Mistra Urban Futures
International Pilot Project
Cape Town
Phase 1 Output: Baseline Report
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Dr Mary Lawhon

0A. Introduction

This report provides a reflection on and assessment of governance, policy and knowledge in urban sustainability in Cape Town. The aim is to inform a comparative review of the governance of and policy regarding urban sustainability across the Mistra Urban Futures Local Interaction Platforms (LIP). The CTLIP is designed around a Knowledge Transfer Programme (KTP), which is a partnership programme with the municipal government, the City of Cape Town[1]. The KTP is intended to complement the IP project, and the research being undertaken and partnerships developed in the KTP informs this research. This is intended to be an internal report for comparative purposes. The baseline of environmental policy in CT – and the kinds of knowledges and stakeholder/governance arrangements that are shaping the baseline. The next step is to look at the gap bet policy and practice. But, can only understand this from a good understanding of the base – to assess the rigour and robustness of the baseline – as it ultimately shapes the transition pathways.

The CTLIP is aimed at creating knowledge platforms that straddle the researcher-practitioner divide with the objective of developing knowledge partnerships that are better positioned to provide policy responses to and more empirically grounded research findings on complex urban sustainability challenges. As part of the KTP, four academic researchers are and will be embedded in the City for seven months per year over the three year period. These researchers are working on policy areas that complement MUF's GREEN, FAIR and DENSE focus areas, with the researchers contributing towards the following policy areas: Climate Change, Green Economy, Spatial Economy, and Energy Governance.

Policies in these four areas are critical to the long-term sustainability of Cape Town and are linked to rapidly evolving global themes, complex in origin,

[1] We have adopted the terminology common in government documents, in which The City of Cape Town (or 'the City') refers to the City administration, including elected councillors, responsible for the development and local administration of the city.

The city of Cape Town (or 'the city') refers to the geographical area that is administered by the City of Cape Town, and includes its physical elements as well as all the people who are living and active in it.

lacking easy solutions, contested, and beyond the remit of historical urban governance. Importantly, each policy area highlights different aspects of the link between governance, policy and knowledge. Each exemplifies the City's approach in different ways, but each also presents particular challenges for generalising about sustainability governance.

A further point important to note before addressing the specific IPP questions is an often repeated comment about the link between policy and action. In sum, when reflecting on the broader IPP questions, the four embedded researchers and officials consistently note a gap between formal policy, decision-making and action. While South Africa in general and Cape Town in particularly is widely reputed to have progressive formal policies, an analysis of formal policy misses much of what actually is occurring in cities.

This gap was well illustrated fifteen years ago in McDonald's (1997) paper "Neither from above nor from below: municipal bureaucrats and environmental policy in Cape Town, South Africa" and some of the key findings remain seemingly relevant today. In this article, McDonald draws attention to progressive post-apartheid environmental policies. He then questions why, in this context, there is limited change. He suggests that part of this problem lies with the continuity in everyday practice before and after apartheid on the part of municipal bureaucrats. In short, during the negotiations over the apartheid transition, most bureaucrats were given sunset clauses which allowed them to carry on working in the City for five to ten years (although there was also attrition of 'experts' via retirement and restructuring). McDonald suggests that understanding the ideology of these bureaucrats is important for understanding the limited interaction between policy and practice. Questions were asked by McDonald regarding what interviewees understand by by the term "environment", as well as "factual" questions to gauge knowledge about "brown" environmental issues, and basic demographic information. The results of this study are provocative, and certainly point towards questions which would be useful to repeat, and differ significantly from the often repeated concern in South Africa that the lack of policy implementation is a question of (in)capacity.

Fifteen years after this article and nearly twenty after the formal end of apartheid there is clearly a need to understand the extent to which his point remains valid, and whether there are new, alternative ideologies and explanations which can help explain the gap between policy and practice. For example, in reflecting on the questions set in the Mistra IPP programme, some stakeholders suggested that the environment is not clearly understood or seen as important. This explanation differs from the findings in the mid 1990s, but leads to similar concerns with the gaps between policy and decision-making being rooted in the particular ideology of individual officials. There are guidelines and policies intended to shape governance, but there are many activities that are not really covered by guidelines and policies. Its also difficult/impossible to enforce policies (e.g. IMEP) on other departments, and there are numerous potentially conflicting policies and strategies in the city. While addressing these issues is outside the scope of this report, it is important to keep in mind as framing for understanding sustainability policy

and its limitations in the city.

Further, while in this report as well as more generally we often refer to “the City”, it is important to remember that the municipal government is composed of various departments and individuals. Certainly there are divisions and disagreements within any such organization. We attempt to keep this in mind and specify documents or department or individuals when making claims.

Given this context, in this report we are mindful of the gaps between formal policy, policy as practice, and the contradictory aims of different formal policies and mandates.

0B. Method

This report has been produced largely through a review of the literature produced by academics and formal, publicly available reports by the City of Cape Town. The synthesis was done by a part-time researcher (IPP coordinator) from 1 September to 10 December 2012. The exemplary activities identified in Section 4 are based on the embedded research process conducted by the four PhD researchers. These researchers began their first placement at the City in April 2012, and the KTP was officially launched in July 2012. The work contained in this report therefore reflects research and reflexive observations over this period.

Thus, the report includes reflections from the researchers and key stakeholders in the City, although these have largely been collected as part of the embedded research process. The stakeholders engaged were primarily the officials listed below in Output 1 as well as officials engaged through the embedded researchers. This is intended to be followed up in Phase 2 with specific interviews for the IPP. In conversations with stakeholders early in the process about the questions the IP Project sought to address, the IPP coordinator was pointed to documentation already produced by the City which outlines the official response to these questions. In light of the difficulty organizing events such as workshops, limited budget, limited time of researchers and stakeholders and a general research fatigue in Cape Town (including the fact that the MUF KTP project team had already conducted a workshop on co-production midyear), we have sought to develop this report largely based on existing documentation.

Policy makers were involved in the production of this report in two key ways. First, much of the information regarding the exemplary activities is based on insights gathered through the four embedded researchers, PhD students at the University of Cape Town. The findings in Section 4 are based on data collected between April and November 2012 through participant observation while working in the City of Cape Town, as well as previous experiences on the part of many of the embedded researchers. This institutional arrangement has made it possible to become embedded in the work the City is doing, to work closely with the people involved, participate in meetings, conduct interviews, access documents, and learn first-hand what dynamics are shaping urban policy activities being undertaken within the City. By triangulating between the data captured through the application of the multiple

methods (i.e. semi-structured interviews, focus groups, participant observation and documentary research) the reliability and validity of the findings are enhanced. City officials were therefore engaged on a continuous process, including through everyday interactions as well as formal interviews.

Second, this report was reviewed by Amy Davidson (State of the Environment and Sustainability co-ordinator in the Environment Resource Management Department at the City of Cape Town) as well as the Project Advisory Committee and Project Steering Committee of the CTLIP. Comments were then incorporated into this report.

Importantly, the answers to all the questions asked are not neutral or straightforward, and would vary depending on who is asked. For this reason, we often make use of quotations in order to provide our readers with a sense of the tone and direct content in these reports and academic texts. We see scope for providing more detailed assessment, disarticulating different positions and critiquing the findings of this baseline report as we engage in the research in upcoming years during the interviews, focus groups and workshop for Phase 2. The indicative questions suggested for Phase 2 have much in common with the questions here, and therefore we see these as continuing to inform this report.

In this report, therefore, we seek to provide what are clearly subjective and partial answers and highlight areas for future investigation. Below, we provide what certain reports indicate these issues are, highlighting the particular frames that are used. We expect that Phase 2 of the report will seek to disaggregate these to identify more clearly whose subjectivities are expressed when and where. We seek to more fully develop the frames along the lines of Entman's (1993) well-cited notion of 'framing'.[2] By 'culling a few elements of perceived reality and assembling a narrative that highlights connections among them to promote a particular interpretation' (Entman 2007: 164), narratives enable or constrain particular social explanations. Thus, we seek to draw attention to the explicit and implicit construction of problems and solutions in particular policy documents, and recognize that these are not objective nor the only way in which a narrative could be constructed.

Output 1: Names of stakeholders and a short account of their organisational positions and responsibilities

Here we list the key individuals involved in the Project Steering Committee and the Project Advisory Committee. The embedded researchers and their city counterparts constitute the Project Advisory Committee for the project – which meets quarterly to align operational concerns. Furthermore, the Project Steering Committee is the governing body responsible for strategic input into the activities of the PAC and the embedded researcher partnership. The PSC

[2] This suggest that narratives construct particular forms of (1) problem definition; (2) causal diagnosis; (3) moral judgment; and (4) prescribed solutions. While this commentary has often been used for media analysis, governments also frame issues- and consequently shape the range of possible solutions.

is co-chaired between the City and ACC, with additional membership from the private sector.

These individuals have been involved in the establishment and implementation of the LIP, KTP and IPP. They are closely aligned with the four exemplary areas outlined below. These are not the only senior officials involved in sustainability governance. We seek to expand this list of stakeholders in Phase 2, detailed below in Section 6.

Osman Asmal – City of Cape Town – Director: Environmental Resource Management – ERMD is responsible for work on a number of key environmental issues, including biodiversity management, environmental and heritage management, environmental capacity building, sustainable livelihoods and communications, environmental management systems, environmental strategy and partnerships, major environmental programmes and projects and resource conservation. ERMD's vision is to ensure that sustainable and equitable development is combined with sound environmental practice for a healthy local environment, which sustains people and nature, provides protection for our unique resources and results in an enhanced quality of life for all.

Catherine Stone – City of Cape Town – Director: Spatial Planning and Urban Design and Norah Walker Manager: Metropolitan Spatial Planning. SPUD is a strategy, policy and planning department that guides the spatial and physical transformation of Cape Town towards a more sustainable, productive and inclusive future. The Department has a unique non-sectoral role to play, tasked with establishing a spatial vision for Cape Town, driving the development of mechanisms to achieve this vision and interactively integrating and balancing the various requirements of different sectors within the City of Cape Town as well as external stakeholders (such as Housing, Transport, Utilities and Economic Development) impacting on and influencing the spatial organisation, growth, form and performance of Cape Town.

Gregg Oelofse – City of Cape Town – Head of Environmental Policy and Strategy, Environmental Resource Management Department. Responsible for policy development and the strategic direction taken in managing the city's environmental resources and environmental risks, including adapting to risks posed by climate change, especially in the city's coastal zone.

Sarah Ward – City of Cape Town – Head of Energy and Climate Change Unit within the Environmental Resource Management Department, heads up the mitigation planning and activities being undertaken within the City, notably around increasing energy efficiency and securing renewable sources of electricity for use within the city.

Susan Mosdell – City of Cape Town – Manager: Property, Environmental & Planning Law Unit – this unit provides specialised legal advice and litigation support with regard to all legal matters in the City which are property, planning or environment related. All four professional staff are admitted attorneys, and Susan has recently completed her masters degree in environmental law.

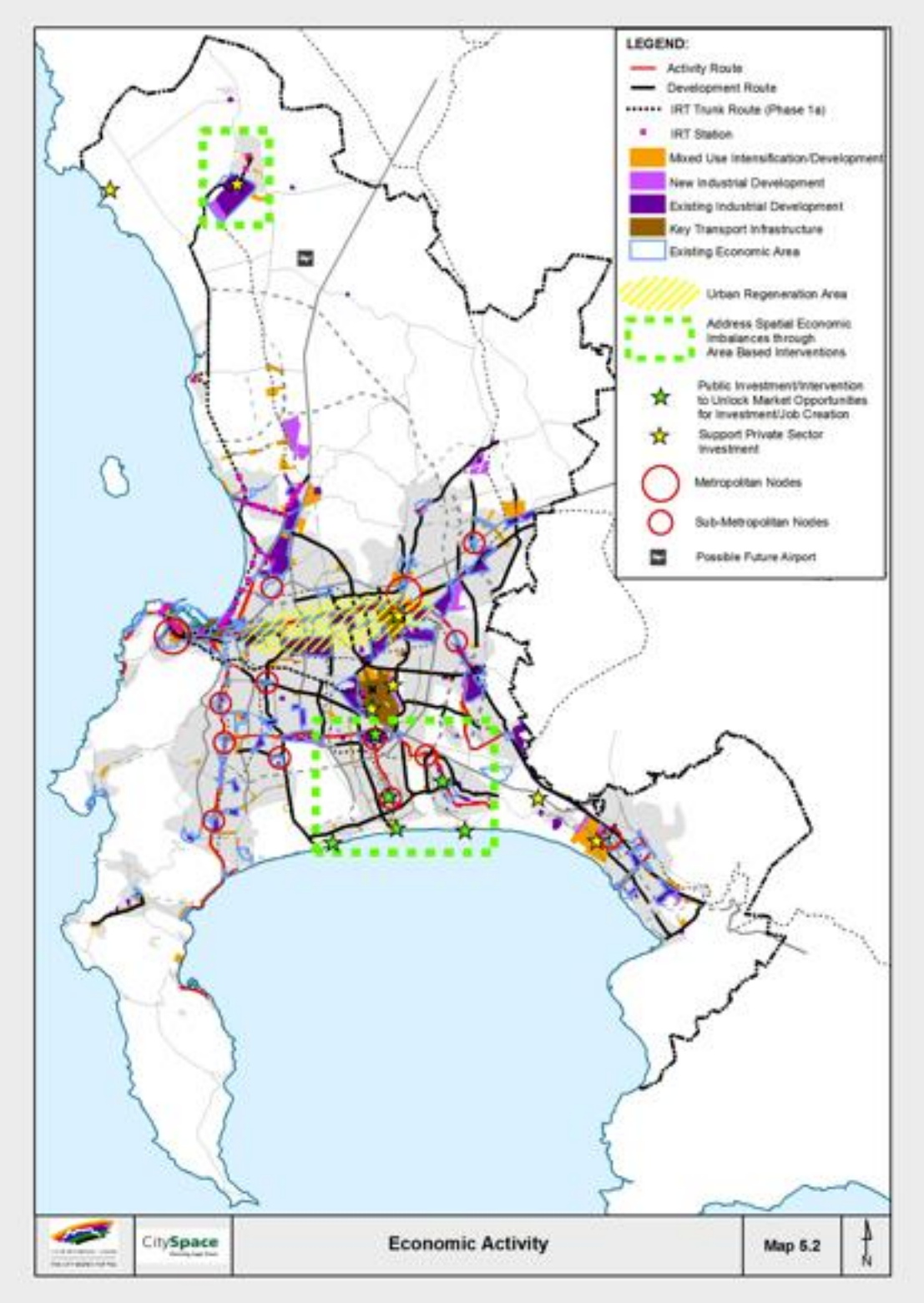
Thembinkosi Siganda – City of Cape Town – Director: Economic Development – this department is tasked with the responsibility of promoting economic growth, job creation, reducing poverty and monitoring inequalities. The department does this through a number of projects and programmes, such as Investment Promotion, Cape Town Entrepreneurship Week, Cape Town Activa, informal trading and business support facilities framework and local area economic development programmes.

Output 2: Scale of Project

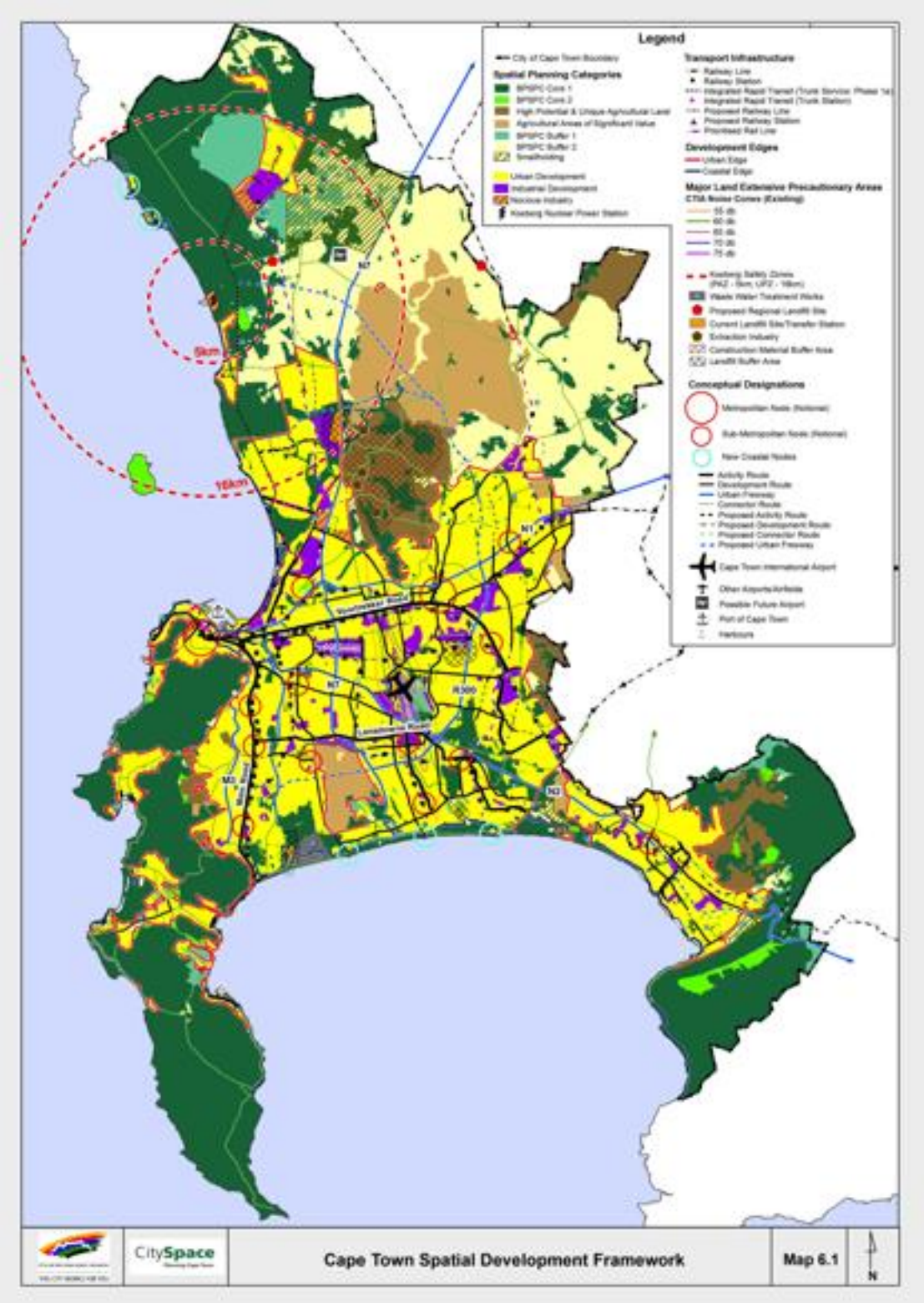
The IPP examines Cape Town as defined by its municipal boundaries. The rationale for this is that most policies which we focus on were established by the City and most research also uses this scale. During the apartheid era, the region consisted of twenty-five different municipalities, each with their own administrative structure. In 2000, after extensive negotiations, these were joined together into the Cape Town Unicity. It covers a geographical area of 2 461 km^2 and the most recent census (2011) suggests that the city has around 3.74 millions residents, just over a million households and is growing at a rate of about three percent. The city government itself has 25 000 staff members and a R22 billion budget according to the 2012-2017 IDP[3].

Cape Town's dominant urban form is two axes of historically white development, running south and east of the CBD. Between these is the "economically, spatially, climatically, topographically and geologically disadvantaged wedge that lies between the two existing high income development axes" (Huchzermeyer 2003, p. 121). The Cape Flats include many high density areas, including both blocks of flats and informal shack settlements, while historically white areas are much lower in density. According to the 2010 State of Cape Town report, "Cape Town's average population density is low, at 39 persons per hectare, and varies between 100 and 150 in the shack areas of Khayelitsha and between four and 12 in the former white suburbs" (CCT, 2010, p. 90). The two maps (Figures 1 & 2) below illustrate economic activity and the Spatial Development Framework which is intended to inform future spatial planning.

[3] The Integrated Development Plan is a form of urban management intended to integrate the actions of line function departments and the different spheres of government. Although they are a South African intervention, they are based on international thinking in the late 1990s.



(Figure 1: Economic Activity in Cape Town, from State of Cape Town, 2010)



(Figure 2: Cape Town SDF, from State of Cape Town, 2010)

Of course, the city is networked to the region and globe in various ways, including in terms of resource flows. The city has rather high rates of resource consumption, particularly for being in the global South. Cape Town's carbon footprint is relatively high at 7.8 t CO_2 per capita per annum, and – along with the rest of South Africa – it suffers from energy insecurity.

Resource flows, their quantity, change and long term sustainability have been a key focus of work by the Sustainability Institute, and in particular Mark Swilling at Stellenbosch University. Swilling (2010, p 197-8) notes estimates that "for the period 1996–8 Cape Town consumed 365 million tons of 'raw materials' per annum, and disposed 208 million tons of wastes into local water, air and land sinks (Gasson, 2002, p. 5)... When compared with other cities in the developed world and many in the developing world, the resource flows citied above per capita are some of the highest in the world." Thus while we focus in this report on policy at the municipal scale, this is within important context of resource limitations and wider linkages to global economic trends, national policy, etc.

Output 3: Baseline Assessment
In this section, we seek to provide a baseline of what is known about sustainability and its governance in Cape Town. As noted above, it is based primarily on existing academic and gray literature.

Importantly, we reiterate that answering these questions is a subjective process. There is no single definition of sustainability, and there is clearly disagreement over what the key challenges are and how they ought to be addressed- as well as who should be responsible for addressing (and funding) them. In this section therefore we point to some answers from City documents as well as academics with the aim of suggesting some of the ways different actors respond to similar prompts.

Additional important baseline information is provided in Appendix A, results from the 2011 national census.

3.1 What sustainability challenges are faced in Cape Town?
Sustainability as a term and concept has a complex lineage and is used in varying ways and contexts. Thus, defining the sustainability challenges in Cape Town depends on the definition, and particularly the extent to which one considers social, economic and environmental sustainability together, or considers primarily environmental sustainability. Further, identifying the challenges is a subjective process, and therefore it is important to identify who identifies what challenges. Regardless of how one defines the term- and unless one rejects the concept or term (see Swyngedouw and Heynen, 2003)- there clearly are numerous sustainability challenges in South Africa (O'Riordan et al, 2000) and specifically in Cape Town. In this assessment, we consider sustainability broadly and therefore draw on views on social,

economic and environmental sustainability, although with a greater focus on the latter. We emphasize issues related to the Mistra focus points of green, dense and fair. We also seek to identify who uses these terms and what is and is not included and emphasised when these terms are used.

3.1.1 Key challenges: world city, or fair city?

Broadly put, many academics have noted that a major challenge facing Cape Town is its desire to become a globally competitive World City whilst overcoming historical challenges of inequality (cf Wilkinson, 2000; Lemanski, 2007). These two points often work against each other, drawing resources in different and at times even contradictory ways. More specifically, Cape Town has sought to position itself as a global leader in tourism, design and technology and the governance requirements of this compete with efforts for service delivery and job creation. As Wilkinson suggests, “despite the rhetoric embodied in the IDP, there is as yet no coherent framing of the key objectives that direction or regulation of the city's development trajectory should be seeking to promote which has been generally accepted among the city's key developmental "stakeholders". It seems self-evident that commitments such as that to alleviating poverty will be likely to sit somewhat uneasily alongside, for instance, the commitment to promoting tourism as development priorities and that, inevitably, some trading-off between them will be required” (Wilkinson, 2004, 228). While this statement is now a decade old, the ambiguity remains salient. As pressures arise for funding for projects for the 2014 World Design Capital[4], these pressures are all the more relevant.

McDonald (2008) succinctly defines and critiques this focus- calling it "world city syndrome" - as “a desire on the part of Cape Town's politicians, bureaucrats and business elites to make it a "world-class" city which attracts foreign capital and transnational managers in an effort to boost growth and put Cape Town on the international map... by spending billions of rand on homogenous social and built environments deemed necessary to be internationally competitive, Cape Town's decision makers have allocated the lion's share of the city's resources for the benefit of a few, leaving two-thirds of the city's population struggling in varying degrees of poverty[5].” (McDonald, 2008b, no page; see also McDonald 2008a). A useful example of the City’s commentary on Cape Town’s world city status can be found in its description of related awards, most of which identify the city as beautiful and a popular tourism site (CoCT 2008).

As Lemanski (2007) notes, spatial and social inequality is deepening in Cape Town. At the national scale as well as in Cape Town, one of the key urban governance debates is that of service delivery. A key aspect of this debate is whether services should be of the same standard for all parts of the city, or whether differentiated services may be legal, ethical and politically palatable (Jaglin, 2008). Doesn’t service delivery need staging geographically for practical logistical and affordability reasons? A further critical question is around cost recovery. Currently there is complicated cross-subsidies for

[4] For more information, see: http://www.capetown2014.co.za/

[5] Comment: This is interesting, in light of the Mayor’s speech this week which said that over half of the city’s budget is allocated to the poor.

different services.

Generally, low income consumers are subsidized for all services, and households are intended to receive a free basic allocation of key services such as water and electricity. Households in Cape Town receive 6 free kl per month. Also, if a household uses less than 400kWh of electricity per month, they receive 50kWh free. The City does this as they feel that indigent registers are not an effective way to provide basic services, as people often "fall through the cracks". However, contestation remains over these quantities and the broader funding scheme, and this area is a key focal point for urban research in South Africa generally and Cape Town in particular (Jaglin, 2008; Smith and Vawda, 2003; Smith, 2004; McDonald, 2010). Although we are unsure of any specific modeling, the new Development Charges policy process will involve the modeling of infrastructure costs in the city.

It remains unclear to what extent either of these two goals- world city and/or fair city- complements or contradicts sustainable urban development. Clearly, an unsustainable environment will limit the ability to deliver services, especially in light of the work of the Sustainability Institute which assesses ecological limits. While Cape Town's efforts to become a "world city" include some aspects of greening, these are rarely contextualized within broader conversations of urban sustainability.

3.1.2 Narratives of on sustainability challenges

According to the State of Cape Town, (CCT, 2010, p 29) "the key challenges for Cape Town" include the following:

- Rapid urbanisation and the increased need for access to basic municipal services (while also maintaining the existing urban infrastructure)
- The challenge of youth unemployment, and the need for improvements across the education system to produce – at scale – quality graduates who are better able to meet the needs of the future Cape Town economy
- An ongoing need to address social and economic inequality, and for measures that will advance social cohesion and aid the integration of marginalised communities with the city by, for example: – creating employment opportunities for unskilled, low-skilled and semi-skilled workers through, for example, creating an enabling environment for job creation in the informal and the small, medium and micro-sized enterprise (SMME) sectors; and – bringing socially and spatially marginalised communities closer to work opportunities by facilitating more compact and mixed-use urban growth, with people able to transfer seamlessly between work and living (and shopping and leisure) spaces via high quality public transport
- Ongoing tension between the need for developable land and the conservation of natural and cultural landscapes that help shape Cape Town's identity
- Being prepared for the effects of climate change – including the potential negative impacts on water and food security – as well as the energy security challenges in a 'post oil' world."

This report largely frames Cape Town's challenges as those of development-

the need to expand opportunities for the poor within environmental constraints.

Wilkinson's (2000, p 203) summary provides a somewhat more detailed version which, while more than ten years old, we suggest largely covers contemporary key concerns:

- facilitating expansion and diversification of the local economy to create sufficient employment opportunities for its growing population;
- providing and servicing sufficient appropriately located land for low income settlement within the constraints of available public subsidies;
- establishing an efficient and effective public transport system to meet the commuting and other movement needs of the large sector of the population which is without access to private transport;
- promoting private and public sector investment in higher order social and commercial facilities in those areas, particularly on the Cape Flats, from which they have so far been excluded or to which they have yet to be drawn "spontaneously";
- effectively containing, and then reversing, tendencies for the city to become less safe and less clean wherever they emerge and not merely in those areas able to afford privatised initiatives in this regard;
- restraining lateral expansion of the city into areas of high agricultural or amenity value – in particular, the "sprawl" associated with higher income suburban development; and
- effectively protecting conservation- worthy elements of the natural and built environments.

A more succinct articulation from political economist David McDonald (1998, p) who has worked in Cape Town since the mid-1990s: "The delivery of basic services like sewerage and sanitation is arguably the single most important environmental concern in the country - by virtue of the fact that it directly affects the largest number of people - but it is unclear whether current urban upgrading initiatives are going to address this problem in an environmentally just and sustainable manner."

These three versions illustrate varying positions on the challenges. Importantly, the goal of creating a "world class city" is not framed as part of the challenge, but instead is often implicity in discussions on opportunities and the future of Cape Town. To some extent, this reinforces the sense in which inequality and the poor are "a problem" - although much of policy (and particularly environmental sustainability policy) is not focused on responding to issues of inequality (although the IMEP 2009-2014 specifically considers this).

3.2. What are the policies used to meet these challenges?

Formal policies relevant to sustainability are developed in various sectors, and most policy in some way may be related to sustainable urban governance. To provide a focus, here we examine the environmental policies and spatial development policies which explicitly relate to the focus areas of Green, Fair and Dense and are related to the four exemplary activities discussed below. While we realize there is some arbitrariness to the distinction of these two

categories, we use these as the main categories which the City uses to label such policies.

We suggest that Phase 2 of the IPP process will more clearly examine how these policies support, reinforce or contradict one another.

3.2.1 Environmental policies
A full list of environmental regulations can be found on the City of Cape Town's website:
http://www.capetown.gov.za/EN/ENVIRONMENTALRESOURCEMANAGEMENT/PUBLICATIONS/Pages/EnviromentalLegislation.aspx

Key policy documents and publications from the City include:

- Integrated Development Plan (2012-2017)
- Spatial Development Framework (2012)
- Integrated Metropolitan Environmental Policy (2001)
- Environmental Agenda 2009 - 2014
- State of Cape Town 2010
- State of the Environment 2010

State of the Environment- Cape Town was produced by the City's Environmental Resource Management Department. It based on data that the City collects to monitor its environmental performance in a range of sectors. It works within the framework provided by national and provincial government and also develops its own policies to meet these challenges. South Africa has a progressive constitution and has been rather prolific in the production of policy post-apartheid. At the national scale, the Environment Conservation Act (ECA), Act 73 of 1989 was followed after 1994 by the National Environmental Management Act (NEMA), Act 107 of 1998. Subsequently, more specific acts have addressed particular aspects of environmental management, such as the National Environmental Management: Protected Areas Act, Act 57 of 2003 and the National Environmental Management: Waste Act, Act 59 of 2008.

Rather than levels, scales or tiers, in South Africa the different parts of government are called "spheres". Constitutionally, the three spheres of government are meant to be three independent spheres, not levels or tiers. While policy does cascade from National to Local, decision making rests entirely within each individual sphere, within the context of their mandates.. The second sphere is the provincial sphere, and the Democratic Alliance, the most significant opposition party in the post-apartheid era, recently took power from the African National Congress in the Western Cape. The Western Cape adopted the Western Cape Environmental Implementation Plan in November 2002.

Cape Town itself is known in South Africa as one of the key sites for the enforcement of existing national regulation as well as the development and implementation of additional environmental regulation. According to Crane and Swilling (2008, p 267) "no other province or city in South Africa has more policies on environmental conservation and sustainable resource use than the Western Cape Provincial Government (PGWC) and the City of Cape Town

(CCT)."

The City largely follows international trends in terms of adopting the language of sustainable development, sustainability and, increasingly, resilience, in its formal reports. In the majority of publications generated by the City, sustainability is either cast as "sustainable development" or environmental sustainability. For example, the IMEP from 2001 uses the term sustainable development, while the more recent State of the Environment Report (2009) refers to environmental sustainability. In the introduction, readers are pointed to the State of the City report to find social and economic reporting. The State of the City report does, however, include a more cursory overview of environmental issues (which is then detailed in the SoE report). Language of "resilience" enters the SoCT 2010 which refers to the resilience of the economy, environment and people.

The State of the Environment report is produced annually and comparative data is included for every indicator, going back as far as data is available. Each SoER contains the full set of data available. However, the year covered has shifted, creating some challenges for comparison. Significantly, the information included in these reports appears to be increasing in quality and specificity. In this report, where local standards do not exist to evaluate the South African indicators, British or WHO standards are applied these international standards were often used by the City for self-assessment, prior to the development of South African standards. The State of the Environment report presents the following key issues which we have grouped into key themes: i) air quality, carbon dioxide footprint, ii) biodiversity, invasive alien species, access to nature, iii) wastewater, freshwater quality, coastal water quality, water use iv) solid waste. These indicators were developed based on previous reports, international practice and public consultation.

Cape Town is largely framed as facing similar challenges to the rest of the world. These challenges are seen as ubiquitous, without clear distinctions between the challenges of cities in the global North and South. A notable exception to this is in reference to Cape Town's biodiversity- the fynbos and its ecological requirements. Interestingly, while most sections explain why the particular issue was chosen and its relationship to people, biodiversity is largely assumed to be important without explanation. The summary of this report suggests slight improvement in the state of the environment overall since co-ordinated measurement began in the 1990s. The key issues summarised in the conclusion are biodiversity and pollution. Interestingly, the document attributes two key areas of success- reduced waste and water consumption- to individual behavioural change. It is unclear, however, what caused these changes.

While the State of the Environment report provides an overview of the status quo, the Integrated Metropolitan Environmental Policy (IMEP) provides a policy framework for environmental regulation. The framework is rather generic, including broad principles which could well apply to any city internationally. As with most City documents, it adopts key international buzzwords, including sustainable development, environmental governance,

and identifies the need for integration and partnerships. Interestingly, the partnerships identified are with civil society, and business is largely absent from the text. The IMEP was developed through participatory processes, including various workshops which led to the document.

The Environmental Agenda is an action-oriented follow up from the IMEP. For this document, individual interviews and interviews with groups of 3-4 were conducted with key representatives from selected departments.
While there was a desire to rewrite the IMEP, time constraints meant that the document was a practical add-on, not a new revision.

In the Environmental Agenda, Cape Town is again situated as facing similar problems to elsewhere, but in this case positions itself as part of a developing country: “building the economy so as to extend services, reduce the wealth gap, uplift the poor and ensure equitable economic and social opportunities to all communities without eroding its natural capital” (Environmental Agenda, 2009, p 1). It identifies specific targets to be achieved by 2014 in the following seventeen themes: i) biodiversity, ii) alien invasive species, iii) air quality, iv) carbon footprint, v) energy efficiency, vi) climate change adaptation, vii) river health, viii) water, ix) waste minimisation, x) housing, xi) coastal protection, xii) urban edge, xiii) environmental compliance, xiv) environmental education and communication, xv) outdoor advertising, xvi) cultural heritage, and xvii) administrative operations. Much of the focus of this is on individual consumer action and, when collective or state action is required, is it focused on biodiversity protection. To what extent this is a useful framing is an important question to reflect on for Phase 2.

The IMEP was reviewed by the City in 2008, and there is an expectation that it will be revised in the near future, possibly with a new name. It is considered good practice to review a policy every 5 years, although this one was later than intended. ERMD conducted the review. It is hoped to include long term and short term goals, as well as steps to get there in one unified policy. Policy formulation has changed, and most new policies include a set of goals and targets. The idea of “steps to get there” is not about implementation plans, but rather about a set of goals and targets that lead towards an ultimate goal. It is anticipated that Phase 2 of the CT IPP will engage with this process.

3.2.2 Integrated Development and Spatial Planning

As apartheid ended in South Africa, there was a clear sense of the need to reconfigure the spatial form of cities away from their highly segregated form. Spatial planning was clearly linked to issues of justice. Issues of proximity were generally emphasized, including racial integration and nearness to economic activity. This was clear in the 1994 Reconstruction and Development Programme, the overarching development policy framework of national government guiding, as well as in various planning legislation (Watson, 2003). However, in practice, much of the housing developed through this and subsequent programmes was low density and in peripheral areas. There is a major problem in Cape Town in that the cost of land in well located areas is extremely high, much higher than in other parts of the country. The subsidy available for low cost housing is also so low that multi-story

development is unaffordable.

In the post-apartheid era, strong efforts led by government and planners have been made to change the spatial form of the city, yet despite this general agreement on the problem and efforts to intervene, overcoming these historical legacies has been a challenge in all South African cities. This priority is less evident in current national documentation, however. This may in part be because of shifting priorities in government regarding spatial form. Watson (2003) arguments that the shift to more neoliberal governance encompassed in the Growth, Employment and Redistribution (GEAR) programme which replaced the RDP at the national scale resulted in more attention to economic development, and less focus on spatial reconstruction at the urban scale. This is suggested to be less so at the local level, where many SDFs will refer to this problem.

More broadly in terms of planning in the city, development is intended to be guided by an Integrated Development Plan (IDP). IDPs were first introduced in national government legislation in 1996 in the Local Government Transition Act, Second Amendment Act and given more detail in the 1998 White Paper on Local Government. The minimum contents were given in the 2000 Municipal Systems Act (Harrison, 2006). In short, the IDP process allows for local governance within a framework directed and monitored by national government. It seeks to overcome apartheid era fragmentation. The authoring of many IDPs are subcontracted to consultants with traditional planning training (Harrison, 2006), although Cape Town's is not. A Spatial Development Framework (SDF) is one component of the IDP, although its precise legal standing has been somewhat ambiguous. Academic evaluations of the IDP process and content suggest that the approach has generally had positive outcomes, although of course it is difficult to measure.

Here we quote extensively from Wilkinson's review of the CTIDP (2004, 225-6):

"In Cape Town, as required by the national regulations published in August 2001, the preparation of the city's first "non-interim" IDP was completed in April 2002, ostensibly to give clear direction to its budget for the 2002/2003 financial year. A number of the "core components" of the plan specified in the regulations outlined earlier did not appear in the published document, including the SDF, which was attributed to it still being work in progress. There have been indications subsequently, however, that efforts set in motion during 2002 to reformulate the MSDF published by the former Cape Metropolitan Council in 1996 in order to meet this requirement have now been abandoned and it is not clear that any alternative has yet been put forward. Moreover, it has also been suggested that the process of formulating the IDP has had only a relatively marginal direct impact on the reorientation of existing programmes of service delivery and infra- structure provision, 5 and therefore on the preparation of the budget itself, but testing of any such hypothesis must await a detailed analysis of the budget and subsequent expenditure patterns that has yet to be undertaken.

Nevertheless, what does seem evident even at this stage is that, in practice, implementing the "new public management" approach and framing a comprehensive development strategy for the city in the form of the IDP has proved to be a great deal more difficult than may have been anticipated. A particular problem in this regard, despite the extensive reorganisation of the administrative apparatus, has been the tendency to maintain what is essentially a "line function" departmental structure, in which specific services continue to planned, budgeted and delivered by individual departments, while the "integration" function is relegated to a separate entity with, at best, the capacity to perform an oversight rather than a direct command role. The installation of a layer of senior officials to engage in "strategic" management and co-ordination at the head of each of the city's seven new major departmental clusters or directorates does not appear to have countered this tendency effectively, possibly as a consequence of the endemic uncertainty associated with the shifting locus of political power in the city which was discussed earlier. Moreover, if the problem is more appropriately considered to be underpinned by the inertia of institutional cultures and professional discourses within the administrative apparatus, it is not clear that it will be readily overcome even if the council's political direction should settle into a more stable configuration. In the final analysis, then, it is likely that the disjuncture identified here between intention and practice in the implementation of integrated development planning as the focal point of the framework for local regulation will remain a significant impediment, at least for the foreseeable future."

Some progress has been made this this analysis. For example, the establishment of an Executive Mayor and the increasing centralization of decision-making in the mayor's office is a move to overcome the "silo" problem. However, this move could result in the alienation of the respective departments where a significant knowledge and skills base lies. A fine balancing act is required in this regard.

3.3. What organisations are involved in formulating these policies and at what scales?
The ANC initially professed a socialist orientation, most notably articulated in the 1955 Freedom Charter. However, the failings of the Soviet Union and the turn in international discourse that followed left the ANC searching for ideological foundations and existing precedents in the 1990s. Much of post-apartheid planning was strongly influenced by a desire to follow international best practice, which at the time included the developmental state model of East Asia and the co-called "third way" of New Public Management (NPM) in the US under Clinton and UK under Blair.

Harrison (2006) suggests that South African planning at the time was largely informed by NPM thinking, shaped by external advice of international agencies such as the World Bank and various United Nations agencies. This closed off opportunities for innovation and the development of more locally appropriate planning tools (ibid). More specifically, the formation of IDP regulations and the process of capacity building in municipalities for creating IDPs was strongly influenced by German development aid and the Council for

Scientific and Industrial Research (CSIR). Harrison (2006) suggests that CSIR may be responsible for the emphasis on (environmental) sustainability and linkages between IDP and Local Agenda 21.

The participation of various organizations in policy making must be understood within the ideology and legal framework[6]. The level of central control provided in the legal frameworks provides some limitations to the scope of public participation. Further, the ideological focus of NPM thinking places emphasis on efficiency and tangible accomplishments through performance management- possibly resulting in losing track of the broad goals and again limiting the scope of participation (Harrison 2006). This perspective is supported by Wilkinson, who argues that "participation in formulating the MSDF was rather narrowly based, primarily involving a political and technocratic elite" (Wilkinson 2000, p. 205). The City's performance management system is also constrained by the requirements of the Auditor General that all indicators must be auditable. Therefore, these KPIs focus on issues that are easily quantifiable (such as number of houses built) and lack focus on qualitative issues (are those houses well located? Do they form part of livable communities that include community and social services and recreational spaces?)

More broadly, research on participation in Cape Town tends to focus more on the degree of participation in the implementation of service delivery rather than participation in the formation of policy, although there are some discussions of attempts to help define costs and levels of services (cf Lyons et al, 2001; Lemanski, 2008; McEwan, 2003; Robins, 2003; Smith and Vawda, 2003). Again, more recent comments suggest there may be progress in this area, as the latest round of SDF formulation did receive wide-spread public comment through organizations like the Western Cape Developers Forum, Development Action Group and professional planning bodies.

3.4. What are the forums where policies are discussed and who is involved (and not involved)?

An overview of the structure of the City is provided in Figure 3 below[7].

[6] Comment: There is another issue here, but one that is seldom discussed – sometimes public participation is simply not helpful and does not produce meaningful results. The public does not necessarily have the understanding or broad perspective required to make meaningful input into a technical process such as the SDF. Public comment often focuses on very specific local issues and these are not appropriate for inclusion in policy documents. There are also some very loud voices in the form of residents associations that suffer from extreme NIMBYism and would generally prefer the status quo to be maintained.

[7] For more information on the governance structure of the City, see: http://www.capetown.gov.za/en/stats/CityReports/Documents/CoCT_Councillor_handbook_v3.pdf

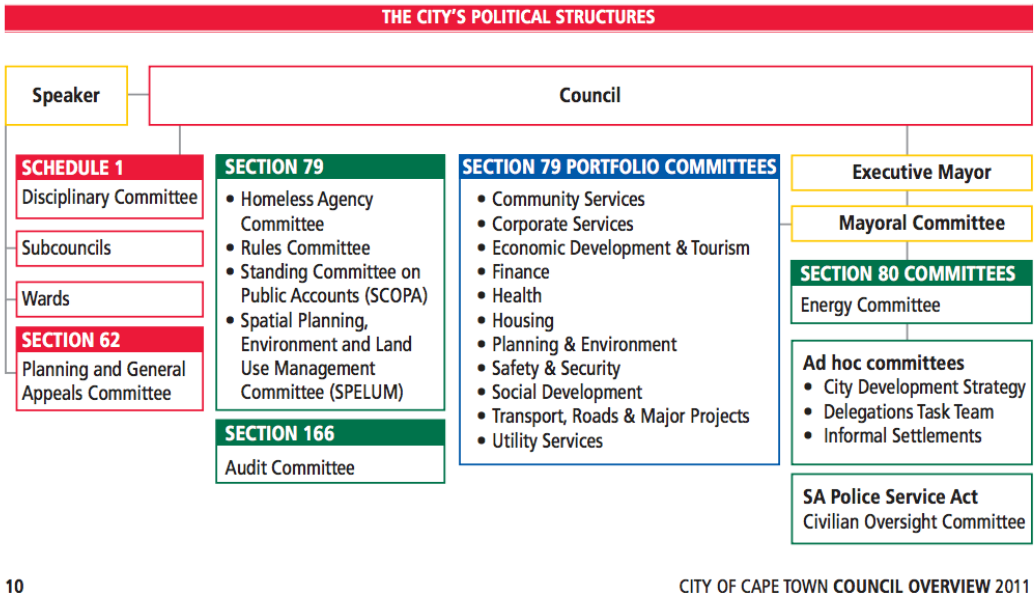


Figure 3: City of Cape Town Council Overview (2011)

Some indicative formal city forums include:

- Economic, Environmental and Spatial Planning Portfolio Committee
- Energy Committee
- Executive Management Team meetings
- Executive Management Team Sub-committee on Energy and Climate Change
- Mayoral Committee
- Finance Portfolio Committee
- Utility Services Portfolio Committee
- Energy Efficiency Forum
- National Energy Planning Colloquium
- South African Local Government Association meetings
- South African Cities Network
- Provincial government PSOs

Details of how some of these forums engage in the exemplary areas are discussed in part in the sections below, but also form issues for future research.

Other non-City structures include:

- The Climate Change Think Tank (see Cartwright et al., 2012),
- Provincial MEC's Renewable Energy Task Team, consisting of officials from the Department of Environmental Affairs and Development Planning (DEADP), the City of Cape Town, Eskom and civil society. The aim is "to devise integrated load shedding timetables, a demand-side management plan and a communication plan... and preparing a report aimed at incorporating the provision of renewable energy sources, as part of the overall strategy to deal with medium to long term problems which would result from increasing demand outstripping supply" (Western Cape Provincial Government, 2008, no page).
- the Provincial Premier's Green Economy Task Team,

- the Sustainability Institute's green economy reference group,
- a Green economy fortnightly meeting, organised by Ossie Asmal (City ERM Director),
- An informal 'green economists' coffee club/ discussion group that meets quarterly,
- The Cape Higher Education Consortium's work on climate change and the green economy, including an Oct 2012 workshop attended by representatives of the four universities and senior officials from the City and Province
- The Cambridge Sustainability Practitioner Programme, which "enables managers in the private or public sector to influence and guide their organisation in the direction of an integrated approach to sustainability across all functions. The programme has been run by our Cape Town office in South Africa since 2004 and is widely regarded as the most effective of its kind" (University of Cambridge Programme for Sustainability Leadership, 2012, no page).

This wide range of forums suggests that sustainability is clearly on the agenda of many different kinds of stakeholders. However, connections between groups, their particular politics, ideologies and vested interests remain rather unclear. As Harrison (2006, p. 203) points out in reference to the development of the SDF, "The problem for planning is not that the process is political- for planning is always political- but that the type of politics that surrounds planning in South Africa and elsewhere is often hidden from public scrutiny and falls outside accepted democratic procedures." This comment is based on Harrison's work, and does not detail the specific points- but the "off the record" insights and consultancy experiences of many researchers suggest agreement with this point. More detailed research is certainly needed to begin teasing out these details.

3.5. What information is used to make policies and how is it used?
As in any context, diverse information is used to make policies and the link between information, policy and action is often not clear. Further, it differs for specific examples. Here, we attempt to develop some generalisations about the relationship between information and policy in Cape Town, recognising these limitations. Importantly, we see this as a key area for future research as the answers to this question are both important and under-examined. More generally, the African Centre for Cities at the University of Cape Town is seeking to begin answering some of these questions, and developing relationships with the City and other stakeholders to better inform and understand policy and practice. However, much of the work of this young institution has yet to be published in part because the work is quite recent, and, arguably, in part because of the attempt to use transdisciplinary methods and the associated challenges of academic publication (Anderson et al in review). We seek to draw on our own experiences with the ACC to develop these generalisations.

There is a strong discourse in the city as well as amongst many policy-oriented academics for developing "evidence-based" policy. However, there is also a sense that this is accompanied by a desire to find evidence to match

the policy, rather than an open eye to the data and, from there, the development of policy. Further, there are competing rationalities as well as varying interpretations of data, and caution is needed regarding the selective use of data and ambiguous or misleading interpretations of data.

Certainly the presentation of maps and graphs of data- as in many contexts- is more readily accepted than complex narratives. Watson (2003, p. 63) in a piece also reflecting on the SDF, suggests that "the kind of urban research which I would argue is important and needed is that which challenges notions of standardization and homogeneity, which shows just how complex the 'real' world actually is and which shows the importance of recognizing diversity and difference." However, in the same piece, she also notes that "we ought to be careful of assuming that good research will necessarily result in good plans which will in turn deliver better urban environments" (2003, p. 55). How to translate complexity into policy relevance remains unclear. Certainly the degree to which policy is "evidence-based" varies a lot between the departments. Those that have a more normative basis tend to be less evidence based while the more technically driven departments tend to rely on evidence more e.g through modeling etc. Further, it has been said by some in ERMD that what is needed are good arguments and business cases for environmental management – data alone does not convince the political sphere.

Policy is of course informed by the national policy context and national discourses. In Cape Town, the political ideology of the Democratic Alliance informs policy choices, although many have noted similarities between the ANC and DA. Key narratives on service delivery at the national scale certainly play out in Cape Town. One of the most critical may be that around housing. Ross (2010) and Robins (2003) provide useful examinations of housing interventions in Cape Town. In short, these works articulate some of the assumptions behind the strong push for housing in low income communities, and the emphasis on housing and the built form as a means through which to re-create new urban citizens. Their work provides an interesting complement to Lemanski's (2008) piece which suggests the limitations of service delivery without public demonstration, organisation and participation. In sum, reflections on housing provide a lens through which to understand the intention of government intervention, the assumptions around the impact of the build environment on the social fabric, and the limitations in practice.

A key reflection on the relationship between research, planning and action in Cape Town is Watson's work on the MSDF, including her 2002 book Change and Continuity in Spatial Planning: Metropolitan Planning in Cape Town Under Political Transition. Watson suggests that "the research which informed the MSDF was essentially broad-brush, drawing largely on data readily available... resulting in a very simplified pictures of a 'dual city'" (2003, p. 57). Further, planners sought to implement typical solutions developed elsewhere, based on different contexts- and which themselves often have not been successful. The key strategies for the MSDF were to develop an urban edge and specific corridors for development. Watson notes the role of politics in shaping where these corridors go- many were often added to the plan

because of the need to gain support for the MSDF. While Watson's work is useful in showing the limitations of the efforts of planners and the MSDF, it does not guide us towards new alternatives. As Turok (2003, p. 1634) noted in his review of Watson's book, "One would have been interested in more concrete ideas about alternative planning policies and processes for Cape Town in the light of the many lessons learned and the pressures for change."

There is a need to more clearly understand the nature of the data required in both environmental and spatial policy. Phase 2 will more clearly respond to what kinds of information (climate data, vegetation, social surveys, GIS, economic, census) and what data sets and knowledge bases inform decision making.

3.6. Where and how is that information produced?
The majority of documentation put together by the City is written by officials, although some aspects and documents are tendered and produced by consultants. The process for their establishment is not entirely clear, and more research would be useful to understand the process of who authors and edits, and how decisions are made. Certainly there is overlap between consultants and academics. One example of this is the review of the SDF conducted by Vanessa Watson, a planning academic at UCT[8].

Another key source of information is the South African Cities Network[9] which collects data and produces reports which compare different cities. According to their website, "The South African Cities Network is an established network of South African cities and partners that encourages the exchange of information, experience and best practices on urban development and city management. The network is both a source of information for leadership of South Africa's largest cities and a catalyst for debate. It is an initiative of the Minister for Provincial and Local Government and nine of the country's largest municipalities, in partnership with the South African Local Government Association."

Certainly there is much information produced by the four universities in the Cape Town region (University of Cape Town, University of the Western Cape, Cape Peninsula University of Technology, Stellenbosch University), and Cape Town is also a popular site for international urban research. These universities and the researchers within them have different approaches, prioritize different kinds of research, information and conclusions, and have varying relationships with City officials and other practitioners. There is an agreement between the City and the Cape Higher Education Consortium. Articulating the details of these relationships will form part of Phase 2.

The main site for academic research which explicitly takes a sustainability frame is the Sustainability Institute of Stellenbosch University. The work

[8] http://www.capetown.gov.za/en/sdf/Documents/Nov2010/MSDFreview.pdf
[9] Comment: the SACN tends to interact poorly with Cape Town (not sure about other cities). We get very little input into the structure, format or content of their reports, little ability to review them once complete, and are often given unmanageable deadlines for providing data and comment.

primarily of Swilling and various colleagues and students has provided useful baseline of information on the material flows of Cape Town.

The African Centre for Cities has an MOU with the City in order to help facilitate interactions between the organizations. ACC has developed CityLabs which are focused building relationships, co-producing knowledge and helping inform policy in Cape Town. Many of these link to issues of sustainability, broadly defined. Two of these are geographically focused (Philippi and the Central City), and others include a City Lab on urban ecology and on climate change.

In a special issue of Ecology & Society which focused on Cape Town developed from the Urban Ecology City Lab, key themes included conservation (biodiversity and ecosystem services) and management (control measures and managing human-environment interactions). The focus of this lab- largely in line with the skills of its coordinator- has been on the biophysical environment. Additionally, the Climate Change CityLab has developed the Climate Change Think Tank and the publication of a book (Cartwright et al 2012). Urban political ecology evident in the work of Laila Smith's research on water in Cape Town, and the new research projects at the ACC led by Ernstson. The book Counter-Currents (Pieterse 2010) identifies specific projects in Cape Town, and includes a useful transcript of a roundtable discussion on "Why is Transformative Change so Elusive?" As yet, the ACC has to a degree been directed by the explicit concerns of the City, as well as other research funding opportunities, although it has identified that it is now reaching a moment in which it needs to identify key strategic areas of work and research capacity.

Some efforts have been made to start developing connections between Stellenbosch's Sustainability Institute, the ACC and the Gauteng Regional Observatory, including the sustainable urban research workshop held in June 2012. Mention was made at this meeting of the need to involve CPUT, however, there is likely scope for these universities to engage with each other and the City more effectively.

Importantly, the links between academia and policy are more than just about academic publications. In South Africa, there is a long history of engaged academia, but this also entails academics working as consultants for the city. A contemporary example of this is a contract being undertaken by the ACC and Sustainability Institute which will design plans for a key development in Pinelands. The site is currently under utilised, near the CBD, and the City has allowed the universities to research and design in consultation with the City and other stakeholders to find a sustainable plan for the area.

Another key set of data which informs sustainability policy in Cape Town is that on Cape Town's biodiversity, including that of the Cape Town Biodiversity Network[10]. During the apartheid era, extensive resources were put into

[10] For more information, a study on this has been done for the City by Martin DeWit and a team he put together:

training natural scientists, and the CSIR in Cape Town became a key site for the production of knowledge on the local environment. This institution remains significant, and as Gelderblom et al. (2003) suggest, provide a baseline of expertise in this area absent in many other developing countries. There is also a push for the quantification of ecosystem services, in line with an international trend.

Gelderblom et al, in their review of the Conservation Action Plan, note "enthusiastic and visionary ecologists whose primary motivation was the development of a scientifically robust plan for the conservation of biodiversity patterns and the processes that maintain ecosystems" (ibid, p. 295). There is limited sense of the ways in which this has blurred the lines between science, policy and norms and this issue clearly needs to be explored in Phase 2 of the research. For example, Young and Fouwkes (2003, p 17) identify the need for public participation generally to not just be a token add-on. And yet- without critique- they then carry on to describe "the goal of the public involvement programme was, therefore, to support effective implementation of CAPE outcomes by creating legitimacy for the project process and buy-in to its outcomes by all relevant stakeholders, including government at all levels, civil society, non- governmental organizations (NGOs) and the private sector." This is not about getting public input on the outcomes, but about gaining legitimacy through participation. Researchers in Cape Town are increasingly seeking to problemitize this relationship (Ernstson and Sorlin, 2012).

Output 4: Exemplary Activities
In this section, we describe four exemplary activities as requested by the IPP guiding document. The broad topics (Climate Change, Green Economy, Spatial Economy, and Energy Governance) were chosen jointly between the City and researchers at ACC as the topics for the researchers' PhD projects. Within these topics, researchers in consultation with their City counterparts discussed what could be used as an exemplary activity for the IPP. Researchers were asked to focus on something that exemplified how the City typically operates so as to better understand the processes of governance. Researchers did purposefully choose topics which they were familiar with, but which existed outside the M-UF interaction.

4.1 Economic Areas Management Programme [ECAMP]

4.1.1 Aims and objectives of activity

At a conceptual level, the programme arose out of the need to address the following problem:
Poor city form results in inequity, inefficiency and an uncompetitive economic environment. A major driver of this city form is the space economy, which is made up of the economic activities and resulting derived property development and investment. Market forces alone are unlikely to change this structure, as few of the negative externalities generated by thea city's

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http://www.capetown.gov.za/en/EnvironmentalResourceManagement/publications/Documents/EnvResEconomics-Final_Report_2009-08-18.pdf

structure are borne by developers and investors. As a result, the necessary price signals are not sent out and the inefficient structure repeats itself. Furthermore, information and data about the space economy is poor and expensive, which further limits or directs private investment in ways that may be economically inefficient..

In certain circumstances this means that public intervention is needed to ameliorate the impact of these forms of market failure upon the City's long-term developmental objectives. However, this intervention can often be directed in an ad hoc and often wasteful manner and can unintentionally create further market failure. As a result, the aim of the programme is to address this problem by generating a sound knowledge of the space economy to identify the key economics drivers, trends and intervention points so that public intervention can be targeted and tracked in a strategic and effective manner.

In addition, the property market is characterised as being inefficient and prone to failure because the pre-conditions (low barriers to entry, low transaction costs, knowledge of market activity and trends etc.) for an efficient, competitive market are usually absent. The long lead times needed to develop property further exacerbate this inefficiency, which leads to repeated failures. Due to the scale and fixed location of property development, these failures can have significant negative externalities to the private market players and the broader public alike. Therefore, the collation and analysis of up-to-date, relevant local market information by the City and its dissemination amongst property developers specifically and the business community in general is seen as an invaluable tool to limit market failure and thereby ensure greater allocative efficiency within the regional economy.

In summary therefore, ECAMP offers a credible and up-to-date knowledge platform of Cape Town's space economy, and equips public officials with a decision-making support tool in the form of a data-driven diagnostic model. This model routinely assesses each of the city's 70-odd business nodes in terms of economic performance and development potentials, and offers a portfolio of area-based interventions that is calibrated to local business conditions. Furthermore, the public user interface to the platform will offer free market information services and investment location guidance to corporate investors and aspirant entrepreneurs alike.

4.1.2 Why have you selected this example as indicative of the city-regional approach to sustainability?

With the demise of apartheid in 1994, local government was restructured to create political unity and to incorporate many previously demarcated "non-white" areas into municipal areas. To facilitate this, new legislation such as the Municipal Systems Act (MSA) was promulgated (2000) to promote integrated planning and urban management at a municipal level. The Act stipulates that every municipality must draft an Integrated Development Plan (IDP) that outlines its business plan and priorities over a 3 – 5 year period. A

key requirement of the IDP is the development of a Spatial Development Framework (SDF), which is intended to give spatial direction to the city's growth. However, more progressive planning approaches, influenced by international planning theory and practice from places like Curitiba, began to permeate the system towards the end of the 1980's and beginning of the 1990's. This new thinking based on principles of equity, efficiency and environmental sustainability was reflected in planning instruments such as the Metropolitan Spatial Development Framework (MSDF). However, there was a lag between the adoption of this new planning approach and the legislative framework that was needed to implement it. Consequently, the MSDF lacked legal standing and therefore its ability to direct growth in the City was limited. This lack of legal status also meant that it did not override many previous apartheid-based planning instruments such as the 1988 Guide Plans for the Cape Metropolitan Area.

The current SDF was approved in 2012 in terms of the MSA and the provincial Land Use Planning Ordinance, which represented an important milestone as it was the first time since 1994 that a planning framework attained legal status and out-dated and discriminatory legislation could be removed from the books. The approval therefore represented an important step in laying the foundation for integrated and equitable planning in the city.

However, notwithstanding these achievements, the current SDF has a dominant "design-orientated" approach that underplays the economic drivers of the city's space economy and the economic rationale required to direct its growth. For this reason it suffers from some of the the same shortcomings as previous planning frameworks, which reduces its ability to direct growth within the city. This shortcoming is however not unique to Cape Town or South African cities but is evident in many planning initiatives globally. For example, referring to the UK, Adams et al argue that, "Most development plans are actually regulatory plans as any true development plan should allocate and programme resources to achieve specific developments and consequently it should be recognised that planners "neither plan nor manage development, but rather intervene in its production (2012:2578). Similarly, Tym and Partners state that "Spatial planning goes beyond traditional land use planning to bring together and integrate policies for the development and use of land with other policies and programmes which influence the nature of places and how they can function. A key principle of spatial planning is a focus on implementation of both infrastructure and community facilities, through creating a framework for public and private investment and regeneration." (Therefore, there is a need for an improved) understanding and awareness of the economic basis of development (2010:5).

This shortcoming of the SDF was highlighted by an independent review panel of practitioners and academics and broader public comment as well. Although the SDF was finally approved in 2012 without dealing with many of these concerns, an undertaking was given to attend to the economic deficiencies in framework by establishing ECAMP. The intention therefore is for the knowledge and findings developed through ECAMP to inform the next revision of the SDF so that it has a stronger economic underpinning and logic. In this

way, ECAMP and the next SDF will step outside of typical planning approaches and tools and will innovatively develop an evidence-based planning instrument that will address the economic drivers of urban development. Cape Town is, therefore, at the cutting edge of knowledge generation on this front, and likes to see itself as exemplary.

In addition, the National Treasury is becoming concerned that, "…..municipalities are becoming increasingly dependent on national infrastructure grants to fund their capital budgets. This is not a sustainable trend, because it means the tariffs for the main municipal services are not covering the infrastructure costs of providing those services.

There is also a concern that the use of conditional grants by national government reduces municipalities' scope to set their own expenditure priorities, and thus weakens their accountability to local communities" (2011 Local Government Budget and Expenditure Review).

As a result, the National Treasury, through its Cities Support Programme is looking to stipulate that all municipalities in South Africa must do an assessment of their property markets with a view to improving its local revenue generation resources. With this in mind, the National Treasury are looking to programmes such as ECAMP to provide lessons and approaches as to how property market assessments can be rolled out across municipalities.

4.1.3 Why more broadly is this activity seen as important (by others) in the city-region?

A wide range of actors have an interest in the ECAMP.

In Cape Town, the results will be used by a range of actors. First, the programme is to feed into the development of the Spatial Development Framework for the city. Secondly, it will assist in categorising the city's economic areas into development potential typologies, which will enable the City to develop bespoke intervention strategies necessary to grow and maintain such areas. Lastly, the results will be used by other municipal departments, including transport and the infrastructure departments, in their forward planning, budgeting and prioritisation exercises as well as private developers and investors in their investment decision making.

Parallel to the SDF process, the Provincial Government of the Western Cape has restructured many of its economic development agencies to form the Economic Development Partnership (EDP) of the Western Cape, with one of the main objectives of the EDP being to provide and monitor economic and market intelligence to ensure evidence-led strategy and development. The EDP will however not necessarily develop such intelligence itself but will rather coordinate the various spheres of government and agencies in this regard. As a result, ECAMP may be very important to the EDP in it fulfilling its objectives.

4.1.4 What scale and scope (finance and spatial content) of activity is this?

The geographical scope of the work occurs at four scales:

- ECAMP incorporates data that reflect conditions and trends in the external environment, specifically relating to monetary indicators.
- At the systemic level, ECAMP currently uses Cape Town's metropolitan boundaries as the geographic limit to its research. However, it is recognised that the correlation between spatial patterns of administrative, regulatory (e.g. zoning) and economic systems is tenuous. Therefore, the programme will ultimately incorporate comparable data from adjacent municipalities in order to adopt functional rather than municipal geographic limits.
- At a meso-level, ECAMP profiles and comparatively assesses approximately 70 nodes ranging from minor suburban retail precincts less than 20 hectares in size to large industrial estates on the periphery greater than 500 hectares. Over 85% of the city's non-residential building activity is contained within these areas.
- At a micro-level, ECAMP collates and processes building- and erf-level records and aggregates it to meso-level.

4.1.5 Who is involved in this activity?

The programme is being developed and managed by a specifically appointed, full time senior planning official, with dedicated support being given by the manager of Metropolitan Spatial Planning and a senior planning official responsible for Metropolitan Growth Monitoring, Mapping and Research.

The intention is for the programme to be an on-going activity that receives data on a continuous "live-feed" basis and that continually feeds into municipal and private developer decision-making.

At this point in time, the activity has an internal focus involving key City officials and departments, which are co-ordinated through the ECAMP Inter-departmental Steering Committee:

Claus Rabe: Metropolitan Spatial Planning: Urban Economics
Jaco Petzer: Metropolitan Growth Monitoring, Mapping & Research
Norah Walker: Manager: Metropolitan Spatial Planning
Catherine Stone: Director: Spatial Planning and Urban Design
Carol Wright: Strategic Development Information & GIS Department: Manager: Strategic Information: Marius Crous: Planning and Building Development Management Department: Manager: System Integration
Tim Hadingham: Economic Development Department: Economic Information & Research

However, going forward, the programme will receive external verification from the Expert Review Committee:

Francois Viruly – Assoc Prof – Department of Construction Economics and Management – UCT.
Erwin Rode – Property Economist and author of the “Rode Report” – the leading property market publication in South Africa.
David Russell – Member of the Western Cape South African Property Owners Association Council.
Jess Cleland – Research Director at the International Property Databank [South Africa].
Ivan Turok - Deputy Executive Director in the Economic Performance and Development Unit of the Human Science Research Council.

These individuals have been identified because they have an academic interest in land markets and are actively involved in the production of data and information about the Cape Town Property market. In addition, they have a deep understanding of what drives private investment decisions and the type of information that such investors need in order to make such decisions.

Finally, it is intended to create a public interactive, web-based platform where the private sector can access the database and research undertaken and perform their own queries to assist them in their investment decision-making process.

4.1.6 How will the success or not of this activity be evaluated?

A city’s structure (spatial form) can have a significant impact on the economic sectors and their ability to create employment. Cape Town is no exception and its inequitable and inefficient structure contributes to high logistic costs and weak markets for its businesses, which in turn contributes to its high unemployment rates and levels of inequity. In addition, the poor city structure creates large commuting distances, a reliance on private transport and a destruction of natural resources, particularly on the urban edges.

Where and how a city’s economy occurs is a key driver in determining the spatial structure of a city. Therefore, understanding the location and economic dynamics of the city’s economy is critical to intervening in a manner that firstly, enhances the performance of this economy and secondly, results in a more efficient and equitable urban form. The hypothesis to be tested therefore is whether a better understanding of the city’s space economy will result in a more equitable and efficient urban form, which in turn will make it a DENSER, FAIRER and GREENER city.

More specifically, the success of the programme can be assessed on a number of levels. The first is whether the programme’s component parts are completed and implemented. The core components include the development of a “real time” geo-database of data reflecting the city’s economy and property market, the development of a set of performance indicators that are used to categorise the city’s economic areas into typologies of growth potential and finally the development of bespoke intervention strategies for each of these typologies.

The second level of assessment is whether the methodology used and the indicators determined are seen to be correct and robust by the users of the knowledge platform. These users will include officials and actors in the private sector. The first part of this assessment will be whether the Expert Review Panel agrees that the methodology used and the indicators determined are correct, reliable and replicable.

The third level of assessment will be whether the programme is incorporated into the city's decision-making process across the various departments and whether it is reflected in the next iteration of the SDF. Similarly, the programme should be assessed according to whether it is used by the private actors in urban development to guide and influence their decision-making.

Lastly the programme should be assessed by whether the performance (in terms of the selected indicators) of these areas improves over time as a result of these intervention strategies (determined by a monitoring and evaluation system).

Initial indications of success include the following:

One of the key instruments included in the SDF was the imposition of an urban edge to prevent urban sprawl and to promote a more compact and efficient city. One of the main critisicms by developers of this edge was that there will be insufficient land available within this edge to accommodate future growth. In the absence of data and evidence regarding the quantum of current floor-space and the likely future demand for additional space, it was very difficult for the City to defend its position.

Partially as a result of this, the City began developing a growth management strategy for the city that could calculate the future demand for land and infrastructure so that it can better plan, budget and direct this growth in a more equitable and sustainable manner. A key input into this calculation is what the expected demand for space (take up rate) will be in the next 5 – 15 years. The ECAMP project has being able to assist in this regard as it has tracked the quantum of developed (floor) space over the past 12 years and this will be plotted against the economic growth over these same years to calculate the demand for space for every percentage of economic growth.

The City is also prioritising its transport expenditure towards the provision of public transport and is rolling out an Integrated Public Transport Network. As part of this, there is a need to determine current and future trip creation and demand. As land use, and particular, commercial land use, is the prime generator of transport trips, the land use database generated by ECAMP is a critical input into the creation of this network.

In October 2012, the provincial government of the Western Cape released its long term vision and strategy for the province called the ONECAPE2040, which aims inter alia to improve the City's predictive capability, promote

economic and institutional innovation and lower the barriers to entry for small firms. By analyzing the city's space economy, determining the location requirements of economic activity and understanding the drivers of the related property market, ECAMP has been identified as playing a key role in enhancing the City's predicative ability mentioned above.

Similarly, the recently released Economic Growth Strategy for the city is based on the following components: business incentives, clustering opportunities, fostering partnerships with business (e.g. CIDs, ACTs) improvement districts, targeted infrastructure, information-sharing, regulatory modernisation. However, it currently does not specify where such interventions should take place. Through a series of performance indicators, ECAMP has categorised the 71 economic nodes of the city into typologies based on performance. By doing so, the City will be able to implement its EGS interventions in a far more spatially targeted and effective manner.

4.1.7 What factors and conditions are contributing to the success of this activity?

The current political party in power has a strong belief in the market economy as evidenced by the following quote of the Mayor on the 21 October 2011:

"When it comes to the interface with business, government must provide infrastructure, support and a level of regulation. Ultimately, it must facilitate business."

Hence, any program that is seen to promote and assist private development is likely to receive good political support. In fact the chairperson of the Economic, Environment and Spatial Planning portfolio committee (EESP) remarked after a presentation on ECAMP had been given to the committee that it was the most useful presentation the committee had received during its term of tenure.

Due to the fact that there is a growing need for officials to engage with the economy and developers alike has meant that the programme has generally received support from the broader institution, especially in terms of accessing data.

However, the most important factor driving the current success of the programme is that high calibre, dedicated City staff has been appointed to work and manage the programme.

4.1.8 What impediments exist to its future success and/or development?

At this stage of the programme, the greatest difficulty experienced is the difficulty of building a geo-database using data sources that were not designed to capture data for the said purpose and the difficulty of acquiring data on a "live-feed" basis so that the geo-database is continuously updated.

A potential impediment to the programme's success is the potential lack of political buy-in and support for it. While the programme currently enjoys strong political support because of its perceived "pro-market" position, it is uncertain whether the evidence based generated by the programme will be used to make informed decisions at a political level.

In terms of the current legislation and institutional structures, land-use and development approvals are taken at a political level after taking into account policy and recommendation from officials. However, there appears to be a growing and concerning disjuncture between policy and approval decisions. Therefore, although ECAMP, through its empirical research, should strengthen the policy-making process and outcomes, there is no guarantee that sound policy will result in sound decision-making at a political level.

4.1.9 Why have you identified those factors in particular?

The concern relating to the disjuncture between policy and political decision-making arises from the decision by the City politicians to a positively consider the moving of the Urban Edge to accommodate a significant property development. What is even more concerning is that the Urban Edge was approved in terms of the SDF less than six months ago.

4.1.10 Who is the activity designed to benefit and how?

City political and officials' decision-makers by assisting them to develop customised investment and management intervention strategies for the key economic areas of the city.

Private land-owners, developers, investors and business operators by providing market information to guide private sector investment in the key economic areas of the city.

4.2 Climate change adaptation

These answers have been developed on the basis of reviewing relevant City reports, interviews with 4 City officials / contractors and 3 focus group discussions with 9 other City officials, all directly involved in the process of developing the Climate Adaptation Plans of Action (CAPAs). The officials work in the following City departments: Environmental Resource Management; Disaster Risk Management Centre; Spatial Planning and Urban Design; Planning and Building Development Management; Transport; Roads and Stormwater; Water and Sanitation; and Health. The ability to convene these meetings and the richness of the content covered in discussions was greatly increased by the researchers 'embeddedness' in the City. Additional details were collected and inferences confirmed through participant observation during time spent working within the City's Environmental Resource Management Department.

4.2.1 What activity?

From 2006 to 2011 the City of Cape Town, led by the Environmental Resource Management Department, undertook a process of developing Climate Adaptation Plans of Action (CAPAs). Phases in this process were:

1. Commissioning a study into why and how Cape Town should go about adapting to climate change, which resulted in the Framework for Adaptation to Climate Change in the City of Cape Town (FAC4T)[11]
2. Hiring in a contractor to use FAC4T to develop a City-wide adaptation plan based on consultations with other City departments and reviewing what climate risks and adaptation measures were evident elsewhere and checking their relevance / applicability in Cape Town
3. Sending the plan for external review by consultants, who were then hired to refine the plan further and develop a set of sector-specific plans
4. Assigning an ERMD staff member to complete the sector-based plans and get them signed off by the departmental directors
5. Presenting the plans to the relevant Portfolio Committees

The planning process was an important opportunity for people across City line functions to think through what climate risks are facing their sector, what makes various elements of Cape Town (e.g. residents of informal settlements, low cost housing stock, coastal properties, stormwater drainage systems, railway network, beaches, wetlands, etc.) vulnerable to climate impacts and what activities can be undertaken by the City to reduce these climate risks and vulnerabilities.

The resulting plan for each sector details:

- the responsibilities of the relevant City department;
- the nature of the climate vulnerabilities faced by residents, communities, ecosystems, infrastructures and public services;
- the specific climate hazards and what sector-specific impacts result from these;
- a list of adaptation actions; and
- any constraints or limitations foreseen in implementing such actions.

Examples of some of the many adaptation actions listed in the CAPAs include: mapping areas prone to heat stress, flooding and coastal inundation; developing an early warning system for extreme rainfall, storm surges and heat waves; preparing City Health facilities to deal with more cases of heat stroke, dehydration and water-borne diseases; conducting research into the ways in which climate change may alter the distribution and occurrence of vector-borne diseases; factoring climate change risks into the identification of land for the City's low-cost housing programme; reviewing low-cost housing designs and the selection of materials in light of climate changes; etc.

However, there is no dedicated, additional budget available to departments to implement activities listed in the plans (beyond those listed activities that were already linked to departmental budgets when the plans were developed) and no mechanisms are in place to monitor progress on implementing the plans and evaluate the outcomes.

[11] In addition to the City report, the study was published as: Mukheibir, P. and Ziervogel, G. (2007) Developing a Municipal Adaptation Plan (MAP) for climate change: the city of Cape Town, Environment and Urbanization, 19 (1), 143-158.

4.2.2 Aims and objectives of activity

The aim is to deal proactively with the effects of climate change, such as floods, food and water insecurity, droughts, extreme storms, storm surges and sea level rise, by integrating adaptation measures across all of the City's relevant service delivery and planning functions.

The specific objectives were to:

- shift climate change from being seen and positioned within the City as an environmental issue to one that "has much broader social and economic implications that will require strategic overview and risk management, and should therefore be located accordingly within the City"; and
- secure support from the relevant political bodies within the City, i.e. the Portfolio Committees, to promote and monitor climate adaptation across the City.

4.2.3 Why select this exemplary activity as indicative of the city-regional approach to sustainability?

The activity highlights an attempt to deal with large-scale systemic problems in a more holistic and proactive manner and to link environment and development priorities more closely using concepts of vulnerability and resilience. In so doing it reveals many of the institutional impediments to addressing problems that cut across numerous line functions within the City.

4.2.4 Why, more broadly, is this activity seen as important (by others) in the city-region?

Various others in academia, local non-governmental organisations and provincial government see climate adaptation planning as important. This is because numerous climate events already negatively impact residents, economic activities, public infrastructure and services. Many of these climate impacts are expected to get worse unless coordinated and widespread action is taken.

However, not everyone sees climate adaptation planning as important and worthwhile. Many see climate change as an unnecessary distraction from other, more urgent and immediate socio-economic problems, like unemployment and lack of affordable housing, and other environmental problems, like species extinction from habitat loss caused by urbanisation and land use change. Some remain sceptical about the reality or extent of anthropogenic climate change and others remain very unclear on the causal chains and feedback loops that create climate sensitivities.

4.2.5 What scale and scope (finance and spatial content) of activity is this?

Each of the CAPAs focus on a sector, covering the City of Cape Town municipality as a whole. The climate adaptation plans were developed over a period of 6 years on a budget of roughly ZAR 1,42 million[12]. Of the total budget ZAR 750,000 was from internal City budget and the remaining ZAR 670,000 was allocated from external

[12] As a point of reference, the total City budget for 2012/2013 is R30,2 billion. Of that total the Economic, Environmental and Spatial Planning Directorate has an operating budget of R446 million and a capital budget of R52,4 million for the 2012/2013 period.

funding secured by the City from the Danish International Development Agency (Danida).

One of the difficulties with implementing the plans is that there are no specific costs and budget attached to the activities listed in each of the climate adaptation plans, therefore the financial scale of the content on the plans is difficult to determine but would likely add up to many millions of Rands. There is no explicit time frame on the plans.

4.2.6 Who is involved in this activity?

The activity was initiated and led by officials in the Environmental Resource Management Department (ERMD) of the City. It involved consultants and contractors from the University of Cape Town (Department of Environmental and Geographical Science and the Energy Research Centre), Laquar Consultants and Golder Associates, a consulting company in Durban. Beyond ERMD, the planning process involved consultations with and inputs from officials in at least 8 other departments of the City, namely: the Department of City Health; Directorate of Human Settlements; Department of Planning and Building Development Management; Department of Spatial Planning and Urban Design, Department of Roads and Stormwater; Department of Water and Sanitation; Disaster Risk Management Centre; and the Department of Economic Development.

To date climate adaptation plans have been completed and signed off for the following sectors:

1. health
2. housing
3. (urban/spatial) planning
4. catchment, river and storm-water
5. water and sanitation
6. coastal management
7. disaster risk management

Climate adaptation plans for the transport and roads sector and the biodiversity sector got near completion but then stalled. An adaptation plan relating to economic development was initiated by never further developed.

While this planning activity was initiated from within the City's administration, each of the completed plans were presented to the City Councillors that sit on the Portfolio Committee linked to that sector / line function with the recommendation that they "support and monitor the development of the sector-based Climate Adaptation Plan of Action".

It is interesting to note that the transition from developing a single comprehensive, City-wide climate adaptation plan to preparing separate sector-based plans was partly informed by discussions with the Head of the Environmental Planning and Climate Protection Department (EPCPD), Debra Roberts, in eThekwini Municipality (the city of Durban), based on the experiences of developing a Municipal Adaptation Plan (MAP) there.

4.2.7 How will the success or not of this activity be evaluated?

The first level of success was the completion of the plans, with sign off from the relevant Directors and noting by the relevant Portfolio Committees. Of the 10 sectoral plans that were started, 7 were fully completed, 2 were nearly completed but not finalised and 1 hardly made it across the start line. However, when it comes to

evaluating the success of the plans in terms of implementation, i.e. how successful they have been in integrating adaptation measures across all of the City's relevant service delivery and planning functions and thereby reducing the city's vulnerability to climate impacts, no one yet knows how to do it. No one knows who should be monitoring progress at an operational level, what metrics or indicators should be used and how the monitoring should be done. This is one of the main problems or difficulties with the plans. And despite the Portfolio Committees formally noting the plans with a recommendation for them to monitor the development of the plans, none have as yet requested a follow up report detailing the progress that has been made. Even though there is currently no CAPA review mechanism in place, when asked City officials expressed seeing value in an opportunity to reflect on progress and share both success stories and critical impediments with colleagues in other departments that can then be reported to leadership in the City administration and the City Council. Some suggested linking CAPA implementation progress to the Executive Directors key performance indicators and scorecards because they have the authority to remove many impediments to implementation.

It would be interesting to review annual department budgets post the development and adoption of the plan to see if any line items have been added that can be traced back to the activities listed in the CAPA.

4.2.8 What factors and conditions contributed to the success of developing the climate adaptation plans?

The success of this activity is almost exclusively attributable to the key individuals involved in guiding and coordinating the process, who used their foresight, analytical expertise, people skills and perseverance to work against the organisational grain of the City. The norm within the City is to think and function in silos, focussing on a narrowly defined mandate, working on activities that have assigned budget, operating horizontally through the hierarchy of the organisation with minimal vertical linkages, i.e. communication and coordination between departments and directorates. The activity of developing the CAPAs involved recognising a long-term, large-scale problem that requires a reinterpretation of the City's mandate, applying new scientific knowledge and information to the work of the City, and challenging the financial and organisational model on which the City currently operates.

Another factor deemed important to the initial success of the climate adaptation planning is the existence of the national Disaster Risk Management Act that requires municipalities to conduct a comprehensive risk assessment (as has been undertaken by the City's Disaster Risk Management Centre) and to audit their risk reduction measures. This provides a climate adaptation mandate for the City, more so than the National Environmental Management Act does, prior to the National Climate Change Response becoming legislation. The Disaster Risk Management Act led to the City's Disaster Risk Management Centre providing critical support to ERMD during the CAPA process.

There were, however, also various factors and conditions that created significant difficulties in undertaking this activity. Within ERMD there was intense debate over the division of roles and responsibilities in pursuing the climate change agenda and the appropriate mix of mitigation and adaptation priorities for the City. Many in the City were actively avoiding the topic of climate change, either because of scepticism, other priorities, or previous conflicts with those in ERMD. The activity involved finding willing counterparts in other departments and extensive investment in relationship building to overcome a commonly held view of ERMD as a "hand-break function" slowing down or blocking activities of other departments on the grounds of environmental damage. In the case of the Economic Development department a

willing counterpart was never found and so the plan did not come to fruition. Having no dedicated additional budget to fund the activities identified and prioritised in the planning activity made it difficult to get buy-in and commitment to the process. Contracting out the third phase of the climate adaptation planning activity, i.e. moving from one comprehensive plan for the City to developing sector-based plans, to outside consultants proved unsuccessful and set the process back somewhat. The consultants were unable to work effectively with the internal realities of the City, the specifics of what various departments do and how they work. The contractors hired into the City to work on developing the CAPA both noted that the short duration of their contracts and the turn-over of people working on the CAPA meant that momentum, accumulated knowledge and the working relationships built up with other departments were repeatedly lost during the process, undermining the success of the activity.

4.2.9 What impediments exist to its future success and/or development?

- When immediate development demands conflict with longer-term sustainability goals most political decisions still go in favour of development, even if it goes against formally adopted policy positions and technical plans (for example granting property development rights in sensitive, high risk areas and outside of the urban edge)
- Lack of funding and a continued marginalisation of climate change and sustainability issues in public spending, e.g. very limited budget for measuring a baseline, monitoring climate impacts and evaluating the effectiveness of an intervention (the City relies on research partners to do this but often there is not a good match and insufficient coverage)
- Perceived distrust and historically fraught relationships between departments and individuals that cloud substantive debates and hamper coordination
- Uncertainty in the future evolution of climate change and concern over being able to justify new spending and the introduction of new rules
- Lack of real buy-in and ownership of the problem within many of the Departments – many consider climate change to be separate from and secondary to their main focus, some perceive conflicts between climate change responses (particularly mitigation activities) and their core department mandates, for example those working in biodiversity are concerned with the impact of wind farms on birds and bats and those in the City's finance department are concerned about the loss of municipal revenue from electricity saving measures

4.2.10 Why have you identified those factors in particular?

They are the factors that were identified as important by those directly involved in the activity and that I have observed myself while working in the City.

4.2.11 Who is the activity designed to benefit and how?

Ultimately the activity is designed to benefit the city as a whole by reducing the risk of experiencing damages and losses due to climate variability and human-induced change. More immediately the activity is designed to assist the City take a longer-term view and work more effectively in fulfilling their mandate by providing a framework in which all relevant line functions take responsibility for addressing climate change and coordinate their activities more effectively.

4.3 Green Economy

4.3.1 Aims and objectives of activity

Cape Town's green economy effort is new, and in many ways being driven through the MUF knowledge cogeneration process. The enthusiasm with which the concept has been adopted by senior civil servant and politicians in the City is as much a symptom of frustration with the state of the prevailing economy as it is a function of the desire that Cape Town become "green, fair and dense". In the words of the Member for the Mayoral Council for the economy and the environment, Alderman Walker, "The green economy provides an overdue opportunity for a better economics in Cape Town" (Walker, 2012).

Given this, and the ambitious intent of the MUF green economy initiative, it is worth considering what came before; that is the prevailing state of Cape Town's economy in 2012. More specifically it is worth considering how (i) the city's natural environment was understood and included in local economic development planning and (ii) how the City of Cape Town's finance department (responsible for fiscal allocations) viewed its role in addressing the defining urban challenges.

Cape Town has long been associated with a striking natural environment. Contained within the municipality's borders is one of Conservation International's first five "biodiversity hotspots" (Myers, 1988) and the City of Cape Town manages over 30 conservation areas and nearly 300 kilometers of coastline. The City's environmental department (ERMD) has conducted studies that put a value to this natural environment. The City has also adopted a number of policies and strategies such as the Integrated Metropolitan Environmental Policy (IMEP) aimed at integrating environmental protection and economic development.

4.3.2 Why have you selected this example as indicative of the city-regional approach to sustainability?

Drafting environmental legislation and identifying economic values is relatively easy. Inserting this legislation into city-scale decision making and redirecting the fiscus in recognition of this value is more difficult. In general Cape Town has struggled to convert what is known about its natural environment and the risks it confronts into fiscal and financial allocations that reflect this knowledge. Treasury entries show that the budget allocation for "environmental protection" in 2009/10 was R166.6m in 2009/2010 (less than 1 per cent of total budget) and the same allocation contributed only R17.7m to the City of Cape Town's revenue streams. The entry is symptomatic of the urban governance perspective that systematically under-estimates the role of the natural environment in supporting economic growth and social well-being. It is a myopic perspective that is mirrored throughout the global economy, but which in Cape Town is compounded by the paucity of economic discourse and strategy and has particularly unfortunate consequences.

The application of transformative economic policy is not easy in Cape Town. A combination of conventional path-dependency, conservative vested interests in the corporate sector and fiscal conservatism (some of which is a requirement of national public finance legislation) has rendered any form of economic transition difficult (De Visser, 2012). The situation in Cape Town, however, has not been assisted by discordant views of the role of local government in the local economy, and the blurring of responsibilities with regards to public and private goods.

As a result, economic policy has struggled to gain traction in Cape Town and the status quo has proven obdurate. Certainly, the prevailing economy displays none of the UNEP (2011) green economy attributes ("low carbon, resource efficient and socially inclusive") to which Cape Town aspires:
Annual CO2 emissions in Cape Town are 7.82 tCO2 per capita (Lewis and Jooste, 2012).
Whilst Cape Town has very little primary industry, it remains resource profligate (Swilling et al 2012).
The city's gini-coefficient of 0.58 (WCG, 2011).
In 2011, 19.7% of Cape Townians continued to live in poverty in spite of pockets of considerable affluence in the city (EGS, 2013).

4.3.3 Why more broadly is this activity seen as important (by others) in the city-region?

To understand the prevailing policy difficulties and resulting economic intransigence, it needs to be appreciated that economic governance represents a relatively new local government mandate. It was only with codification of the Constitutional role of South African local municipalities in the Municipal Systems Act (2000) that local government remits were extended to include the economy, the environment and socio-economic well-being. Up until that point, municipalities such as Cape Town had been chiefly pre-occupied with the provision of services such as water, electricity and refuse removal to the city's grid-connected suburbs. The expansion of responsibilities in 2000 was ambitious, even for South Africa's relatively well-resourced metropolitan municipalities such as Cape Town. Concepts such as public and private goods, and notions of how fiscal allocations might shape local economic trajectories and development pathways were not a particularly mature feature of the civil service at the time. Instead the focus had been on narrow technical capacity (it was not uncommon for the City Engineer to become the City Manager) that enabled the maintenance of centrally co-ordinated basic services.

Given this context it is unsurprising that civil servants in Cape Town have, at times, struggled to given meaning to the notion of "developmental local government" (dplg, 2009). Even a mature civil service acting within a well-defined economic strategy (and these are not features of South African Municipalities) would have found it difficult to strike the correct balance between continuing high quality service provision to relatively affluent rate paying suburbs and extending new services to expanding informal and low cost suburbs that are typically located on the city's periphery.

4.3.4 What scale and scope (finance and spatial content) of activity is this?

The result is that the City of Cape Town's economy in 2012 finds itself trapped in a paradox that has vexed the local treasury. While on the one hand the difficulties with the current model of service delivery and disregard for the environment has created an increasingly apparent need for change, the prevailing fiscal constraints on the other hand have made the proposition of new technologies, new demands for environmental protection, or any form of change that might threaten revenue (such as the loss of electricity sales as a result of solar water heater uptake) difficult, even risky. It is to this economic context that Cape Town's green economy seeks to make itself relevant. It will do this by exploring new fiscal allocations, costs savings, new revenue streams and new ways of making people economically active. In short, Cape Town's green economy has the intention of contributing to a "better economics" (ibid) at the city-scale. At stake is the allocation of the roughly ZAR 34bn annually, and the application of legislative and governance instruments to benefit Cape Town's residents.

4.3.5 Who is involved in this activity?

City of Cape Town Department of Finance, City of Cape Town Economic Development Department, Environmental Resource Management Department, private sector insurance companies.

4.3.6 How will the success or not of this activity be evaluated?

The prevailing metrics for city economic governance relate to clean audit reports from the Auditor General, continued provision of water, electricity and waste collection services and, on occasion, the local GDP growth rate. For individuals in the City, success is defined chiefly in terms of a set of Key Performance Indicators.

4.3.7 What factors and conditions are contributing to the success of this activity?

By the end of 2012 there was a growing recognition among Cape Town's senior management that the prevailing model of service delivery was untenable – a realisation that has been precipitated by the obvious financial implications of having to extend services to an increasing number of people over a growing geographical footprint while revenue from electricity sales and rates plateaued and fiscal transfers from national government were curtailed by the global financial crisis. There was also a growing frustration with the inability of the economy to create employment for the city's expanding population. In the decade prior to 2012 an estimated 50,000 people arrived in Cape Town annually (CoCT, 2012) with the expectation of finding employment. It is an expectation that the local economy has been unable to meet. On the contrary the deficit between the types of skills required by Cape Town's private sector economy and the skills possessed by a growing cohort of young people in the city, has created a category of the local population that are referred to (damningly) as "unemployable" – victims of the structural disconnects between economic growth and labour absorption.

4.3.8 What impediments exist to its future success and/or development?

Municipal finance arrangements and the limited capacity to finance new activities or to redirect the fiscus. Perceived dichotomy between development and environmental protection.

A particular constraint involves the implicit cross-subsidisation involved in the fiscal transfer that is required to finance the transition towards a labour intensive green economy. This will, to a certain degree, depend on increased rates or notions of 'user-pays' contributions for electricity and access to existing environmental goods and services from the city's affluent. Politically and financially the City depends on votes and payments from its middle-and upper class (it also depends on the continued committed labour of its working class, but this is an indirect dependence in the context of high unemployment). Given the support base, there has been a reluctance to be seen to transfer too much of the fiscus in support of indigent populations.

4.3.9 Who is the activity designed to benefit and how?

The prevailing economic model is designed around the continued provision of services to a middle-class, rate paying, electorate with some cross subsidisation to indigent communities at the margin. Given that the inadequacies of this mode of "trickle down economics" have been exposed throughout Western World (Stiglitz, 2013) the need for Cape Town to engage could not be more acute.

4.4 City of Cape Town Municipal Energy Efficiency and Demand-side Management Program

4.4.1 Aims and objectives of activity:

The City of Cape Town's Municipal Energy Efficiency and Demand-side Management Program (the Program) primarily consists of energy efficient retrofitting of City-owned buildings and street and traffic lights. Street lights and traffic lights make up an estimated 37% of all electricity consumed by the City of Cape Town (the City). The City owns more than 5 000 buildings, including at least 80 significant administrative buildings, 100 clinics and 100 libraries. Buildings make up 16% of electricity consumed in Council operations. The City has thus recognised that energy efficiency retrofits of street and traffic lights and buildings would have an enormous effect on total internal electricity consumption. The major aim of the Program is to retrofit all street and traffic lights with energy efficient fittings and retrofit a substantial portion of City-owned buildings (CCT, 2011c).

A primary objective of the Program is to reduce City electricity consumption and associated costs. The efficient use of energy in Council operations can thus save the City money and improve productivity and competiveness by reducing energy intensity. This can reduce budgetary pressures on the City and burdens of rate payers (CCT, 2010a).

A further objective of the Program is ensure that the City leads by example and remains competitive. The City is a major energy user in its own right. It

accounts for 1.4% of all energy consumed in Cape Town. As both the largest single energy consumer and the largest single employer in Cape Town, the City has recognised its key role in leading by example in the implementation of energy efficiency interventions (CCT, 2010b).

A final objective of the Program is to improve the City's energy security and environmental sustainability. The City is almost solely reliant on Eskom coal-powered electricity, generated 2000 kilometres from Cape Town. The Program thus aims to improve Cape Town's energy security and reduce carbon emissions and pollutants associated with Eskom coal-fired electricity generation by improving energy efficiency (CCT, 2011c).

4.4.2 Why have you selected this example as indicative of the city-regional approach to sustainability?

Internal energy efficiency has been a prominent feature of the City's overall sustainability agenda for over a decade. The Integrated Metropolitan Environmental Policy (IMEP) (CCT, 2003) recognised the importance of internal energy efficiency and energy conservation by requiring the "consideration of energy efficiency" in all municipal functions and activities. The IMEP furthermore outlined the negative implications of inefficient energy use and dependence on fossil fuel based energy and committed the City to achieving certain internal energy efficiency targets. Energy efficiency in municipal operations was firmly entrenched in City strategy and objectives by its inclusion (Energy Efficiency for a Sustainable City) as one of eight Strategic Focus Areas in the Integrated Development Plan (IDP) (CCT, 2008). To achieve energy efficient strategic objectives, the IDP required the formulation of an "Energy and Climate Action Plan" and the development of an internal energy efficiency programme which included an energy efficient lighting and building efficiency programme (which eventually evolved into the Municipal Energy Efficiency Program).

In 2010 Council approved the Energy and Climate Action Plan, which has 11 objectives with over 40 programs and 120 projects. Of particular importance for the Program is Objective 2 of the Action Plan which requires a 10% reduction in energy consumption of Council operations. A number of energy management, energy efficiency and renewable energy projects, programs and initiatives are already taking place or planned throughout the various City departments with the objective of reducing energy consumption of council operations. The Municipal Energy Efficiency and Demand-side Management Program forms part of this objective (CCT, 2010a).

The City has shown a commitment to the continued improvement of energy management in its own operations. Programmes and projects that indicate this commitment, apart from the buildings and lighting retrofit programme include:

A proposed micro-hydro project
A proposed waste to energy project
A greening the fleet programme
A greening IT infrastructure programme (CCT, 2011c)

4.4.3 Why more broadly is this activity seen as important (by others) in the city-region?

Energy efficiency in Council operations is seen as important by City stakeholders for cost saving and competitiveness reasons. The City is a bulk purchaser of Eskom electricity and is thus at the mercy of steeply rising Eskom tariff increases. The City's administrative buildings and street and traffic lights are regarded as highly energy intensive as many of these assets were built or procured without energy efficiency in mind at a time where cheap and abundant electricity was available. Running City operations has thus become expensive. The City has thus recognised the benefits of energy efficiency in municipal operations, which include monetary savings, competitiveness and reducing the burden on rate payers (CCT, 2006d).

Internal energy efficiency is regarded as important from an energy security and environmental sustainability perspective. Dependence on the national grid means that Cape Town's (the City included) energy supply is environmentally destructive and vulnerable to supply shortages and interruptions. Electricity consumption accounts for 62% of Cape Town's CO2 emissions and the City is responsible for approximately 1.4% of total CO2 emissions. The City has moreover suffered significant losses and challenges due to rolling black outs and load shedding, which reached a pinnacle in 2008 (CCT, 2011b). Energy efficiency will reduce vulnerability to supply interruptions and price volatility and reduce the CO2 emissions and pollutants associated with running City operations.

Stakeholders have recognised the importance of leading by example to encourage residential, commercial and industrial electricity consumers to improve the energy efficiency of their operations. The residential (19%), commercial (16%) and industrial (14%) sectors together account for 49% of Cape Town's total emissions (CCT, 2011b). These sectors are likewise vulnerable to electricity supply interruptions and price hikes. Promoting city-wide energy efficiency, through leading by example, is thus regarded as important by stakeholders for energy security and climate change mitigation reasons.

Lastly, internal energy efficiency is also seen as important for City stakeholders from a compliance perspective. The National Energy Efficiency Strategy aims to achieve a 15% improvement in nation-wide energy efficiency (DME, 2005). It is thus important for the City to comply with its responsibilities in terms of national energy efficiency imperatives.
Intergrated Develeopment Plan
Integrated Metropolitan Environment Policy
Energy and Climate Change Strategy
Energy and Climate Action Plan

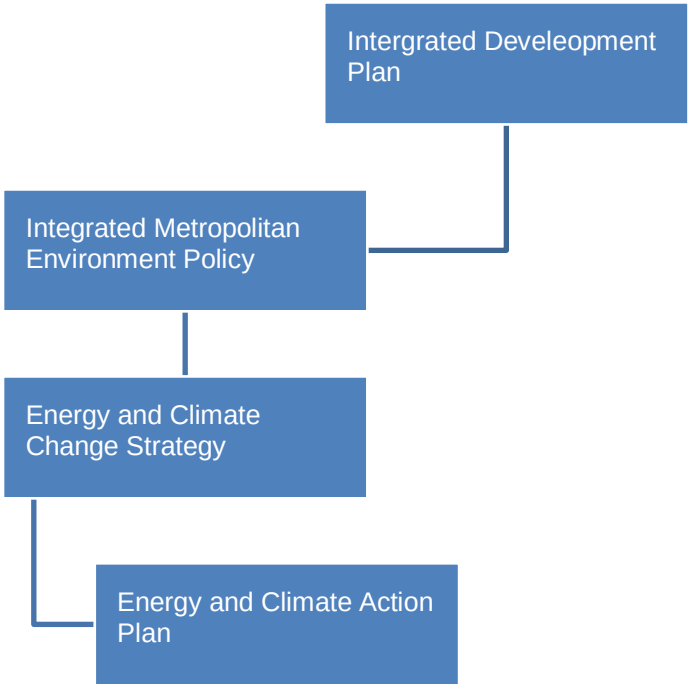

Figure 4: Hierarchy of policy and strategy documents

4.4.4 What scale and scope of activity is this?

Financial scale: In the last reporting period, total savings from all the projects amounted to 15 709 041kWh per year, which is expected to save the City approximately R92 million in the first five years. The projects have received over R58 million from cumulative investment i.e. international donor funds and national government allocations. An additional R20 million was allocated by the Department of Energy due to effective management of the project (CCT, 2012).

Line		Period	Street lights	Traffic lights	Building retrofits	Total	Total avoided payment to Eskom
1	Retail value of savings (present value)	**Year 1:** 2012/13	R 6 244 817	R 10 565 797	R 914 950	**R 17 725 564**	**R 10 149 611**
2		**Year 1 - 5:** 2012/13-2016/17	R 32 402 150	R 54 822 187	R 4 747 354	**R 91 971 691**	**R 64 088 929**
3	Investment to end June 2012		R 25 902 500	R 22 457 150	R 9 994 579	**R 58 354 229**	
4	Source of funding		DoRA EEDSM	DoRA EEDSM	DoRA EEDSM & DANIDA		

5	Energy savings (kWh)	**Year 1:** 2012/13	5 506 894	9 317 282	884 865	**15 709 041**	
6		**Year 1 - 5:** 2012/13-2016/17	27 534 469	46 586 408	4 424 325	**78 545 202**	
7	Carbon savings (kg)	**Year 1:** 2012/13	5 451 825	9 224 109	876 016	**15 551 950**	
8		**Year 1 - 5**: 2012/13-2016/17	27 259 124	46 120 544	4 380 082	**77 759 750**	

Figure 5: detailed table of financial scope of project (CCT, 2012)

Scope of project (Geographic area and scope of interventions): The project target is to retrofit all City-owned street and traffic lights and a substantial number of City-owned buildings in the Cape Town Metropolitan area (CCT, 2011c). The initial buildings retrofit project involved a preliminary audit of 16 large administrative buildings and a detailed audit and the retrofit of four of these. The initial project has been completed. Technology retrofits implemented include installation of high-efficiency luminaires, control of air-conditioner operating hours, solar water heater installations, thermostat control, and power factor corrections (DOE, 2012). Results from initial monitoring indicate that the work on the four buildings will have a seven-year payback period and 22% savings. An energy efficiency audit of the Civic Centre, the City's largest building, was completed in June 2010. The implementation of retrofits is expected to finish in 2013. It is anticipated that this would result in savings of 3,800MWh per year. Solar water heaters have been installed in all 23 nature reserve buildings and 44 clinics and a lighting retrofit project of all City libraries and clinics is also under way. Further funding received from the Department of Energy has been used to audit a further 14 City buildings, including libraries, clinics, workshops and administrative buildings (CCT, 2012).

The street and traffic lighting retrofit has been undertaken since 2009. Within the first year, the City retrofitted 3154 street light luminaires which amounted to energy savings of 1 406 053 kWh/pa and carbon Savings of 1401 tCO2e. In 2010-2011 the City retrofitted 7765 street light luminaires (energy savings of 1 669 216 kWh/pa and a carbon savings of 1663 tCO2e) and 20 214 traffic light luminaires (energy saving of 4 449 000 kWh/pa and a carbon saving of 4433 tCO2e) (CCT, 2012).

In 2011-2012 the City retrofitted 14 291 street light luminaires by replacing mercury vapour street lights with high pressure sodium, which amounted to an energy savings of 1 726 089 kWh/pa and a carbon savings of 1 720 tCO2e. In the same year the City also retrofitted 42 333 traffic light luminaires with LEDs which resulted in an energy saving of 3 386 822kWh/pa and a carbon saving of 3 375 tCO2e (CCT, 2012).

The City has 1328 traffic intersections, a 100% of which have been retrofitted with LEDs. The City has also set aside Energy Efficiency and Demand Side Management funding for operational projects within this program which included M&V, capacity building, funding of interns in the energy and climate change field, public awareness & promotion and education activities (CCT, 2012).

4.4.5 Who is involved in this activity?

The City of Cape Town's Energy and Climate Change Unit was and continues to be responsible for managing the building and street and traffic light retrofits. The street and traffic lighting retrofit was funded through the DoRA (Division of Revenue Act) Municipal Energy Efficiency Demand Side Management (EEDSM) program administered by the Department of Energy whereas the building retrofits were funded from DANIDA (the Danish International Development Agency) and EEDSM money. The Energy and Climate Change Unit thus had and continues to have on-going interaction and engagement with DANIDA and the Department of Energy (CCT, 2011c).

Implementation of the retrofits was and continues to be undertaken by a range of municipal units in the City of Cape Town including the Public Lighting Unit (Electricity Services Department) for the street lighting retrofit, Traffic Signals Unit (Transport Department) for the traffic lighting retrofit and Facilities Management Unit (Specialised Technical Services Department) for the buildings retrofit. During the installation of solar water heaters in clinics and nature reserves, the Health Directorate and the Biodiversity Unit were involved. The Energy and Climate Change Unit also had to engage with Eskom in order to receive a rebate for the installation of solar water heaters, as part of Eskom's Standard Offer programme (CCT, 2012).

The implementation plan and technical interventions of the initial four building retrofits were undertaken by Shared Energy Management (SEM), a registered energy service company. SEM was and is still required to guarantee the savings on an annual basis, through the submission of a bank guarantee to the City of Cape Town. This guarantee is based on the energy consumption and energy demand reductions outlined in the implementation plan, which is converted into a financial amount based on the relevant City electricity tariff amount (DOE, 2012).

Cross-cutting engagement and approval for past and on-going energy efficiency projects that are part of the Programme are required from officials in the Executive Management Team Sub Committee on Energy and Climate Change and the Energy Savings Work-stream. Political engagement, support and approval are required from the Energy Committee and the Economic, Environmental and Spatial Planning Portfolio Committee (CCT, 2011c).

Not-for-profit organisations and academic institutions, including Sustainable Energy Africa (SEA) and the Energy Research Centre (ERC) have also been involved in the Programme, providing technical support and advice (CCT, 2011c).

4.4.6 What factors and conditions are contributing to the success of this activity?

Institutional reform: Institutional reform within the City has provided the framework for improved energy efficiency implementation. The establishment of an Energy and Climate Committee in terms of section 80 and an Energy Savings Work Stream has to some extent streamlined decision-making, and implementation, promoted cross-departmental coordination and collaboration and institutionalized the implementation of energy efficiency projects (CCT, 2011c). The Energy and Climate Change Unit played a fundamental role in administering and managing the overall Programme, allowing departments to focus on their specific areas of expertise.

Previous successes: The City's pioneering energy related work, consolidated in the Energy and Climate Action Plan, has mobilised the capacity, resources and skills necessary for energy efficiency interventions (CCT, 2011a). This work has laid the foundation for further internal energy efficiency interventions that are part of the Programme.

Political and official support: Through working across departments and with Committees, there appears to be increasing support amongst both politicians and officials for continued internal energy efficiency. Past energy efficiency projects have generated significant value and savings for the City of and have had numerous benefits for Cape Town residents and commercial operations. It appears that the City is taking both the benefits of improved energy efficiency and the risks to energy security of inaction very seriously (CCT, 2011c).

Partnerships: The City of Cape Town have built strong relationships and have on-going interactions and engagements with a range for stakeholders involved in energy efficiency including Eskom, the Department of Energy (DoE), Sustainable Energy Africa (SEA), funding organisations such as DANIDA (Danish International Development Agency) and Sustainable Energy for Environment and Development (SEED) and Energy Service Companies such as Shared Energy Management. These relationships have established a foundation for on-going energy efficiency interventions (CCT, 2011c).

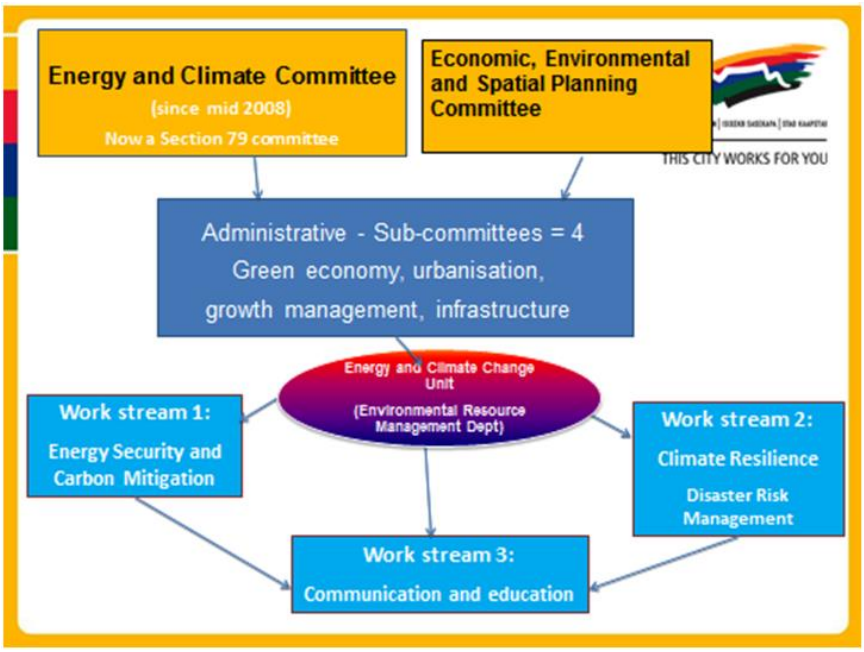

Figure 3: Institutional arrangement for energy and climate change activities (CCT, 2010B)

Wider events: The success of these activities are also influenced by wider events such as national government energy efficiency targets, the allocation of national budget to metros for energy efficiency through the Division of Revenue Act (DoRA), the launch of Eskom's financial offerings such as the standard offer and standard product, and the efforts of international cities in internal energy efficiency brought to the City's attention through information sharing platforms such as the Clinton Climate Initiative.
What impediments exist to its future success and/or development?

Supply chain barriers: There are major path dependencies in municipal supply chain and procurement management, which hinders adoption of new and more efficient technologies as they become available. Energy efficiency is currently not a criterion in City procurement policy, although a process to "green" the City's procurement policy is underway, and practice and supply chain management stores do not stock energy efficient technologies (DOE, 2012).

Institutional barriers: There are a range of institutional barriers that impact on the future success of the Program. Although the City has taken major steps in improving cross-departmental collaboration in energy efficiency interventions, major silo-effects are still present which hinder an integrated and consolidated approach to the implementation of energy efficiency interventions. Energy efficiency has, as of yet, not become fully mainstreamed/embedded in City line functions. This problem is magnified by the lack of clarity regarding roles, responsibilities, mandates, delegations or incentives to undertake energy efficiency interventions. The City has serious capacity constraints in terms of human resources, experience, technical knowledge and time for such activities. There is a lack of assistance, technical support and advice to departments or municipal units that wish to implement energy efficiency

interventions and there is limited communication and knowledge exchange between departments regarding energy efficiency. There is also a disjuncture between the owner, maintenance staff and occupants of municipal buildings. Occupants are seldom involved in the maintenance of buildings and line functions that occupy a building are separate to maintenance, supply-chain, data management and procurement functions. The central billing system also prevents municipal units from having accurate and up to date information on their electricity consumption and responding accordingly with energy efficiency interventions.

Financial barriers: There are various financial barriers to future energy efficiency interventions. Current municipal financial accounting practices do not consider the economic, environmental and social benefits of projects or policies nor do they consider life cycle or full-cost accounting. Widespread uptake of energy efficiency will have significant city-wide benefits but at a cost to City budgets. Energy efficiency interventions have high upfront capital costs and relatively long payback periods and thus short-term pricing usually define the type of technology adopted. Finally, external funding for energy efficiency projects is often irregular and donor contracts are seldom aligned to City processes.

Regulatory barriers: The long time frames and payback periods of energy efficiency furthermore create conflicts with the MFMA (Municipal Finance Management Act) as the MFMA three year tender limitations prevent long term efficiency programme (RSA, 2003). On the other hand, an extension of this three year limitation is possible, if additional requirements are undertaken and met. This demonstrates a wide divergence of interpretation of the MFMA in local government, whereby regulatory challenges are often in fact institutional and capacity challenges.

Maintenance barriers: Energy efficiency installations (lighting, HVAC systems, solar water heaters and timers) require a degree of maintenance which if not regularly undertaken will result in shorter lifetimes and less monetary and energy savings. The Energy Service Company responsible for installation can be held accountable for maintenance through the tender contract, but this can be a lengthy and costly contractual relationship and process. It is thus more practical for facilities managers to undertake on-going maintenance, yet time, skill and resource constraints can hinder effective and consistent maintenance (DOE, 2003).

4.4.7 How will the success or not of this activity be evaluated?

The City has established a target to reduce the electricity consumption of Council operations by 10%. This is a high level indicator of the success of a range of programmes, including a fleet greening programme, a procurement greening programme and an IT greening programme. The street and traffic lighting retrofit interventions form part of the overall objective of reducing electricity consumption of City operations and its success can be measured by its contribution to achieving this high level target (CCT, 2011c).

External monitoring and verification of the Programme is currently underway which will verify the continuous energy, monetary and carbon savings being realised from this programme. The Energy and Climate Change Unit has committed to writing bi-annual reports to the Energy Committee to report on the interventions being undertaken and the electricity and monetary savings being realised. As part of the Programme the City is also currently improving its electricity consumption management through the improved monitoring of electricity consumption via automated meter readers (AMRs). These automated Meter Readers will form an essential component of accurate data collection and monitoring interventions of the Programme (CCT, 2012).

Success will also be evaluated through a range of other indicators including:
- Continued political and official support for energy efficiency interventions
- Increased capital budget allocations for internal energy efficiency
- Increased operational budget allocation for staff capacity to manage energy efficiency projects
- Standardization of budget allocation processes to ensure continued and consistent budget
- Consideration of savings across the lifetime of a technology i.e. lifecycle assessment as part of financial decision-making
- Standardisation of energy efficient technologies in procurement which will require considering energy efficiency in the City's procurement processes and stocking efficient technologies in supply chain management stores
- Standardization of maintenance and replacement of inefficient technologies with more efficient technologies which will require amending City maintenance and insurance policies to consider energy efficiency.
- The formulation and approval of an Internal Energy Management Policy to consolidate the City's approach to energy efficiency
- Strengthened relationships and continued collaboration between separate municipal units
- Municipal units and departments not usually involved in energy efficiency initiating interventions within their operations.

4.4.8 Who is the activity designed to benefit and how?

The Program will primarily benefit the City and Cape Town residents. Through continued energy efficiency retrofits of buildings, street and traffic lighting the City will reduce electricity consumption and save significant amounts of money by reducing the costs of running its operations. This will improve productivity, reduce budgetary pressures and save Cape Town rate payers money (CCT, 2011c).

Through the continued implementation of the Program the City will also lead by example and provide an encouraging environment for residential and commercial uptake of energy efficiency and improved energy management. Reducing energy consumption in Council operation will further reduce pressure on the national grid and the City's vulnerability to price increases whilst improving energy security.

Further benefits of the Program include:

- Reduction in green-house gas emissions and pollutants and improvement in the sustainability of the City's energy system (CCT, 2006);
- Ensured compliance with national energy efficiency imperatives (DME, 2005)
- Reduced maintenance costs associated with certain technologies
- Productivity increases of City staff as interventions usually create a healthier environment which improves staff productivity and performance (DOE, 2012);
- Ensures that the City remains competitive and finance is based on sound cost saving principles
- Provide an opportunity for accessing future financing and funding.

The City-wide benefits of energy efficiency in Council operations include job creation, energy security, promoting technology development and supporting local manufacture and installation.

Finally, the Program could potentially have important ancillary institutional benefits such as eroding silo-effects and promoting collaboration across City line functions. The Program can also strengthen relationship amongst a range of stakeholders including the Department of Energy, Eskom, Energy Service Companies and funding organisation.

6. Future research plans

This document and the associated plans and timeframes will be discussed at the March 2013 project meeting in Cape Town.

In line with the IP project outline, the second phase of the project will examine how different individuals, organisations and communities view the challenges of urban sustainability, the implications for framing different possibilities and responses and potential pathways to address those challenges. We will undertake this research through interviews, focus groups and a concluding workshop.

Importantly, we have not done specific interviews for Phase 1 of the IPP, instead focusing our answers on documents produced by academics and City officials. As noted above, this was based on time constraints and the advice of the advisory group who saw significant overlap between Phase 1 and Phase 2 questions. Further, many noted that official answers to the questions were already largely available in City documents and that there is a significant awareness of the busy schedule and research fatigue in Cape Town. While the broader Mistra project is seen as novel in embedding researchers to help with urban governance challenges, we have also needed to be sensitive to not request too much time from our partners.

This phase will be informed by the indicative questions provided by the Mistra research framework, and focus on the specific exemplary activities outlined above. We will seek to understand to what extent these issues are exemplary, and what other issues may be important for sustainability in Cape Town which are outside the current scope of research.

Additionally, a critical point will be to articulate the difference between the specific formal policies reviewed here and the actual decision-making that occurs. We will seek to understand what happens not just when stakeholders disagree, but when there are conflicting policies, or when formal policy is not followed.

In addition to the short time available to conduct the work of Phase1, as well as the competing demands during this period in the early stages of the KTP, the IPP baseline assessment was largely driven by the ACC, with input from the City by way of comments on drafts in the main. This has been recognised by the PSC as a weakness of the approach followed. To address this, planning for Phase 2 of the IPP has been conducted more collaboratively from the outset between the City and ACC.

The City is in the process of reviewing the IMEP policy, with the objective of broadening the perceptions and scope of both issues and stakeholders involved in the governance of urban sustainability issues. In moving away from the traditional environmental management approach followed by the City, using a largely 'green' environmental agenda, the review of the IMEP is intended to change the language, perceptions, prioritisation and means of implementation around urban sustainability challenges. In short, new transition pathways are being sought through this process.

The first step in the IMEP review is to conduct a scoping of the City's administrative and political decision makers, focussing on their (competing) framings of urban sustainable development issues, whilst proactively probing how change should occur, and what is possible. Identifying transition pathways that are meaningful to the people of the City is a key outcome of the review.

Given the similarity between the objectives of Phase 2 and the IMEP review, work is being done to streamline the two processes, so that the research to be undertaken for the IMEP review and the IPP Phase 2 will be conducted simultaneously and in an integrated manner. A team including the M-UF IPP co-ordinator and a consultant being appointed by the city will work with the embedded researchers and their city counterparts to deliver to both processes.

In this context, there remains much to be discussed in terms of methodology. Therefore, the following interviews and focused groups are proposed, but subject to engagement with the City and the aims of the IMEP review.

The first set of interviews will be conducted with the project steering committee members and other key stakeholders from government. These interviews will be conducted in January and February. This includes:

- Gregg Oelofse – Head of Environmental Policy and Strategy, Environmental Resource Management Department

- Sarah Ward – Head of Energy and Climate Change Unit within the Environmental Resource Management Department
- Osman Asmal – Director: Environmental Resource Management
- Susan Mosdell – Manager: Property, Environmental & Planning Law Unit
- Catherine Stone – Director: Spatial Planning and Urban Design.

As these are City officials with extensive knowledge of the Mistra project and broad knowledge of sustainability issues, these interviews will focus on the more detailed questions of the list of recommended questions for IPP Phase 2. For example: How are conflicting needs prioritised? How does that influence policies? How are differences in strategic direction discussed and prioritised? How is your vision of a sustainable future enabled and constrained by current challenges and conditions? How would new forms of intelligence help with the process, what forms would they take and who would produce them? We expect these individuals to be able to provide holistic and strategic insights based on their awareness of the broader project, interactions with the project over time, and more strategic positions within the City. Importantly, it will be interesting to see the extent to which the understandings of different officials converge or diverge, especially in the context of their interactions through the Mistra project (i.e. whether working together has helped bring together or highlight different opinions).

A second set of ten interviews will be conducted with "street level bureaucrats", to be identified through this first set of interviews. These interviews will likely give more contextual responses about the specific knowledge/intelligence needs of the individuals. These are likely to be individuals who have had some interaction with the embedded researchers, but not directly participating in the knowledge exchange or IP project.

A third set of ten interviews will be conducted with researchers at the four universities in the region (UCT, SUN, UWC, CPUT) as well as with the CHE consortium in which they work together. Questions are likely to focus on the question of how new forms of intelligence help with the process, what forms would they take and who would produce them, with a special focus on how researchers have engaged with the City and practitioners.

A fourth set of ten interviews will be conducted with voluntary agencies, including NGOs. This is likely to include politically active activist groups including the Social Justice Coalition, Slum Dwellers International, Project 90 x 2030, and Earthlife Africa, as well as community groups such as Community Connections in Philippi. We will use existing research networks established at the ACC to help facilitate setting up these interviews. These interviews will likely provide important insights into different stakeholder positions and strategies for seeking to influence policy. It may also show useful insights into NGOs' understandings of how policy is developed. These interviews may also show important insights into the different visions of a sustainable city.

A final set of ten interviews will be conducted with private consultancies and business, as well as business forums. These will be conducted in May and

June. These will be identified primarily through the research of one of the embedded researchers, Rob McGaffin. His work has identified key industry associations, and these we expect will provide more systemic understandings of policy engagement than individual businesses. However, individual businesses may also emerge through other interviews. These interviews may well have a similar focus to the fourth set, in which processes of engagement with policy and understanding of policy process are key areas of discussion.

This will result in a total of around 45 interviews with key stakeholders from these five key stakeholder groups by the end of June 2013. Key findings will be put together into a draft report for each stakeholder group which will be shared with stakeholders and inform the focus groups which follow.

Based on these interviews, we will then hold four focus group in which we seek to build on these findings. These focus groups will be conducted in August and September 2013. We will bring together stakeholders into the groups identified above (with groups one and two forming a single focus group). We will seek to identify points of convergence and divergence in the findings, and use these focus groups to refine the reports.

Finally, a workshop will be held in early November 2013. This workshop will build on the draft reports from the interviews and focus groups. We will seek to understand differences between different stakeholders and stakeholder groups. Further, we will focus on understanding the difference between expectations and experiences with regard to policy and decision-making. We will seek to understand to what extent there is a common vision for a sustainable urban future for the city. This workshop will take place over two days, be held in conference facility outside the city (to help ensure participants show up for the full days), and facilitated by a professional facilitator (Sue XX) who has worked with the Mistra project already.

2013 IPP research timeline
March-June: First sets of interviews
July: Preliminary report
Aug/Sept: Four focus groups
Secondary report
Nov: Concluding workshop
Final report

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