and Human Values* 30: 323-351.

Howlett M and Joshi-Koop S. (2011) Transnational learning, policy analytical capacity, and environmental policy convergence: Survey results from Canada. *Global Environmental Change* 21: 85-92.

Kern K and Bulkeley H. (2009) Cities, Europeanization and Multi-level Governance: Governing Climate Change through Transnational Municipal Networks*. *JCMS: Journal of Common Market Studies* 47: 309-332.

Marsden G, Frick KT, May AD, et al. (2011) How do cities approach policy innovation and policy learning? A study of 30 policies in Northern Europe and North America. *Transport policy* 18: 501-512.

Román M. (2010) Governing from the middle: the C40 Cities Leadership Group. *Corporate Governance* 10: 73-84.

Romero-Lankao P. (2007) How do Local Governments in Mexico City Manage Global Warming? *Local environment* 12: 519-535.

Schreurs MA. (2008) From the Bottom Up Local and Subnational Climate Change Politics. *The Journal of Environment & Development* 17: 343-355.

Tjandradewi BI and Marcotullio PJ. (2009) City-to-city networks: Asian perspectives on key elements and areas for success. *Habitat International* 33: 165-172.

UN-Habitat (2011) *Global Report on Human Settlements: Cities and Climate Change*, UN-Habitat, Nairobi, Kenya, Earthscan, London

Appendix B List of interviewees

List of persons interviewed

Networks

Metropolis	Gabriel Bello Barros, Global Communications Manager
USDN	Julia Parzen, network coordinator
CAI-Asia	Sophie Punte, Executive Director
Covenant of Mayors	Kristina DELY, Head of the Covenant of Mayors Office
ICLEI	Yunus Arikan, Climate Expert
C40	Seth Schultz Amanda Eichel

Cities

Mexico City	Fernanda Menendez, Senior Environmental Advisor to the Mayor Ebrard, Coordinator of the Mexico City Solid Waste Management Commission and the Coordinator of the Sustainable Transport Cabinet.
Rotterdam	Arnoud Molenaar <i>Manager Rotterdam Climate Proof</i> - Office for Sustainability and Climate Change
Lagos	Ola Oresanya, managing director of the Lagos State Waste Management Authority (LAWMA), and Yemisi Ogunlola, main point of contact with international organisations at LAWMA
Tokyo	Kenji Suzuki, Director for International Environment Cooperation, Bureau of Environment. Tokyo Metropolitan Government
Seoul	Written answers from Seoul Metropolitan Government
Jakarta	Esa Tobing, Senior Advisor on International Cooperation. Sarwo Handhayani, Head of the Regional Planning and Development
Singapore	Benedict Chia, C40 Focal point, Singapore
Melbourne	Krista Milne, Manager Sustainability
Vancouver	Sadhu A. Johnston, Deputy City Manager City of Vancouver

New York	Hilary Beber Policy Advisor, NYC Mayors office
Rio	Rodrigo Rosa, Special Advisor to the Mayor Eduardo Paes and Christina Mendonca, C40- CCI, Rio de Janeiro
London	Stephen Tate, Assistant Director - Transport and Environment, Development & Environment, Greater London Authority
Houston	Laura Spanjian, policy and sustainable development director, Mayors Office, Houston City Hall, and Sheila Blake, COH representative, energy efficiency in buildings expert
Copenhagen	Claus Bjørn Billehøj, Head of international affairs and green growth, Key account manager on C40

Appendix C References

Primary literature:

- Arikan, Y., et.al., 'carbonn Cities Climate Registry 2011 Annual Report', Bonn Center for Local Climate Action and Reporting– carbonn, Bonn, 2011
- Arup (2011), Climate Action in Mega-Cities (commissioned byC40)
- Betsill and Bulkeley (2006), Cities and Multilevel Governance of Global Climate Change, *Global Governance*; Apr-Jun 2006; 12, 2; Research Library
- Carbon Disclose Project (2012) Measurement for Management - CDP Cities 2012 Global report - Including special report on C40 Cities, CDP, C40 and AECOM
- Chiu (2010, Work in progress) The role of City-network in the Environmental discourse, Paper prepared for the 3rd ECPR Graduated Conference, Dublin City University, 30 August to 1 September 2010
- Cities and Carbon Market finance: Taking stock of Cities, OECD Environmental Working Paper no.29, OECD publishing
- Bulkeley, H., Schroeder, H., Janda, K., Zhao, J., Armstrong, A. Chu, S. Y. and Ghosh, S. (2009) Cities and Climate Change: the role of institutions, governance and urban planning. Report for the World Bank Urban Research Symposium: Cities and Climate Change
- Keiner and Kim (forthcoming) Transnational City Networks for Sustainability
- Kern, K. and Bulkeley, H. 2009 Cities, Europeanization and Multilevel Governance: Governing Climate Change through Transnational Municipal Networks. *JCMS: Journal of Common Market Studies*, 47(2), 309-332,
- H. Bulkely (2010) Cities and the Governing of Climate Change, *Annual Rev. Environment Resources* 2010.35:229-53
- Lee, T. and van de Meene, S. 2012. Who teaches and who learns? Policy learning through the C40 cities climate network. *Policy Sciences*, 1-22
- Maike Sippel, Axel Michaelowa, Does global climate policy promote low-carbon cities? Lessons learned from the CDM, CIS Working Paper no. 49, 2009
- Noah J. Toly (2008) Transnational Municipal Networks in Climate Politics: From Global Governance to Global Politics, *Globalizations*, September 2008, Vol. 5, No. 3, pp. 341-356
- Román, M. 2010. Governing from the middle: the C40 Cities Leadership Group. *Corporate Governance*, 10(1), 73-84
- Sippel, Maike and Jenssen, Till (2009) What about local climate governance? A

review of promise and problems, IER - Institute of Energy Economics and Rational Energy Use, University Stuttgart

Maike Sippel (2011) Urban GHG inventories, target setting and mitigation achievements: how German cities fail to outperform their country, IER - Institute of Energy Economics and Rational Energy Use, University Stuttgart, in Greenhouse Gas Measurement & Management 1/2011/pp.55-63.

Voluntary Carbon offsetting by local authorities: Practices and lessons, CDC Climate Research Climate Report No.29

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- ⁱ CIFF's impacts for climate change are defined by GHG abatement potential.
- ⁱⁱ A full list of interviewees is attached in Appendix B.
- ⁱⁱⁱ Cities and Climate Change: An Urgent Agenda, The World Bank, 2010.
- ^{iv} C40 Cities, Fact sheet: Why Cities? www.live.c40cities.org
- ^v Submission of ICLEI-Local Governments for Sustainability on options and ways for further increasing level ambition FCCC/CP/2011/L.10 para. 8.
- ^{vi} Insight Report, Global Risks 2013, Eight Edition, World Economic Forum
- ^{vii} C40 Cities, Fact sheet: Why Cities? www.live.c40cities.org; Submission of ICLEI - Local Governments for sustainability on options and ways for further increasing level of ambition FCCC/CP/2011/L.10, para. 8.
- ^{viii} Climate Action in Megacities: C40 Cities Baseline and Opportunities Version 1.0 June 2011
- ^{ix} http://www.iclei.org/fileadmin/user_upload/documents/Global/News_Items/Documents/q_uotable_quotes_COP18.pdf; <http://www.worldmayorscouncil.org/press-room/news-detail/article//after-doha-we-need-a-global-coalition-of-the-willing-to-boost-local-actions.html>
- ^x Betsill and Bulkeley (2006), Cities and Multilevel Governance of Global Climate Change, Global Governance; Apr-Jun 2006; 12, 2; Research Library
- ^{xi} Literature review by Maike Sippel and Till Jenssen, 2009 What about local climate change governance? A review of promise and problems
- ^{xii} Kern et al. 2005, p94
- ^{xiii} H. Bulkeley (2010) Cities and the Governing of Climate Change, Annual Rev. Environment Resources 2010.35:229-53
- ^{xiv} Betsill and Bulkeley (2006), Cities and Multilevel Governance of Global Climate Change, Global Governance; Apr-Jun 2006; 12, 2; Research Library
- ^{xv} Interview with C40 Secretariat
- ^{xvi} Bulkeley, H., Schroeder, H., Janda, K., Zhao, J., Armstrong, A. Chu, S. Y. and Ghosh, S. (2009) Cities and Climate Change: the role of institutions, governance and urban planning. Report for the World Bank Urban Research Symposium: Cities and Climate Change.
- ^{xvii} Global Governance, Apr-June 2006; 12,2, Research Library pg. 141-159.
- ^{xviii} From Luque/Bulkeley literature review November 2012.
- ^{xix} www.iclei.org/climate-roadmap and <http://www.iclei.org/index.php?id=9639>
- ^{xx} <http://climate-catalogue.org/>
- ^{xxi} <http://www.wmsc2010.org/wp-content/uploads/2010/09/The-Pact-Final-181110.pdf>
- ^{xxii} <http://citiesclimateregistry.org/about-the-registry/>

^{xxiii} http://citiesclimateregistry.org/fileadmin/user_upload/cCCR/cCCR_November2012_Update/cCCR_November2012.pdf

^{xxiv} http://www.ghgprotocol.org/files/ghgp/GPC_PilotVersion_1.0_May2012_20120514.pdf

^{xxv} <http://c40.org/c40blog/expert-voices-abha-joshi-ghani-sector-manager-urban-development-and-local-government-unit-the-world-bank>

^{xxvi} Cities and Climate Change: An Urgent Agenda, The World Bank, December 2010, Vol. 10 lists more examples of supporting major cities in their GHG reduction efforts, cf. Chapter V - Support for Cities.

^{xxvii} Arikan, Y., et.al., 'carbonn Cities Climate Registry 2011 Annual Report', Bonn Center for Local Climate Action and Reporting– carbonn, Bonn, 2011

^{xxviii} http://citiesclimateregistry.org/fileadmin/user_upload/cCCR/cCCR_2011_Annual_Report/cCCR_annual_report_4pager_May_update_20120508_www.pdf

^{xxix} *Carbon Disclose Project (2012) Measurement for Management - CDP Cities 2012 Global report - Including special report on C40 Cities.*

^{xxx} See also Summary review of literature by Harriet Bulkeley and Andres Luque, January 2013.

^{xxxi} From Luque/Bulkeley literature review

^{xxxii} Ibid

^{xxxiii} Ibid

^{xxxiv} from Luque/Bulkeley literature review

^{xxxv} from Luque/Bulkeley literature review

^{xxxvi} The city interviews do not provide any information on this.

^{xxxvii} The city interviews do not provide sufficient data to include other networks in the assessment.

^{xxxviii} The interviews do not provide specific information on what the cities see as the main difference between the two networks' services or approach

^{xxxix} A research study from 2009 *Does global climate policy promote low-carbon cities? Lessons learned from the CDM* by Sippel and Michaelow.

^{xl} Maïke Sippel (2011) Urban GHG inventories, target setting and mitigation achievements: how German cities fail to outperform their country, IER - Institute of Energy Economics and Rational Energy Use, University Stuttgart, in *Greenhouse Gas Measurement & Management* 1/2011/pp.55-63

^{xli} Interview with Seth Schultz, C40 Director of Research

^{xlii} http://citiesclimateregistry.org/fileadmin/user_upload/cCCR/cCCR_2011_Annual_Report/cCCR_annual_report_4pager_May_update_20120508_www.pdf

^{xliii} *Carbon Disclose Project (2012) Measurement for Management - CDP Cities 2012 Global report - Including special report on C40 Cities.*

^{xliv} CIFF's impacts for climate change are defined by GHG abatement potential.

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