

David or Goliath: Engaging Cities and Citizens Towards the 2015 Paris Climate Negotiations

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Abstract

This paper looks at the increasing role of cities and sub-national governments leading up to the UN global climate negotiations in Paris in December 2015 (COP21) and its consequences for South-African local governments. In the vacuum created by the inability of national governments to reach a legally binding global agreement on emission reductions, cities and sub-national governments have taken on an increasingly important role. Cities were officially recognised during the Bali COP13 as government partners, and out of this, the Local Government Climate Roadmap was developed¹. Globally the important role of cities can be seen in three key areas 1) piloting local GHG reduction projects including energy efficiency projects 2) supporting development of renewable energy within their jurisdictions, 3) developing adaptation strategies to protect their citizens and cities from climate change impacts². Not since the Kyoto protocol (agreed 1997 and in force from 2005) have national governments been able to reach a legally binding international agreement on emissions reductions. International negotiations on new targets have stalled for a number of reasons, including questions around historic responsibility and the rights of emerging economies to catch-up in terms of economic growth. Cities are less fettered by such disagreements between nations and better positioned to develop locally appropriate solutions. Organizations representing local and sub-national government are increasingly active in this space, including, ICLEI and the organization of mayors C40. In South Africa the municipality of eThekweni (city of Durban) has developed an independent climate change strategy and Cape Town and the Western Cape Province have played a leading role in the development of renewable energy in South Africa through the Green Cape initiative³.

Considerable commitments by cities and sub-national governments have already been made. Examples include a 40% emission reduction agreement by the largest cities in Europe. In South Africa, the cities of Johannesburg, Durban and Cape Town through C40 push for strong action at the Paris COP and have published climate adaptation plans. In their global study of climate change governance at city level, Broto and Brockley (2012) argue that experimentation is a “.. key feature of urban response to Climate Change”⁴. Activities selected for experimentation are often in areas where mitigation or adaptation actions have ancillary benefits addressing a key societal problem in that particular municipality or region. This paper looks at examples from Europe and South Africa. It is hypothesized that the role of experimentation will be the same for South-African cities and subnational governments as it is for cities in Europe. Based on case studies these hypotheses will either be validated or rejected. This paper will draw on cases provided during an ICLEI event in Brussels (May/2015) and an EU Sustainable Energy Week event (“European Cities Driving the energy transition” (June/2015) and public information from the relevant South African cities.

Introduction

Already half of the world’s population lives in cities and by 2050 this is expected to rise to 70%⁵. Currently, a disproportionate amount of Green House Gas (GHG) emissions are generated by cities, estimated at 75%⁶ of global emissions. This higher percentage has to do with a number of factors including the concentration of industry but also the relatively high degree of wealth, and the GHG emissions related to a wealthier lifestyle⁷. Cities also have a greater potential to take action in reducing GHG emissions, not only because of the concentration of industry near cities, but also due to the possibilities that arise due to a higher population concentration. This includes things like the critical density for public transport infrastructure and economies of scale for collective projects like district heating. This paper will look at the different mitigation and adaptation activities or cities to decide upon and the possible ancillary benefits for the city.

2. Theoretical notions

The question is how do cities respond to the climate challenges? Research shows us that

¹ ICLEI, (April, 2015)

² Corfee-Morlot, J. et al. (2009)

³ Green Cape (April 2015)

⁴ Broto, V. C. & H. Buckley, (2013)

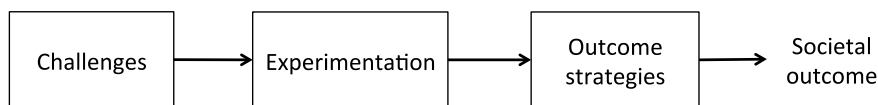
⁵ Immendoerfer, A, et.al. (2014)

⁶ Immendoerfer, A. et.al. (2014)

⁷ Corfee-Morlot, J. et al. (2009)

governments are more and more developing towards outcome-based approaches. The role of government is changing and governance is becoming more important than government.⁸ Outcome-based in the sense that the societal effect (climate adaptation) is the dominant focus. And therefore are prevalent above formal (traditional) bureaucratic systems. Schwella (2014) argues that effective governance and government benefits from many influences and inputs. These influences and inputs, in the form of evidence, information, knowledge and informed public participation contribute to the quality and legitimacy of government and its action. It makes clear the relevance of learning governance for effective and ethical leadership in governance.⁹ In order to be a learning governance system, cities should first be aware of the challenges and create experiments as to learn how to deal with these challenges. The result will be strategies for optimal societal outcome. In fact resulting in a governance learning process as shown in fig.1.

Fig. 1. The governance learning process



The learning process shows us that experimentation and strategies are key elements. Also Broto and Brockley (2012) come to this conclusion. In their global study of climate change governance at city level,) argue that experimentation is a “..key feature of urban response to Climate Change.¹⁰ What does this mean for cities facing considerable challenges while addressing climate adaptation issues? It is that cities have been playing an increasingly important role in addressing climate change, both in terms of mitigation and adaptation. Cities are able to adapt policies and actions to the specific situation in their region. Unlike national governments they tend to be closer to the actual implementation of projects and more able to adapt projects to the specific needs of their constituencies. Many climate mitigation solutions can also deliver social and economic benefits. Actions like electrification of transport or improved pedestrian, bike and public transport infrastructure have the ancillary benefits of a more livable city, for example cleaner air and safer streets for pedestrians and cyclists. Public transport projects have additional social benefits of providing access to work and markets for disadvantaged groups, while at the same time reducing traffic and travel times. The local context is extremely important in getting these solutions right. Consider for example just the geographic differences for bicycle plans in cities like Amsterdam, which is completely flat, and Cape Town, which barely has any flat areas at all.

Large cities (particularly in the global South) have a large low-income population, often living in densely populated, informal settlements around the periphery of the city. These residents are particularly vulnerable to issues like extreme weather and temperature incidents, food and water scarcity and other issues of poverty that are exacerbated by the effects of climate change. In most cases, cities are also the first point of responsibility for disaster relief in the event of floods and fires, so in this sense, some adaptation activities can be seen as prophylactic measures for disaster management.

Given their relative proximity to the actual implementation of projects, cities are able to experiment with different forms of mitigation and adaptation approaches. The experimentation is one of the important benefits of action at city level, as it provides opportunities for learning and collaboration, not only internally but also with other municipalities and other actors including the private sector, academia and NGO's. Cities in the EU and South Africa both have clearly defined local Policies and programmes to address climate change. The areas of focus for these policies, however, differ considerably. The

⁸ Bossert, (2008)

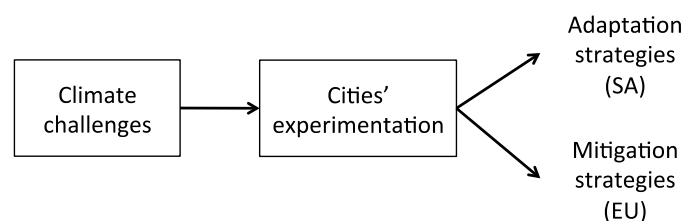
⁹ Schwella (2014)

¹⁰ Broto and Brockley (2012)

success of implementing programmes and policies related to climate change at a municipal level are driven in part by how effectively experimentation address the specific social challenges faced by their consistency.

European cities are short term less likely to suffer the ill effects of climate change and as such policies and practices are focussed more on mitigation than on adaptation. Drivers are the sense of collective responsibility to address climate change as well as the direct benefits of climate mitigation efforts (e.g. more liveable cities, due to less traffic congestion, cleaner air and shared mobility solutions). Therefore successful governance on municipal level implementation in the European context will use experimentation on mitigation strategies. As the poor, particularly in Africa, will be disproportionately affected by the impacts of climate change, addressing issues of adaptation is the most important component of climate change policy and practice in South African cities. Other issues, like susceptibility to extreme weather conditions and risks of fires and flooding in South Africa are key drivers of many policies and programmes in South African cities. Therefore successful governance on municipal level implementation in the African context will use experimentation on adaption strategies. Therefore it is hypothesized that whereas cities in the EU focus on mitigation, cities in African context focus on adaptation and to a lesser extent on mitigation. That leads to a conceptual model as shown in fig. 2.

Fig. 2. Conceptual model for governance of climate challenges



The model shows that South African cities will focus its experimentation more on adaptation activities and that European cities will focus more on mitigation activities. This assumption is based on the considerable differences between the two regions. However there are a number of similarities in approach and the process of experimentation is similar. This experimentation provides a rich source of inspiration, ideas, and test cases for other cities to replicate. Platforms both for sharing knowledge between different cities and for collective action among cities flourish. Examples of the former include Concerto, SCIS Smart Cities Information System (developed by CEPS) and The EU publication: Energy Solutions for Smart Cities...¹¹. Examples of the latter include the covenant of mayors, C40, ICLEI.

3. Case studies

Cities in Europe and South Africa face very different climate change related challenges, due to the different geographies, climates, national contexts, financial resources, and societal issues. Nonetheless, many of the climate mitigation and adaptation solutions are similar. This paper will look at the climate action of two European cities (Amsterdam and Bergen) and two South African cities (Cape Town and Durban) and the activities chosen for experimentation. This paper will draw on cases provided during an ICLEI event in Brussels (May/2015). These cities should not be seen as representative of all European or South African cities. They were selected on the basis of their clearly formulated and communicated set of climate activities and policies, and are seen as leading within the their respective regions.

¹¹ Immendoerfer (2014)

Case I: Amsterdam

Amsterdam, capital of The Netherlands, is a city of approximately 825,000 (greater Amsterdam 1,3 million) inhabitants. It has a moderate, wet climate, with few temperature extremes (AHS Heat Zone 2). Most of Amsterdam is also located at or even below sea level, but rarely suffers flooding due to the extensive and well maintained water management systems in the Netherlands. It is also a historical city, including the architecture of the central canal region, which is a world heritage site. This means there are strict regulation about building and preservation of historical buildings.

In presenting the drivers for sustainability, Amsterdam's alderman for sustainability, Abdeluheh Choho, explains that "...As Amsterdam continues to grow, we need to ensure that the city is stronger, easier and more enjoyable to live in, and a healthier place to be". The city sees its role as driving change together with partners to develop business models that demonstrate that sustainability pays, both financially and socially."¹² To this end the city focusses on projects that can be quickly scaled up. At the same time, they are also working to address the areas where they can have a direct impact, for example through their own emissions.

In its latest outline of sustainability measures (11 March 2015) Amsterdam announced its targets for 2020 with 20% less energy use by households and 20% more Energy produced from renewable sources locally. The three key areas of focus for this agenda are: 1) Sustainable energy, 2) Maximum possible emission-free vehicles/transport by 2025, and 3) Taking a leadership by example role in sustainability to drive further change.¹³

– Renewable Energy

The plans of the city focus on increasing production of renewable energy within the city. This includes solar on rooftops, but also supporting the development of larger solar parks and wind turbines in industrial areas and the harbour. While the placing of solar panels is already financially viable, the municipality is working on making the process easier and provides subsidies for both renewable energy and energy efficiency improvements. The target is to move from the current capacity providing electricity for 5,000 houses to 80,000 by 2020. The city also intends to connect more households, including existing buildings to district heating. From the current 62,000 households, the Municipality intends to connect 102,000 by 2020 and 230,000 by 2040. District heating in Amsterdam is primarily fed by waste heat from industry and Amsterdam's waste to energy installation (which produces both electricity and warm water).

– Low Emission Mobility

Already a leader in electric urban transport, the city plans to increase charging stations from the current 1,000 to 4,000 by 2025. The current rules prohibiting high-emitting large trucks from entering the central part of the city will be gradually expanded to include coaches (touring buses), taxis and other commercial transport vehicles. The city is also involved with the building a cargo transfer-hub at the edge of the city to allow for low-emission 'last-mile' delivery of goods. Additionally, all public transport buses will be emissions free by 2026. The key driver, for low emissions transport is not so much one based on climate change and CO2 emissions, but rather on reducing fine-particle soot emissions for healthier cleaner air. Aligned with this, Amsterdam has for many years worked to make the city less accessible to cars and more bike and pedestrian friendly. Bike use in Amsterdam is one of the highest in the world, and is used across all socio-economic groups. 60% of short trips are on bikes. BBikes are the most important mode

¹² Amsterdam (2015)

¹³ Amsterdam (2014)

of transport for short distances.

– Leadership Role

From the city's communication on sustainability it is clear that sustainability is not just a set of separate measures to address Climate Change, but rather sees it as an integral part of the city's culture and future success. "...We are a city with a large number of thinkers, doers, technicians, inventors, entrepreneurs and 'regular' citizens who invest their time, creativity, and hard work into making the city more sustainable"¹⁴ Amsterdam uses a mix of tools to reduce its environment impact and mitigate climate change. Direct impact is one tool, an example of this is their program to make Amsterdam's schools and municipal buildings more energy efficient and sustainable in terms of other aspects (e.g. water use). Behavioral change is a second area. This includes education to stimulate residents and local businesses to adopt more sustainable behavior (examples include recycling and roof-top and urban gardens). Behavioral changes are also stimulated through subsidies for example to residents for rooftop renewable energy production and insulation and other forms of energy efficiency. The third, and perhaps most important, is creating a conducive environment, and supportive infrastructure in which businesses with a low-carbon sustainable business model can thrive. Examples of this are car sharing options, and Amsterdam Electric program that supports the shift to electric transport for goods and people both on the roads and in the waterways of Amsterdam.

Amsterdam is a recognized as a front-runner in Europe in terms of sustainability and particularly in terms of climate mitigation. The documentation indicates that there are a number of drivers for this success, including the successful coupling of policy to the success of low carbon business models and sustainably entrepreneurship. The city has also successfully positioned low carbon measures as providing considerable benefits to its residents, including a safe and healthy environment (air pollution, traffic control) and a high quality of life (a livable city). A key contributor to the city's success is the broad support among inhabitants for these measures, both because of the ancillary benefits mentioned above but also from recognition of responsibility to take action on Climate Change and other environmental issues.

Case II: Bergen

Bergen is Norway's second largest city with a population of approximately 278,000 inhabitants. Located on Norway's West Coast, Bergen has a temperate oceanic climate with high precipitation. The climate is milder than other parts of Scandinavia (Köppen: Cfb) and higher areas of the city (Cfc). Located on the North Sea coast, it is an important port city and a popular destination for cruise ships. Bergen is striving for "carbon neutrality" and the key areas of activity are: Land use and transport, District heating, Consumption patterns and waste, Adaptation (risk analysis linked to extreme weather conditions, flooding risk).¹⁵

– Land Use and Transport

The Bergen Light Rail system is not only an ambitious public transport project, the project also recognizes the enabling factors that make for an efficient low-carbon transport solution, and specifically the concentration of buildings along the route. This system fits within the city's broader shift to low-carbon, low-emissions, electrification of transport. Bergen currently has electric buses, trains, trams, and even ferries. Private car use in Bergen continues to decline while public transport use and walking are on the rise. There is also an extensive network for charging zero-emissions vehicles, featuring the world's largest charging station. This year (2015) 35% of new cars sold are electric. Norway's grid is nearly 100% powered by low-emission hydropower. In terms of land-use policies, Bergen has focused on ensuring access to coastal and mountain nature areas

¹⁴ Amsterdam (2014)

¹⁵ Isager (2014)

providing inhabitants the benefit of easy access to, and thus valuing nature. Linked to this is efforts to avoid pollution in and destruction of these natural areas.

- District Heating
Oil has traditionally been the fuel of choice for heating in Norway. Bergen has introduced district-heating systems that have considerably reduced the use of oil in the region.
- Adaptation
As a coastal city, Bergen is particularly vulnerable to sea level rise. As such it has joined together with other North Sea coastal cities in the MARE initiative, to identify the risks and adaptation strategies related to climate change and subsequent sea level rise.¹⁶
- Driving Further Change through Collaboration
Bergen cooperates with businesses through the Climate Partners Horland initiative. This public-private partnership is the biggest of its kind including 14 businesses and engaging more than 40,000 employees.

Like Amsterdam, for Bergen creating a healthy (clean) livable city for its inhabitants is one of the key drivers of acceptance for climate change action. The city also explicitly recognizes an inherent (moral) responsibility to address climate change and see this in the context of ensuring a sustainable future with a human rights focus. On a policy level they are leading work on establishing a global charter to support this positioning.¹⁷

Case III: Cape Town

Cape Town is the second largest city in South Africa after Johannesburg, but approximately the same size as Durban. The inner city has a population of less than 500,000, but the greater metropolitan area has a population of over 3,4 million (Placeholder1). It has a mild Mediterranean climate (Koppen Csb). The area is rich in biodiversity, and is part of the Cape Floristic Region which is the most diverse on the planet. Located directly on the coast, Cape Town has a major harbour and would be significantly affected by sea level rise as well as other effects of climate change. Cape Town is second in South Africa in terms of GDP and GDP per capita, and while Cape Town has the lowest income disparity among major cities in South Africa, the difference between rich and poor is still extremely large compared to European cities or even other cities in developing countries.¹⁸ Like the rest of South Africa, the relatively small tax base in South Africa means that it has less discretionary income to dedicate to sustainability and climate change related projects. This combined with high levels of unemployment and poverty in the city mean the city is confronted with difficult trade-offs between social needs, economic concerns and broader environmental issues.

Cape Town produces an integrated annual report for the city, that looks at the activities and challenges of the city in an holistic way. Climate Change mitigation and adaptation activities are covered briefly in the report, predominately in relation to the activities of The Climate Change Committee¹⁹. The last extensive report on climate change activities in Cape Town was in 2011, *Moving Mountains, Cape Town's Action Plan for Energy and Climate Change*.

In this report, the activities were categorized according to four key criteria: low carbon, economic development, poverty alleviation and resilient city. The targets set can be considered in a number of key categories.

¹⁶ Trollip (2011)

¹⁷ Bergen (2008)

¹⁸ UN Habitat, (2014) , p. 21.

¹⁹ Cape Town (2014) , pg 64.

- **Reduce Energy Consumption**
The 2011 plan included targets for reducing overall energy consumption in the city by 10% relative to growth by 2012. Some of this work has been continued in collaboration with the private sector through the Energy Efficiency Forum. Much of the work focusses on more energy efficient buildings. With the increasingly frequent energy shortage throughout South Africa and subsequent scheduled blackouts or 'load shedding' this topic has gained interest and momentum. An additional area of reduction focused on municipal buildings with a 10% reduction, also by 2012. The city launched an internal communication campaign to support this program and further raise awareness among employees. As the largest employer in Cape Town in this program had the potential to engage a large number of employees and their families.²⁰

- **Renewable Energy**
Together with the government of the Western Cape Province the city of Cape Town established the GreenCape Initiative to promote the development of a green economy in the region. In this capacity GreenCape facilitates better cooperation between government, academia and business and supporting the development of new renewable energy, energy efficiency or resource efficiency initiatives. The initiative also aims to foster innovation and economic development in this field thereby driving job growth. Cape Town is also active in the deployment of low-cost solar water heaters to communities that currently do not have sufficient access to warm water. The Kuyasa solar water heater project, in the informal settlement of Khayelitsha is an example of this., and more recently, a project in Joe Slovo.

- **Public Transport**
Public transport (mainly buses) has been a priority for Cape Town as this has a triple effect. It provides access to work and markets (particularly for lower income people without a car), reduces congestion on roads and thereby reduces air pollution and CO2 emissions, and saves emissions through more efficient resources (buses rather than cars). In a period of just two years, The MyCiti bus program has rolled out bus lines connecting many areas of the city and includes dedicated bus lanes making connection times often faster than with a car. An effort is also being made to create an infrastructure for non-motorized transportation such as walking and cycling.

- **Adaptation and Resilience**
Cape Town has a number of areas vulnerable to climate change. Located on the coast, the city is vulnerable to sea level rises and extreme weather conditions. The surrounding fynbos areas are often subject to veld fires, and the low-lying Cape Flats area is regularly flooded. Furthermore, the high level of poverty in parts of Cape Town, mean there are large communities that are more vulnerable to the risks of climate change, including such things as water and food scarcity. Addressing these issues has both a climate change and social aspect.

Case IV: e-Thekwini Municipality (city of Durban)

The municipality of e-Thekwini, which includes the city of Durban is approximately the same size as Cape Town and more or less tied as the second most populous city in South Africa after Johannesburg. There are 600,000 people living in the city itself and 3.4 million in the greater metro area. It is the capital of KwaZulu-Natal province and has a large industrial base second only to Johannesburg. Durban is located on the coast of South Africa on the Indian Ocean. Due to the warm currents, Durban has a humid, sub-tropical climate (Koppen Cfa). It has a major harbor, and its location on the coast means it is particularly susceptible to problems related to climate change, including sea level rise and extreme tropical storms.

²⁰ Cape Town (2014)

In September 2014, the energy office of e-Thekwini released a draft climate change strategy for consultation. This policy identified 10 key themes related to Climate Change and formulated goals for each theme. These included a combination of adaptation and mitigation activities. The key mitigation themes were: water, sea-level rise, bio-diversity, food security, health. The mitigation related themes include: energy, waste and pollution, transport and economic development. A final theme is around contributing to knowledge generation and understanding.²¹ The report provides an analysis of the risks for each theme, an overall vision, and goals objectives and proposed responses for each areas. It also gives some top line thoughts on implementing the strategy and thoughts on monitoring and evaluation. At the writing of this paper, the strategy was still in consultation draft form.

Previously, as host of the World Cup 2010, the Greening Durban 2010 program was established to fulfill the city's commitment to run the event "Climate Neutral". This was predominately achieved through a reforestation project, but there were other energy and resource efficient aspects to the design and construction of the football stadium. As host of COP 17, UN Climate Change Negotiations in December 2011, Durban also undertook a large number of activities to make the city more environmentally sustainable, with a particular focus on climate. Although driven by the KwaZulu Natal provincial government, KZN Green Growth is a program that supports information sharing and investment in green growth within the province, including supporting knowledge sharing through conferences and the implementation of renewable energy projects through information provision and financial incentives. One of the goals of a special economic zone near Durban is listed as "building an iconic reputation as a green city".

4. Conclusions and discussion

In the original theoretical framework, it was assumed that the South African cities would experiment more with adaptation measures and the European cities would experiment more with mitigation activities due to South African cities being more susceptible to the ill-effects of Climate Change. The research, however, has not supported this hypothesis. Both European cities and South African cities have a mix of mitigation and adaptation activities, but both have a prevalence of mitigation activities.

There are a number of factors that may contribute to this. Adaptation activities may not necessarily be classified as such. For example, activities around water management or fire prevention may not necessarily be seen as being climate adaptation activities, but rather measures taken to deal with the short term risks of flooding or fire, without considering the likely longer term increase in these problems linked to climate induced extreme weather conditions or water scarcity. Particularly in the South African cities where the sustainability departments are quite small and activities limited, these activities may not be communicated in this context.

What does seem to emerge in both the European and African cities is that activities that contribute to broader social issues and the well being of inhabitants tend to be most common. This can be anything from access to work for poor communities to energy access for those suffering from a degree of energy poverty. These were important factors particularly for the South African cities. In European cities climate initiatives that also addressed air quality, health and quality of life, were common. In all four cities, activities were deployed that positioned the cities as innovative and progressive. All four also had activities that supported economic development in the city linked to climate innovation and so called green growth. Although not explored explicitly in the research, the relatively long time frames for many climate adaptation projects, and the lack of short-term ancillary benefits may be one of the reasons that there is less experimentation with this type of activities. This is particularly true

²¹ Ethekwini (2015)

in South Africa where these activities compete for budget with other pressing social and economic problems (e.g. poverty, AIDS, and health care to name just a few).

Our conceptual model assumed that from experimentation the cities were able to develop outcome strategies as to meet the challenges. From the case studies the idea emerges that in practice it is not working like that. It is therefore recommendable to look more in depth in decision-making processes. Probably complex decision-making processes have been playing a role. This paper does not specifically look at the decision-making processes, i.e. the drivers for the choices made (for example by interviewing decision makers), nor does it look in detail at the process of sharing information between municipalities. However they seemed to be important. All of these would be interesting topic for subsequent research.

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