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Green building policy and implementation in the city of Tshwane

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Green Building Policy and Implementation in the City of Tshwane

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A research report submitted to the Faculty of Management, University of the Witwatersrand, in 25% fulfillment of the requirements for the degree of Master of Management (in the field of Public and Development Management)

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ABSTRACT

Implementation of sustainable measures in the built environment is increasingly becoming common in developing countries on a city-wide scale. Buildings have been declared as major contributors, among other sectors, to greenhouse gas emissions. This calls for urgent action as cities are believed to have the potential to attain real change in mitigation of climate change and global warming. The aim of the research was to explore the challenges faced by the City of Tshwane in implementing the Green Building Development By-Law and Policy. The approach employed was a qualitative study which constituted a review of literature on capacity for policy implementation. Primary and secondary data was used to explore capacity constraints and possible success factors in policy implementation. It was established that the policy implementation process has not been rolled out due to time constraints in producing the implementation plan. In addition, major challenges were associated with lack of information, communication and consultation, lack of training, and resource capacity in some areas and an impractical top-down approach. Research revealed that most of the middle managers and perceived implementers were not aware of the contents of the policy. Further research would thus be recommended once implementation has been initiated in full.

DECLARATION

I declare that this research report is my own unaided work. It is submitted in partial fulfilment of the requirement of the degree of Master of Management (in the field of Public and Development Management) in the University of Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other University.

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Liapeng Benedicta Makhele

31 March 2014

DEDICATION

For my angel, E.A.N Makhele, and my late parents, Montši and ‘M’aliapeng Makhele,. You are my shining stars and forever my guardians.

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To the God Almighty! My saviour, I thank you for always staying by my side.

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TABLE OF CONTENTS

ABSTRACT i
DECLARATION ii
DEDICATION iii
ACKNOWLEDGEMENTS iv
LIST OF ABBREVIATIONS viii
LIST OF TABLES ix
LIST OF FIGURES ix
CHAPTER 1: INTRODUCTION 1
1.1 Introduction 1
1.2 Background to the Study 2
1.3 Research problem, purpose and research questions 3
1.3.1 Research problem 3
1.3.2 Purpose Statement 3
1.3.3 Research question 3
1.3.4 Structure of the research report 4
1.3.5 Conclusion 5
CHAPTER 2: LITERATURE REVIEW 6
2.1 Introduction 6
2.1.1 The City of Tshwane Green Building Development Policy 7
2.1.2 Green building 9
2.1.3 A sustainable built environment 11
2.1.4 Climate Change and Cities 12
2.1.5 Policies and instruments for energy efficiency in the built environment 15
2.1.6 The City of Tshwane and Climate Change 15
2.1.7 Agenda 21 Principles for Action 17
2.1.8 Kyoto Protocol 17
2.1.9 Adaptation measures and policy 19
2.2 Capacity in policy implementation 20
2.2.1 Communication and education programs 21
2.2.2 Information 22
2.2.3 Education and Training 22
2.2.4 Leadership 23
2.2.5 Financial incentives 24

2.2.6 Certification 25
2.2.7 Tax incentives 26
2.2.8 Environmental Impact Assessment 26
2.2.9 Planning 27
2.2.10 Common challenges to policy implementation 30
2.2.11 A case study of Mexico: policy implementation challenges 37
2.3 Success factors to policy implementation 38
2.4 Conclusion 42
CHAPTER 3: RESEARCH METHODOLOGY 46
3.1 Research Methodology and Methods 46
3.2 Research Philosophy/paradigm 46
3.3 Research strategy/approach 47
3.4 Type of qualitative research and research methods 48
3.5 Sample selection 49
3.6 Data collection method and procedure 49
3.7 Ethical considerations 50
3.8 Reliability 50
3.9 Validity 52
3.10 Conclusion 53
CHAPTER 4: DATA PRESENTATION AND ANALYSIS 54
4.1 Capacity requirements for policy implementation 54
4.1.1 Need for training and awareness 54
4.1.2 Incentive measures 55
4.1.3 Participation to secure “buy-in” 55
4.1.4 Information exchange 55
4.1.5 Communication and cooperation 56
4.1.6 Administrative capacity 56
4.1.7 Awareness 57
4.2 Challenges to implementing the Green Building Policy 58
4.2.1 Lack of information 58
4.2.2 Lack of staff 58
4.2.3 Lack of communication 59
4.2.4 Overlapping instruments 60
4.2.5 Working in silos 60
4.3 Measures to address the challenges 61

4.3.1 Restructuring 61
4.3.2 Sharing of information and training 61
4.3.3 Stakeholder management task teams 63
4.3.4 Policy review 64
4.3.5 Political will and support 65
4.3.6 Highlighting the benefits of green buildings 66
4.3.7 Strong leadership and commitment to vision 67
4.3.8 Time-frames for implementing policy 68
4.3.9 Implementation plan 68
4.3.10 Integration of global best practices 69
4.4 Analysis of research findings 70
4.4.1 Top-down model 70
4.4.2 Rational model 71
4.4.3 Bottom-down approach 71
4.4.4 Conclusion 72
CHAPTER 5: CONCLUSION/RECOMMENDATIONS 75
REFERENCES 77
Appendix A 88

LIST OF ABBREVIATIONS

BREEAM	Building Research Establishment Environmental Assessment Methodology
CASBEE	Comprehensive Assessment System for Built Environment Efficiency
CoT	City of Tshwane
CSIR	Council for Scientific and Industrial Research
DD	Deputy Director
EMS	Environmental Management Services
GHG	Greenhouse Gas
IPCC	Intergovernmental Panel on Climate Change
LEED	Leadership in Energy and Environmental Design
NABERS	National Australian Built Environment Rating System
NGTP	National Green Technology Policy
OPEC	Organization of Petroleum Exporting Countries
PALAMA	Public Administration Leadership and Management Academy
SBAT	Sustainable Buildings Assessment Tool
TIEP	Tshwane Integrated Environmental Policy
UNFCC	United Nations Framework Convention on Climate Change
UNCED	The United Nations Conference on the Environment and Development
UP	University of Pretoria

LIST OF TABLES

Table 1: Summary of success factors……38

LIST OF FIGURES

Figure 1: Policy Development Pathway……..29

Figure 2: Stages of an inclusive and evidence-based policy process……30

CHAPTER 1: INTRODUCTION

1.1 Introduction

In recent years, most countries have enacted policies for green buildings in response to climate change. An internationally held view is that buildings are responsible for more than one third of total energy use and associated greenhouse gas emissions in society, both in developed and developing countries (UNEP, 2009). With the process of urbanization, the building sector fundamentally impacts all people's daily life (United Nations University – Institute of Advanced Studies, 2013). Building green is an opportunity to use resources efficiently and address climate change while creating healthier and more productive environments for people and communities (Green Building Council of South Africa, 2010). The Netherlands is one of the first countries to devote serious political attention on the implementation of policies and plans for green buildings. Green buildings did not emerge as a policy issue in the United States until about ten years ago and it is still in its infancy. The first municipal green building initiative in the United States took root in Austin, Texas in 1991(Retzlaff, 2010).

Southern Africa, on the other hand, contributes little to climate change but is one of the most vulnerable to the negative effects of this environmental challenge. The South African economy is highly dependent on fossil fuels and the country can be judged to be a significant emitter due to the relatively high values that can be derived for emissions intensity and emissions per capita (South African National Climate Change Response Strategy, 2004). The City of Tshwane (CoT), the second largest municipality in the Gauteng province of South Africa, has developed the Green Building Development Policy with the aim of improving the performance of the built environment**.** The focal point of this study is to explore the implementation of the policy. This paper therefore intends to unpack the requirements for public policy implementation. This is examined according to capacity needs, challenges, measures for addressing the challenges, as well as common success factors for effective and efficient policy implementation. Relevant theoretical frameworks in the literature review relate to climate change in cities, policies for energy efficiency and a sustainable built environment.

1.2 Background to the Study

Qualitative studies have explored global initiatives to tackle the challenge posed by climate change to the environment since the 1970s. In 1979, during the First World Climate Convention, scientific evidence of human interference with the climate was presented to the international public arena (UNFCCC, 2005). International treaties and conventions have been established towards the creation of a safe, clean and healthy environment. Cities are responsible for 67% of the total global energy consumption and more than 70% of greenhouse gas emissions and these trends significantly intensify the severity of the two great challenges of our time; climate change and energy security (United Nations University – Institute of Advanced Studies, 2013).

The South African National Climate Change Response Strategy of 2004 clearly points out obligatory objectives for countries which are signatory to the United Nations Framework Convention on Climate Change (UNFCC). They include, among other items, preparing and periodically updating a national inventory of greenhouse gas emissions and sinks; formulating and implementing national and, where appropriate, regional programmes to mitigate climate change; promoting and cooperating in the development, application and diffusion of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases. South Africa is determined to move towards a low carbon economy through the introduction of green buildings and the use of sustainable building materials which promote urban greening, water and energy efficiency. In fact among others, South Africa has met international obligations as signatory to organisations striving to respond to climate change through a sustainable built environment.

1.3 Research problem, purpose and research questions

1.3.1 Research problem

Cities are faced with rapid urbanization as they attract a vast number of people in search of employment and housing. Urbanization puts a strain on the environment as the use of water, energy and land increases. Cities are where the pressure of migration, environmental pollution and climate change, among other problems, come together (Tshwane 2055 discussion document, 2012). South Africa has gained momentum in green building practices by using products and methods that are safe for the environment and that prevent pollution and the depletion of natural resources.

The Green Building Policy developed by the City of Tshwane aims to improve the performance of the built environment in order to reduce environmental impacts and improve the quality of life within the city (City of Tshwane (CoT) Green Building Development Policy, 2009). However, there are various implementation challenges around this policy. The challenges include lack of resources such as human capital (administrative capacity), an implementation plan, commitment, credible information (green building is new to implementers), training, willingness, motivation, and political will. The other challenge is silos. That is, historical divisions and territoriality that is bound to prevent change.

1.3.2 Purpose Statement

The purpose of this research is to explore the implementation of the green building policy in the City of Tshwane. The main objective is to examine the implementation capacity of the Green Building Development policy.

Sub-problem: To identify the actual implementation capacity prescribed in the policy.

1.3.3 Research question

The primary research question is: What capacity does the City of Tshwane have to implement the Green Building Development Policy?

1.3.4 Structure of the research report

Chapter One: Introduction/Background to the Study

In this chapter, internationally held views about the contribution of buildings to greenhouse gas emissions are introduced. Green building policies as measures to mitigate global warming and the change in climate as a result of emissions and densely populated cities are discussed in this chapter. In addition, the chapter presents the history behind the City of Tshwane Green Building Development Policy as the main subject of the study. The chapter also introduces the research problem, purpose statement, the research question and the conclusion.

Chapter two: Literature review

The literature review explores international best practices on green building policies and programmes. The chapter highlights the requirements and capacity to implement green building policies, challenges met by different cities and states globally, as well as measures for successful implementation of green building policies.

Chapter Three: Research Methodology and Data Collection

This chapter presents the research philosophy, research strategy and approach, the type of qualitative research and research methods, sample selection and data collection methods and procedure, as well as ethical consideration.

Chapter Four: Data presentation and analysis

This chapter introduces various participants' perspectives on the required capacity for implementation the City of Tshwane Green Building Development Policy; challenges to implementation and possible measures to address these challenges. The chapter also presents the analysis of data using types or models as well as literature reviewed. The models are top-down, rational and bottom-down approaches.

Chapter Five: Conclusion/Recommendations

This last chapter presents the conclusion and recommendations based on the findings pertaining to constraints to the implementation of the City of Tshwane Green Building

Policy. This is followed by a listing of all references used in the study. The final part is all the appendices used in the study.

1.3.5 Conclusion

The first chapter incorporated discussions on the need to address challenges brought about by climate change in the built environment. Background to the study was also deployed in the build up to the problem statement and literature review which directly deals with the crux of the study. The chapter also presents the purpose statement with the main objective of the study. A research question is also introduced in seeking to explore the capacity required to implement the policy under discussion.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The aim of the study was to determine capacity requirement for implementing the City of Tshwane Green Building By-Law and Policy. Three focus areas are explored and discussed in the literature review to unpack the main aim of the question in the study. The areas are capacity, constraints to implementing the policy and possible measures against those challenges. This section also focuses on a literature appraisal and review that facilitates the linkage of secondary information bases to the research. It also provides a link that indicates the knowledge gap and need for this study. Green building and a sustainable built environment are practically new areas or subjects to be explored in research, therefore most academic literature consists of recent conference papers, journals and articles. The review presents information available at an international level, with a limited scope of relevant literature from the African region and local/national (South African) sources.

The themes of the literature review cover the City of Tshwane Green Building Development Policy; climate change and cities; policies and instruments for energy efficiency in the building environment; green building; sustainable built environment; the City of Tshwane and climate change; international frameworks to combat climate change and environmental degradation such as Agenda 21 Principles and The Kyoto Protocol; capacity for policy implementation; challenges to implementation as well as possible success factors for implementation.

The literature is desktop based and the notions of green building, energy efficiency and sustainability also feature as the main themes of the study. Literature illustrates that municipalities are key players in the implementation of a government leadership programme in greening public buildings and precincts, setting an example for new buildings and retrofitting existing buildings where feasible. Research indicates that international policies, national policies and programmes help develop norms and standards and future development guidelines for green updates. The towns and cities in developing countries are growing faster than ever before.

By the year 2000, 2.2 billion people were living in the cities of the Third World. The numbers are expected to double by the year 2025. But many of the cities in Africa, Asia and Latin America are already busting at the seams (Narasaiah, 2003). Cohen (2006) argues that, as cities grow, managing them becomes increasingly complex. The speed and sheer scale of the urban transformation of the developing world presents formidable challenges. Of particular concern are the risks to the immediate and surrounding environment, to natural resources, to health conditions, to social cohesion, and to individual rights. The growing number of people in cities is linked to climate change which is one of the major threats to societies around the world today. Hoornweg, Freire and Lee (2011) state that climate change and urbanization are two of the most important phenomena facing the world today; and they are inextricably linked. Poverty reduction and sustainable development remain as core global priorities but, as the World Development Report 2010 emphasizes, climate change now threatens to undermine the progress achieved by low- and middle-income countries, and the poorest populations are most vulnerable.

2.1.1 The City of Tshwane Green Building Development Policy

The Green Building Development Policy is a policy developed by the City of Tshwane Metropolitan Municipality in order to support the development of a more sustainable built environment. The policy contains both mandatory standards (which have to be complied with) and promoted standards (which do not have to be complied with but are supported by the Municipality). The promoted standards will be supported through an incentive scheme (City of Tshwane, 2010). The By-law to the policy states requirements for compliance with the Green Building Development Policy. The Green Building Development By-law and Policy was undertaken by the Environmental Management Services Department of the City of Tshwane in collaboration with the Council for Scientific and Industrial Research (CSIR). The Department has indicated that the policy will be revised at regular intervals to support improved performance. The background to the policy further indicates that the city is presently experiencing a number of bad buildings which may be due to non-sustainable methods.

The proposed proactive, precautionary and sustainable methods captured in the Green Buildings report and the Bylaws are essential and supported. The policy also takes note of the fact that there is a distinct relationship between housing and health, for example, in terms of good ventilation, sufficient artificial and natural lighting, positioning of toilets and/or ablution facilities in relation to kitchen, prevention of dampness etc., and diseases (The TIEP Green Building by-law and policy, 2010). The aim of the policy is to support the development of a more environmentally sustainable built environment within the Municipality in an effort to address environmental issues such as global warming, etc. (City of Tshwane, 2014). The policy was developed in response to internal provisions such as the Tshwane Integrated Environmental Policy (TIEP); the Spatial Development Plan; and the Tshwane 2055 Vision. It was approved by the city council on 25 October 2012 and promulgated in March 2013, and is mandated to address any building that requires building plan approval. The policy's main focus areas include energy, water, waste and transport. The policy, as stated by the City of Tshwane Environmental Management Services Department (2014), will be implemented by the Building Control Office which will ensure: fast tracked application procedures; reduced application costs; municipal negotiated discounts for energy efficient/sustainable technologies; assistance in applying for grants or tax incentives for investments in energy efficient/sustainable technologies; recognition of performance through certification; tender specifications; integrations into the City' stores (maintenance); green Star Certification; and environmental Impact Assessment comments.

The Green Building By-law obligates developers in the CoT to include green considerations in their activities, products and services (Thobane, 2009). The Green Buildings By-law and Policy not only lays the foundation towards sustainable building practices in the City, but also establishes the City as a leading municipality in the environmental management field as no similar project has been implemented by any other municipality in South Africa (City of Tshwane, 2009). The Green Building Development Policy is one of three related instruments developed to ensure and encourage a more sustainable built environment.

Tshwane Update (2013) states that the City of Tshwane is forging ahead with its

commitment towards climate change, mitigation and adaptation as well as implementation of green design principles. In terms of the recently approved and promulgated City of Tshwane Green Buildings Development By-law and Policy, the Environmental Management Services Department constructed an ablution facility which complies to various green building elements at the Rietvlei Dam angling area. The City has established the facility as a benchmark for all newly developed facilities, including those in public areas.

Green technologies installed in the facility include double-cavity external walls; ceiling insulation; lights powered by a photovoltaic system; light-emitting diode (LED) lights; motion sensors; heat pumps; water-efficient taps, shower heads and irrigation systems; decorative materials manufactured from alien plant species; natural wall and floor; finishes that are colour-enhanced with natural pigments; rain water harvesting for flushing toilets; recycled sewage water for irrigation purposes; solid waste recycling; permeable paving; and locally procured materials (Tshwane Update, 2013).

Tshwane Update (2013) further indicates that the Green Buildings Development By-law and Policy, to be implemented by the Building Control Office, is not only applicable to all developments that require Building Control approval, but is also a standard indicator for all tender specifications. The Building Control Office of the City of Tshwane is a division of City Planning and Development and is responsible for applying rules / national regulations, plan submitting, approval and inspection (City of Tshwane, 2010).

2.1.2 Green building

The evolution of green buildings dates back to the 1970s, sweeping across not only the United States, but most parts of the world. Most of the literature illustrates the effect of gas emissions from buildings on people, resources and the environment. It concentrates on changes in building designs and construction in the fight against the dangers of climate change, more particularly global warming. According to Buys and Hurbissoon (2011), green buildings have been on the rise in the United States of America, Europe and Australia for a number of years. However, in South Africa, this is still a relatively

new notion. In 2007 and 2008, consciousness of green buildings increased on account of the electricity and water shortages and a growing awareness of global climate changes. Therefore, it is imperative to define green buildings which are receiving much attention in both private and public sectors (Department of Environmental Affairs, 2010).

Green building refers to the use of environmentally preferable practices and materials in the design, location, construction, operation and disposal of buildings. It applies to both renovation and retrofitting of existing buildings and construction of new buildings, whether residential or commercial, public or private (Commission for Environmental Cooperation, 2008). Freed (2008: 10) cited in Buys and Hurbissoon (2011: 84) claims that "…the first truly green buildings dated from AD 1. Freed (2008: 10) mentioned that the reason for considering those buildings as green buildings was that "the Anasazi understood the sun and heating, natural ventilation, how to capture water, while the only materials used were stone, mud and wood." Today, several methods, such as CASBEE in Japan, LEED in the USA, NABERS in Australia, BREEAM in the United Kingdom, and SBAT in South Africa, have been developed to help assess the 'greenness' of buildings (Ding 2008; Kibert, 2007; Cole, 2005; Gibberd, 2005) cited in Human Settlements Review (2010).

Buys and Hurbissoon (2011) further state that green building has long been a concept but it has not yet been universally applied in practice. The concept of sustainability, which is closely linked to that of green building emerged in 1713 in Germany and was internationalised in the 1970s and can be associated with the energy crisis and environmental pollution concerns. The literature on green building would mostly emanate from the United States – New York and Washington, Australia, Europe – England, India, the Middle East and some Asian countries. Several studies suggest green construction can result in significant economic savings by improving employee productivity, increasing benefits from improvements in health and safety, and providing savings from energy, maintenance, and operational costs (Ries, Bilec, Gokhan & Needy 2006).

Other literature suggests that environmental issues and perhaps green buildings, to be more specific, may not be a priority to communities of developing countries as they

strive to make a living with limited resources. For instance, Kidd (1997) cited in Barker, Hill, Bowen and Evans (2004: 9) states that, in South Africa, where the majority of the population are struggling to satisfy their basic needs, and lack proper education, the environmental 'ethos' of the general public has not developed to an extent where environmental issues are seen as a serious priority. The interests of society are judged in terms of immediate benefits and future needs are considered an unaffordable luxury (Fuggle, 1991).

2.1.3 A sustainable built environment

The creation of green and sustainable buildings has been linked to sustainable development and thus economic, social and cultural improvement as sustainable construction of these buildings is innovative as well. This validates the importance of this study which aims at finding out whether the implementation of the green building policy in discussion will help in fulfilling the outcomes of what is a sustainable energy efficient building. A similar research was conducted by Sunikka (2001) cited in Reinink (2007) who examined national strategies for sustainable buildings in five European countries. Sunikka states that; the research covered strategies to achieve energy savings, materials and waste management, and water conservation. The study outlined the national strategies and evaluated the implementation of the strategies. Finally, it elaborates on the social housing sector to assess the impact of the strategies.

Sunikka (2001) cited in Reinink (2007) emphasised the importance of developing tools that will support sustainability, with particular reference to areas that are not covered by building regulations; such as the management and renovation of existing buildings. Since the early 1990s, environmental sustainability has become one of the most critical areas of concern for sustainable development. The Rio Summit, with its Agenda 21 Principles for Action has inspired urban planners and the Local Agenda 21 movement. More recently, the widely shared recognition of climate change as the new challenge faced by the global and local environment has provided new impetus for consideration of the linkages between the 'brown and green agendas'.

Cities consume and deplete enormous amounts of resources and energy (United Nations Human Settlements Programme (UN-HABITAT), 2010). American cities have

begun to develop green building policies by using incentives and voluntary measures and they have gradually moved toward stricter requirements for private development. The federal government has also evolved to embrace green building, with many agencies committing to construct green buildings for all or some of their activities (Retzlaff, 2010).

2.1.4 Climate Change and Cities

Climate change is already with us and there is an urgent need to develop adaptive strategies (Gill, Handley, Ennos & Pauleit 2007). Countries world-wide are investing in initiatives and policies that promote the implementation of environmental protection. As Nicholas Stern argues, 'Climate change presents a unique challenge for economics: it is the greatest and widest-ranging market failure ever seen.' As markets are unable to internalise environmental externalities, the responsibility to do so falls firmly upon the state (Development Planning Division Working Paper 2011: 7). Reports from leading scientists throughout the world underline the need for urgent action on climate change. The Intergovernmental Panel on Climate Change (IPCC) projects that without more immediate action to limit greenhouse gas emissions, global warming could cause irreversible and possibly catastrophic consequences (Commission for Environmental Cooperation, 2008). The need for action by city/municipal governments on climate-change adaptation is also urgent – and probably more urgent than that suggested by the IPCC's Fourth Assessment. This is because of new analyses of the vulnerability of urban populations to the increased risks or new risks that climate change is likely to bring in most low – and middle-income nations that were not available to the authors of the IPCC's Working Group II (Satterthwaite, 2008).

To illustrate further on the challenge, Satterthwaite (2008) indicates that many cities and their water catchments will get less precipitation (and have more constrained fresh water sources) – which is particularly problematic for growing cities and large cities already facing serious problems obtaining sufficient water supplies. Muller (2007) cited in Satterthwaite (2008) points out that at least 14 African nations are already facing water stress or water scarcity and many more are likely to join this list in the next 10 to 20 years. This is among a list of constraints that include higher temperatures, health risks related to climate change and other key natural resources. According to a World

Bank report on cities and climate change (World Bank, 2010) many people, particularly the poor are already affected by climate change. The next decade will be particularly challenging. Cities will take a more active role in global dialogues and policy development as citizens demand more comprehensive and immediate responses from all levels of government. The World Bank (2010) indicates that building cities that are green, inclusive and sustainable should be the foundation of any local and national climate change agenda. This requires better management of cities, mobilization of a global array of stakeholders, additional financing, and strengthened partnerships, as well as specific sector policy reforms such as urban transport policies, sustainable city planning, and enhancing city resilience and energy efficiency. The purpose of going green is to use products and methods that would not negatively impact the environment through pollution or depleting natural resources (Robinson, 2008) cited in Smith & Perks, (2010). If the use of natural resources is reduced by using alternative sources, it will have positive outcomes such as keeping the environmental footprint small, reducing waste and re-using materials as much as possible (Dallas 2008, cited in Smith & Perks, 2010).

The report (World Bank, 2010) further states that cities have the unique ability to respond to a global issue, such as climate change at a local, more tangible level. They usually offer more immediate and effective communication between the public and decision makers than other groups can. Co-benefits of climate change mitigation and adaptation are largest in cities. Municipalities are well placed to develop and implement effective adaptation strategies. They are the site of government closest to people and have local knowledge and experience – all important attributes in designing strategies that must address the specific vulnerabilities of local areas, communities, socio-economic activities and ecosystems in the context of climate change. This important role is recognised in national strategy, such as the draft National Climate Change Response Strategy, and National Framework on Sustainable Development (Climate Systems Analysis Group). Satterrthwaite (2008) also points out that city and municipal governments have the main responsibilities for planning, implementing and managing most of the measures that can diminish risks (and the high vulnerabilities of sections of the population) from direct and indirect impacts of climate change – through provision of infrastructure and services, disaster preparedness and the planning and regulatory

framework. Satterthwaite (2008) also declares that the extent to which city and municipal governments actually meet their responsibilities has significant implications for living standards and the quality of life (including the quality of the urban environment) – and obviously, for adaptive capacity.

The vulnerability of cities to climate change is largely underestimated due to lack of standardised data and weak metrics at the city level. There is no established set of city indicators that measures the effects of climate change on cities and assesses those risks, nor is there a comprehensive set of indicators with a common, accepted methodology designed to measure the impact that cities have on climate change and the role that cities play, for example, in contributing to greenhouse gas emissions (McCarney et al, 2011, cited in Hoornweg, et al, 2011). Cities are blamed for the majority of greenhouse gas (GHG) emissions. So too are more affluent, highly urbanized countries. If all production-and consumption-based emissions that result from lifestyle and purchasing habits are included, urban residents and their associated affluence likely account for more than 80 per cent of the world's GHG emissions (Hoornweg, et al, 2011).

It is evident therefore that cities contribute significantly to climate change, which further poses a threat to the lives of societies across the world. Climate change constitutes a threat for a large range of rights, including the right to safe and adequate water and food, the right to health and adequate housing. Gender inequalities and women's rights will also be further aggravated. Decent work is endangered by the social and economic threats posed by climate change where workers from urban and rural areas will suffer from its impacts and governments' ability to deliver public services will be weakened (ACTSA, 2009). There are indications that improved building practices in construction and operation are some of the quickest and cheapest ways to reduce greenhouse gas emissions significantly, also coupled with economic benefit (IPCC, 2007 cited in Matsila, 2012).

2.1.5 Policies and instruments for energy efficiency in the built environment

The U.S. Green Building Council developed the LEED (Leadership in Energy and Environmental Design) Green Building Rating System, which is a voluntary, consensus-based national framework to standardise assessment of sustainable building performance and meet sustainability goals. It emphasises strategies for sustainable site development, water savings, energy efficiency, materials selection and IEQ (U.S. Green Building Council, 2004) (Ries, Bilec, Gokhan & Needy 2006).

As already indicated, various policy documents in support of the implementation of the green economy in South Africa include the National Growth Path, the Industrial Policy Action Plan (IPAP2), the Green Paper on a Climate Response Strategy, and the Expressions of Interest for green projects and the Green Building Framework as part of government leadership programmes in greening public buildings and precincts (Development Bank of Southern Africa, 2011).

2.1.6 The City of Tshwane and Climate Change

According to the Intergovernmental Panel on Climate Change, the earth's average temperature has increased by more than 0.18 degrees Celsius in the last 100 years. The eight warmest years since 1850 occurred in the late 90s, with the warmest year being 2005. On average, South African weather stations showed an increase of 0, 2° C during the 1990s (City of Tshwane online). Global climate change is possibly the greatest environmental challenge facing South Africa. The developing world faces greater challenges as the richer developed countries are exploiting their natural resources. In some developing countries, the major challenge is the lack of capacity to respond to climate change. South Africa is also vulnerable to climate change (City of Tshwane Metropolitan Municipality State of Energy Report, 2006).

The City's (Tshwane) major polluting activities include transport, industry and commerce, households, electricity generation and distribution as well as other municipal services (City of Tshwane).

Faling, et al (2012) proclaim that, in South Africa, the National Disaster Management Act tasks all spheres of government – in collaboration with civil society – to undertake to protect people, infrastructure and other national assets from the impact of disasters (RSA, 2002). It is therefore the duty of government to plan for climate change adaptation and mitigation to reduce the vulnerability of people, infrastructure and other national assets to climatic change; to protect development gains (Bulkeley & Betsil, 2005; Faling, et al 2012). Action, therefore, is mainly required at a policy level as according to city reports, climate change mitigation and adaptation must be integrated into development policies of the City. Policy makers, decision makers and politicians must influence the adoption of the principles of sustainable development, environmental justice, community well-being and empowerment and ecological integrity within the City's urban development path.

It was inevitable therefore for the City to initiate among other policies and measures, the Green Buildings Incentive Scheme and Bylaws and retrofitting of municipal buildings with energy-efficient and renewable energy technologies installations (City of Tshwane). Furthermore, as the Department of Environmental Affairs (2010) argues, in South Africa, the built environment is characterised by inequities and spatial disparities as a result of historical planning practices and racially-informed allocation of resources. Thus, the motivation for greening the built environment is not informed by any one single imperative but by a combination of drivers, including the correction of skewed patterns of development whilst ensuring that this is done without adverse impacts to the environment.

Gill, et al (2007) also affirms that the use of green infrastructure may help in reducing greenhouse gas emission or in mitigating climate change. Green infrastructure means different things to different audiences, and has been applied in a variety of ways, for example, green energy sources such as solar panels, solar water heaters and green building materials are also commonly referred to as green infrastructure (Benedict & McMahon, 2002, cited in Nhlozi, 2012). The creative use of infrastructure is one of the most promising opportunities for adaptation as the needs to be recognized in the planning process at all levels (Gill et al, 2007).

2.1.7 Agenda 21 Principles for Action

The United Nations Conference on the Environment and Development (UNCED) in June 1992 developed and adopted a comprehensive document mandated to guide global action on the environment and sustainable development in the 21st century. The document, called “Agenda 21” addresses how urban settlements are to be managed in the future since urban centers or metropolitan areas are the fastest growing type of human settlements (Greater Johannesburg Metropolitan Council, 1998).

The document takes into consideration the fact that while cities are overpopulated, city management is responsible for the provision of civic services such as waste management, energy, clean water. Agenda 21 is thus of great relevance to this research as it identifies the construction industry as an integral contributor to environmental problems.

According to Agenda 21, countries must develop policies and technologies to meet the development goals while avoiding harmful side effects to humans and their environment due to these activities. The building industry must use locally available natural resources, energy-efficient designs, and be sensitive to ecologically fragile areas. Agenda 21 requires that there is broad participation in policy and decision makings from all levels of society (Environmental Resource Management Section, 2007). The UNCED makes provision for countries to implement their own Local Agenda 21 which includes commitments by local government leaders to implement goals and targets of Agenda 21. Local Agenda 21 is defined by the Environmental Resource Management Section (2007) as a comprehensive, participative process seeking to integrate social justice, economic viability and environmental concerns at local level. It reflects the needs, resources and hopes of a community and places these in the global context.

2.1.8 Kyoto Protocol

Global cities – hubs of international economic, and policy interactions – are more likely to commit to international networks for addressing global climate change issues because they are centres of ideas and policy diffusion and because they have economic

interests regarding climate change (Lee 2010 cited in McCarney, et al, 2011). As Lee points out, whether a city joins a global climate change network voluntarily or not is an indication of its willingness and commitment to learn about and collaborate on climate change responses. Sustainable development in the building and construction sector remains a priority among countries, some of which have made commitments to international conventions against climate change and reduction of carbon emissions. The Kyoto Protocol is one such convention. It is an international agreement linked to the United Nations Framework Convention on Climate Change, which commits its Parties by setting internationally binding emission reduction targets. The Protocol places a heavier burden on developed nations under the principle as they are perceived to be the main contributors to the currently high levels of Greenhouse Gas emission due to industrialization. Its first commitment period started in 2008 and ended in 2012 (United Nations Framework Convention on Climate Change, 2014). In 2011, Ministers from over 50 African countries including South Africa met to reinforce their position at the United Nations climate talks (COP17), demanding an ambitious second commitment period under the Kyoto Protocol, the only legally binding instrument under the UN Framework Convention on Climate Change. As already mentioned, and according to the Intergovernmental Panel on Climate Change (IPCC), Africa will be hit first and hardest by global climate change, and is among the least equipped to adapt to its adverse effects. For this reason, African participants at the COP17 argued that developed country parties to the Kyoto Protocol should honour their commitments and reduce their greenhouse gas emissions by at least 40 percent from 2013 to 2017, which marks the second commitment period to the protocol (COP 17 Climate Change Conference, 2011).

According to the World Bank Institute (2011) the event (COP 17) offered an opportunity for practitioners and technical experts to reflect on their experiences and knowledge in transforming cities towards climate resilience. It attracted participants from South Africa (City of Cape Town, Durban, Johannesburg and Tshwane City), Mexico (Mexico City), and the United States of America (New York City and Washington DC). Given that climate change is not a problem that a single local government can solve by itself, learning and collaborating through networks allows a city government to expand its capacity to handle climate change issues (Lee, 2010, cited in McCarney, 2011). Lee

further indicates that the logic of a city's participation in international environmental governance in climate change networks is related to the role cities increasingly play in the global economic context. Second, international socialization takes place in a global city with numerous interactions via conferences and contacts. Conferences in global cities institutionalize socialization among policymakers, scientists, and interest groups. Third, a global city is financially motivated to cope with climate change issues.

2.1.9 Adaptation measures and policy

Retzlaff (2010) specifies that in the Netherlands, the Dutch government issued an action plan for sustainable construction in 1995 that outlined broad goals and policies for all areas of green buildings, including energy use, water consumptions and air quality. Despite these advances at the national level, implementation of green buildings programs was left up to the discretion of individual municipalities. The national government became much more involved in green building policies in 1996 with the National Sustainable Building Packages (Retzlaff, 2010). It is not clear how many green building policies have to date been adopted by the United States. One survey of 661 of the largest American cities found that 92 of them had green building programs (Retzlaff,: 2010). Green building initiatives in Malaysia is a concern that has received greater attentions from government agencies, private organizations and the public at large for almost a decade now.

With the launch of National Green Technology Policy (NGTP) in 2009, the focus on green buildings has intensified with the promotion of the application of renewable energy (RE) and energy efficiency (EE), as well as the green building index (Suhaida 2013). Hoornweg (2011) points out that because of their proximity to the public and the focus on providing day-to-day services, cities tend to be more pragmatic than senior levels of government. Climate change will require city administrations to develop more robust partnerships with their constituencies, especially in low- and middle-income countries. Key urban policy initiatives can play an important role in addressing climate change mitigation and adaptation. Lee (2011) also affirms that global cities play a central role as hubs in the diffusion of ideas and the flow of people. A global city with a

cosmopolitan identity and status as a centre of diffusion provides a strong incentive for a city to actively participate in global environmental issues.

In addition to this, Cohen (2006) states that numerous legal and institutional reforms in many countries have given shape to institutional reforms at the local and municipal levels. Consequently, solutions to urban problems are increasingly being sought at the local rather than the state or national level. These trends underscore the urgent need to build and support the capacity of local governments to manage the environmental and social service problems that accompany rapid urban growth. It is inevitable therefore that most city and municipal governments have formed coalitions against climate change and environmental degradation.

2.2 Capacity in policy implementation

Research indicates that capacity in all its forms in policy implementation is a key factor to success in any organisation. As Peters (1996) denotes, we can evaluate policy making along a variety of dimensions, but one of the most important is the utilisation of knowledge and the capacity to generate and apply policy advice effectively in order to make policies "better". In Australia and internationally, the discourse of 'declining policy capacity' is pervasive. Politicians, practitioners and scholars have expressed concern about the ability of the public service to support policy processes through its analysis, advisory and service delivery functions. There is particular concern about policy implementation – about the ability and willingness of the public service to promptly deliver on government commitments and priorities, and about the extent to which policy and program design is informed by operational realities (Tiernan, 2004).

The author indicates that policy capacity has become an umbrella term encompassing a variety of concerns about skills and abilities of the public service; the ability of the public service to recruit and retain people with requisite knowledge, skills and experience; the nature of relationships between officials and political executives; and the policy advising role of the public service in an increasingly dynamic, pluralised and contestable environment. Peters (1996) affirms the viewpoint on the prominence of skills. According to him, not only should policy makers have some substantive knowledge of the policies

for which they are responsible, they should also have the skills required to put them into effect. While there are many tools available to assist local authorities with environmental management, they are not accompanied by the necessary capacity and the financial resources for their application (du Plessis 2002). In developing countries the capacity of implementing agents is one of the key barriers to sustainable construction. While this can partly be addressed through education and training, problems such as lack of manpower, equipment, access to financing or even basic services further reduce the capacity of implementing agents (du Plessis 2002). The Public Administration Leadership and Management Academy (PALAMA 2012) indicates that in the public sector, capacity refers to the availability of and access to concrete or tangible resources (human, financial, material, technological, logistical, etc.). Capacity also includes the intangible requirement of leadership, motivation, commitment, willingness, guts, endurance, and other intangible attributes needed to transform rhetoric into action.

2.2.1 Communication and education programs

The World Health Organisation (2006) states that policy implementation is complex. The organisation denotes that policies will have no effect unless they are implemented; hence it is crucial to educate stakeholders about green building. Along with education programs that make the case for green building—to increase the adoption of these practices—education must also be directed at building professionals to ensure that they have the knowledge needed to successfully implement green building practices (Wilson 2011). Canada is among the countries that have introduced technical environmental programmes in their curricula to address the backlog to effective communication and education about green buildings.

Wilson (2011) declares that to address this issue in Canada, educational models based on the integrated design process are being implemented in academic programmes such as the Environmental Design Graduate Program at British Columbia University and the Environmental Studies Collaborative Program at the University of Toronto. In these types of programmes, students are placed on multidisciplinary teams and challenged to design mock green building or infrastructure projects. Continuing education of architects, engineers, and others in the building industry is also critical.

2.2.2 Information

Bhuyan, Jorgensen and Sharma (2010) assert that understanding the nature of policy implementation is important because international experience shows that policies, once adopted, are not always implemented as envisioned and do not necessarily achieve intended results. One of the reasons for this challenge may be lack of information about green buildings. As Wilson (2011) explains, governments should support the collection and display of information about green buildings. One such initiative is the High Performance Buildings Case Studies Database, funded by the US Department of Energy. This database currently includes about 100 green buildings and displays consistently formatted information on these buildings to allow easy comparison. Du Plessis (2002: 36) supports this notion indicating that “accurate data and information is critical to achieving effective sustainable construction processes and policies. Information is needed on current "green" building materials that are available, including the types of materials, how they are employed and the resources consumed over their life cycle”.

2.2.3 Education and Training

Education forms a large component of most green building policy regimes. Du Plessis (2002) declares that ignorance, lack of access to information, and education on environmental topics, especially those related to sustainable construction, are present at all levels. Raising public awareness on environmental and equity issues is indispensable for sustainable development. For successful implementation of comprehensive and appropriate development issues, it is essential to educate the public, governments, social and technical institutions and business groups about comprehensive sustainability issues. According to the Commission for Environmental Cooperation (2013), in King County, Washington, the Green Tools Program offers a robust set of educational materials to support itself.

The Commission further states that some of the most innovative, successful, and cost-effective programs are those that manage to integrate marketing and education into the

traditional development and retrofit process. Santa Barbara's IBRP introduces its developers and contractors to the IBRP at the permitting stage. The program incentives draw developers into bi-weekly committee meetings facilitated by professional advisors, where participants can obtain free advice and brainstorm on ways to make their projects more sustainable. Prior to 2008, 5 to 7% of the county's total permit stream came through IBRP. Additionally, the county's green building program has inspired the developers of 15 commercial buildings, and four other county governments, to implement energy efficiency measures.

Another example is the City of San Jose Green Building Policy (2001) which calls for staff to serve as a resource for training and education on incorporating green building principles into private development projects; and maximize outreach opportunities with developers on the benefits of sustainable building and the certification process. As the San Jose Green Building Policy further denotes, training is a crucial element in carrying out implementation. In accordance with the project specifications, the Contractor shall be required to provide Operations and Maintenance manuals along with mandatory training to City staff. The City of San Jose places great emphasis on empowering relevant staff members to familiarize themselves with developments in green building. They clearly state, "project staff shall be encouraged to take at least one green building workshop/seminar per year to ensure that staff is up to date on the latest approaches in green building. General Services staff will be strongly encouraged to attend green building related workshops/seminars."

2.2.4 Leadership

The City of San José provides leadership and guidance to encourage the application of green building practices in private sector planning, design, construction, management, renovation, operations, and demolition of buildings and to encourage the highest practicable level of building certification under the USGBC LEED program (City of San Jose Green Building Policy, 2001). As major property owners and developers, local governments have the ability to shift industry practice just by applying green building standards to their own portfolios. For instance, it is quite common for local government to set policy requiring public buildings to meet a green building standard, before encouraging the private sector to achieve similar targets. This approach not only

demonstrates leadership but also affords the government an opportunity to learn about how a policy will work and the impacts it will have on the private sector, as well as establishes a number of demonstration projects to better acquaint local industry with new practices (Commission for Environmental Cooperation 2013: 12). Peters (1996) asserts that in the contemporary environment this also requires the capacity to promote cooperation across the range of organisations that have an interest in the policy area.

2.2.5 Financial incentives

One of the key resources for implementing sustainable and green building policies and projects is funding or what is called financial incentives for compliance. Du Plessis (2002) recommends the development of regulatory mechanisms or tools such as financial incentives to encourage sustainable construction. She adds that this (incentives and disincentives) in the long term serve as some of the strengthening implementation mechanisms to encourage and enable innovation and sustainable construction. North America is among the leading countries that have implemented such policies to improve their construction industries. At local government level, the local authorities in charge of the provision of construction permits, the regularization of informal buildings, the provision of good quality public spaces and the control of urbanisation, are not equipped with the necessary financial and technical resources to provide these services adequately, let alone include criteria for sustainability.

While there are many tools available to assist local authorities with environmental management, they are not accompanied by the necessary capacity and the financial resources for their application (du Plessis 2002). Historically, local governments have utilized financial incentives such as grants, loans and rebates for lighting, boiler replacements, onsite alternative energy generation and other green technologies, often provided by or in partnership with local utilities. While these types of incentives continue to form part of many green building policy frameworks, cash-strapped governments have introduced and refined a number of alternative incentives, such as tax rebates and density bonuses, which arguably have done more to further green building than traditional financial incentives (Commission for Environmental Cooperation 2013).

According to the Commission, the most common and successful incentive policies to date are those tied to green building certification (Commission for Environmental Cooperation 2013). For instance, the Town of Caledon, Ontario's Green Development Pilot Program offers to developers who undertake new commercial and industrial projects that qualify for local Development Charge (DC) a discount on that charge, if they achieve a range of green technology measures and/or LEED certification (Commission for Environmental Cooperation 2013). The Commission (2013: 20) however cautions; "to convey the message that green building is a desired objective of government, government must provide incentives that are both tangible and significant, even if this means focusing on one initiative over another. Formulating policy that attempts to reach too broadly risks generating a suite of ineffective initiatives".

2.2.6 Certification

Recognition of performance through certification is among the incentives proposed in the implementation plan of the CoT Green Building Development policy. It should be noted that in South Africa All industry role-players should actively seek certification under ISO 9 000 and 14 000, and any new sustainability standards that are developed. Developers, designers and contractors should also apply for certification of their products according to rating schemes such as BREEAM, LEED, Green Buildings for Africa, and other eco-rating and assessment schemes (du Plessis 2002). In North America, one of the most common green building strategies has been the certification of buildings.

Certification schemes traditionally exist outside of building codes and serve to set minimum industry-performance thresholds. In setting standards, many municipalities have adopted third-party certification frameworks, such as LEED®, while others, such as the cities of Austin, Toronto, and East Gwillumbury, Ontario, have elected to develop standards that reflect their specific sustainability objectives. For those creating a locally tailored standard, there is the added consideration of whether to set prescriptive or performance-based standards (Commission for Environmental Cooperation 2013).

2.2.7 Tax incentives

The US government's Energy Efficient Commercial Building Tax Deduction is the first federal tax policy directly aimed at greening buildings. Building owners receive varying levels of tax relief for installing or retrofitting one or more of three different building systems—interior lighting, HVAC systems (heating, ventilation, and air-conditioning), and building envelope (roofing, windows, insulation)—as well as achieving a 50% improvement over a reference building, based on the building standard ASHRAE 90.1-2001 (ASHRAE 2001). It is estimated that $600–700 million in claims have been made since the start of the program in 2005, along with $891 million in revenues, despite the economic slowdown in 2008 (Commission for Environmental Cooperation 2013).

The Commission further proposes ongoing monitoring and review of incentives as also critical. It states that these incentives often become obsolete with improved industry practice, enhancements to building codes, and changes in market conditions. Du Plessis (2002) affirms that through incentives such as tax breaks, preferential procurement and bridging finance for retooling, government can provide incentives for the construction sector to adopt sustainable construction practices. This will further encourage and support the implementation of green building policies as has been the case in the United States of America.

2.2.8 Environmental Impact Assessment

In many developing countries there are no clear-cut policies to support housing and urban planning, and there is a definite lack of norms and specific legislation that promote sustainable construction. While there have been regulations regarding Environmental Impact Assessments (EIA) for industrial sectors like mining, fishery and forestry for a while now, these requirements rarely exist for the construction of big infrastructure projects and large urban development projects (du Plessis 2002).

2.2.9 Planning

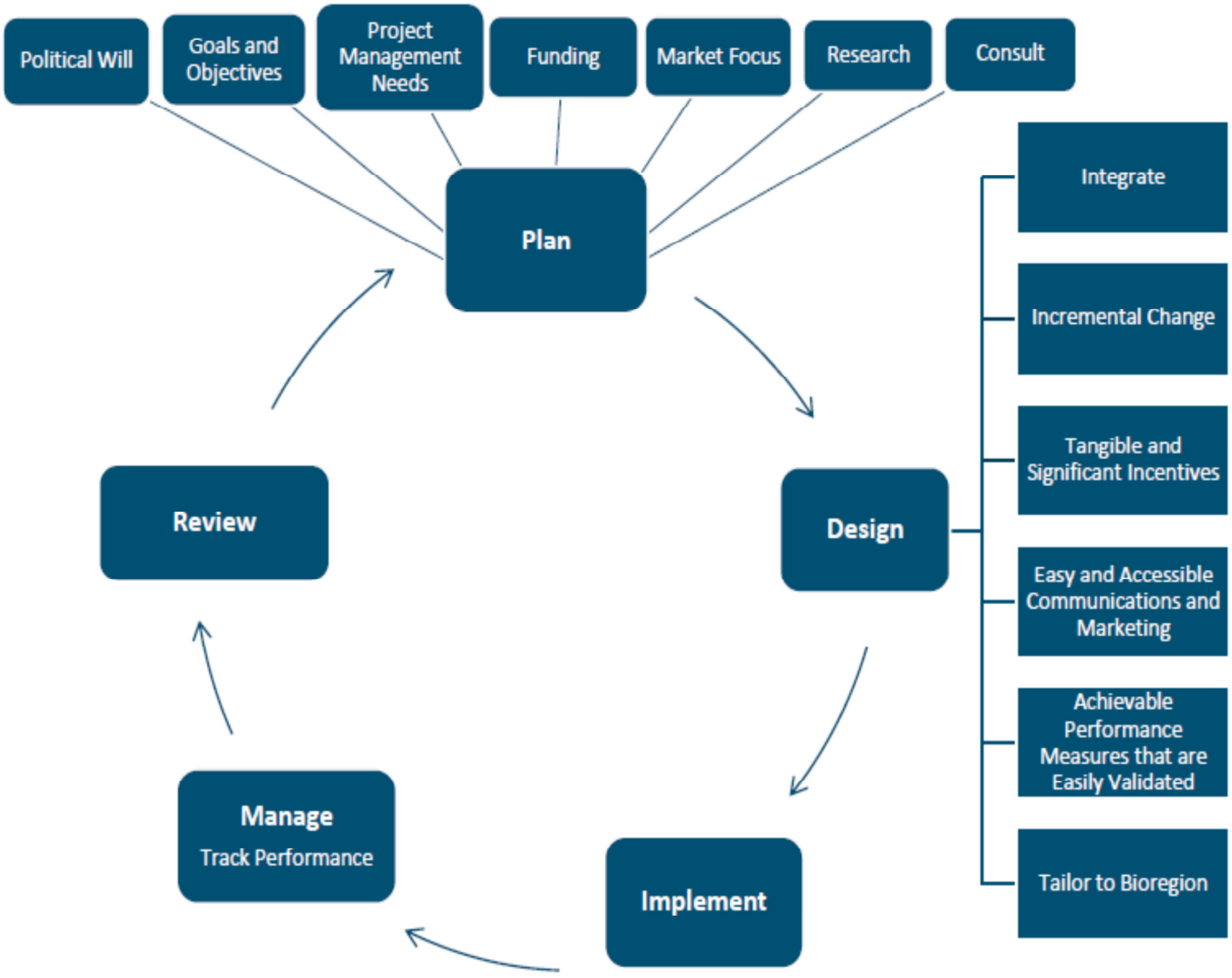
Lessons from Australia and overseas reinforce the importance of thorough planning for implementation. Senior responsible officers should avoid any tendency or pressure to unduly restrict the time spent on early planning for implementation. Inadequate preparation may lead to the emergence of unforeseen barriers and to delays, cost overruns, or a failure to deliver the intended benefits (Commonwealth of Australia 2006). As the Commission for Environmental Cooperation (2013: 18) highlights, cooking up green building policies and programs necessitates planning and testing. Planning, according to the Commission, involves a number of important steps, including setting goals and objectives, securing adequate program funding and political support, identifying project management requirements and the target market, and conducting market research and authentic stakeholder consultation. It denotes that additional elements such as a cost-benefit analysis can help to identify optimal levels for various incentives. “Robust planning approaches, like that followed by the City of Austin, also call for social impact assessments to assess the potential effects of any policy changes on communities, particularly low-income areas”.

While green building policy continues to evolve, experience to date has revealed many techniques to ensure success. Figure 1 (**Annexure B**) illustrates one plausible pathway for developing a green building policy framework and highlights a number of important elements that should be considered in the process. The list of considerations is not intended to be exhaustive, but reflects the collective experience of government programs consulted in the preparation of this report (Commission for Environmental Cooperation 2013).

Within the framework of institutional analysis and development, the action arena is the national policymaking and planning process, which involves multiple processes including creating knowledge to inform stakeholders; communicating and dialoguing based on information; participating with various stakeholders; advocating and pleading for one’s own preferences and interests; designing, writing, and communicating changes to stakeholders; applying and enforcing the policy changes; and evaluating and

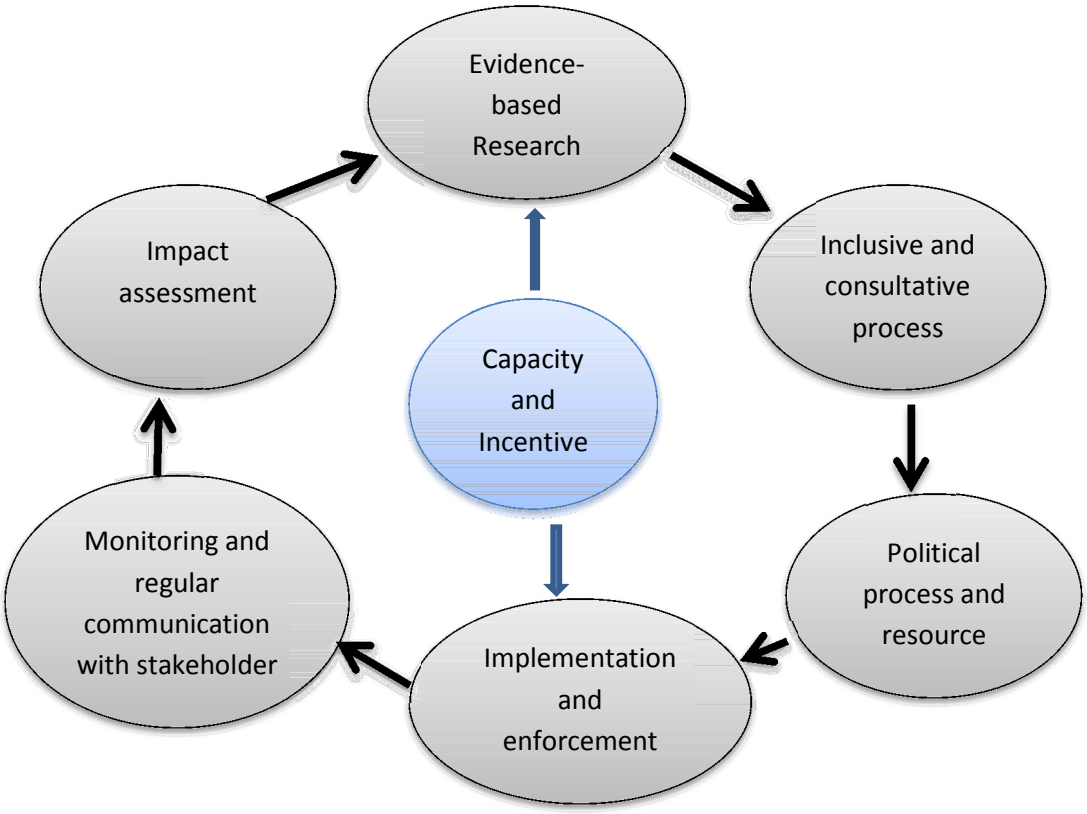
monitoring the progress and impacts. These can also be grouped into the following six key processes: (in Figure 1) (Ragasa, Babu & Ulimwengul 2011: 6)

Figure 1: Policy Development Pathway



Source: (CEC 2013: 17)

Figure 2: Stages of an inclusive and evidence-based policy process



Source: Ragasa, et al (2011: 7)

2.2.10 Common challenges to policy implementation

Howlett, Ramesh and Perl (2009) state that after a public problem has reached the policy agenda, various options have been proposed to address it, and the government has set policy goals and decided on a course of action to attain them, it must put the decision into practice. The effort, knowledge, and resources devoted to translating policy decisions into action comprise the policy cycle's implementation stage. Policy implementation, they point out, often relies on civil servants and administrative officials to establish and manage the necessary actions. Scholars of policy implementation have identified five intertwined variables known as the 5 C protocol as critical in implementing municipal policies. The first one is the content of the policy, that is, policy goals and how the policy itself aims to resolve the perceived problem. The second variable is context, which may be explained as standard operating procedures in the process of implementation. Third, commitment of stakeholders entrusted with carrying out implementation at various steps is another important variable. The fourth variable is capacity – administrative capacity is crucial as implementers are expected to carry out the set goals and changes required of them. Finally, support of clients and coalitions whose interests may be negatively and positively affected by the implementation of the policy, is necessary.

The complexities of policy development could be one reason for the failure of implementation. However, in developing countries the failure of policy can largely be attributed to issues of poor implementation (Sajid, 2006 cited in Brynard (2007). He proclaims that sometimes policies are set out to achieve ambitious targets which ultimately fall short of their desired outcomes. Another problem of policy implementation could be political commitment, as Brynard argues that leadership and political commitment are critical for the success of policy. The lack of reliable data often hampers policy makers' ability to devise clear policy goals with well-defined implementation plans and evaluation (Brynard 2007).

Frequently, as Jenssen and Sippel (2009, cited in McCarney, Blanco, Carmin, & Colley, 2011) point out, political and administrative leadership is cited as a precondition for successful local climate policymaking. Motivation and commitment of decision-makers

and administrative staff members can make a difference. The authors further indicate that in the initial phase more especially, and when taking controversial decisions, political support is absolutely essential for successful climate governance. However, political support and leadership they argue, may not be sufficient where financial constraints are too high (both costs of climate policies and lack of financial and human resources) (Kern, et al*.,* 2005, cited in McCarney, Blanco, Carmin, & Colley, 2011).

Lack of co-ordination among political representatives and officials, and among government departments, could also be a problem with implementation (Brynard 2007). Another recurring criticism of policy implementation is the orientation towards centralisation. This means that policies and plans are developed in the national sphere with little consultation with the final implementers (Brynard, 2007). The distance of policy makers from practice not only causes problems for the managers of the policy, but also creates a lack of harmony among the different elements of the same policy, and among the different units of machinery of government (Sajid, 2006, cited in Brynard, 2007). Financial and technical resources, along with the quality of human resources, are key factors that contribute to successful policy implementation (Brynard 2007).

For instance, the TIEP Green Buildings by-laws and policy (2010) clearly indicates that the implementation of the "*City of Tshwane Green Building Development by-law"* (Annexure A) will have human resource implications for the City Planning and Regional Services Department in terms of verification of submissions in terms of either submission form A or B related to the "*City of Tshwane Green Building Development Policy"*, as well as site inspections in conjunction with the Metro Policy Department in terms of contraventions, where applicable. State administrative capacity has proven to be another policy implementation challenge and determinant of policies against climate change and environmental degradation, as countries with strong democracies, free media and weak carbon-intensive industry lobbies might nevertheless have weak climate change policies because of insufficient capabilities to design and implement such policies – much less enforce them (European Bank for Reconstruction and Development, 2011).

Policies differ in both technical and administrative complexity. The more complex a policy, the more likely that there will be variations in the policy response, depending on such factors as readiness, capacities and resources – and the quality of support provided to implementers can make all the difference (Sultana, 2008). Makinde (2009) proclaims that where there is the need to employ staff for the purpose of implementation, or acquire equipment for similar action, adequate funding becomes crucial. Lack of funds will only result in the inability of the policy implementers to function as they should. Capacity, argues Brynard (2005), includes the intangible requirements of leadership, motivation, commitment, willingness, guts, endurance and other intangible attributes needed to transform rhetoric into action.

Bhuyan, et al (2010) declare that the motivation, flow of information, and balance of power and resources among stakeholders influences policy implementation processes. They further indicate that implementation is a challenging process, even when written guidelines on goals, strategies, roles and responsibilities, and monitoring frameworks are provided; it is even more challenging in the absence of written guidelines and clear action plans. Crosscutting themes outlining policy implementation challenges include, co-ordination, information and data collection, capacity building, sharing of information, prioritisation and funding.

These common challenges are faced at international, national and local levels. However, the predominant concern faced by most developing countries is lack of capacity. In most case, that refers to lack of institutional, financial and human capacity. Coupled with that is the need for relevant skills, staff training and communication capacities. As Bhuyan, et al (2010) recommend, once strategies are determined, implementing organisations need to estimate and mobilize the financial, human, and material resources required to effectively implement the policy. In many cases, they indicate, this requires implementers to be trained in the content of the policy and skills required.

Top-down process or bottom up process also constitutes part of challenges to policy implementation. There is much research to show that the way implementation unfolds

depends greatly on whether change occurs as a top-down process or as a bottom-up process (Sultana, 2008). Sultana (2008) further states that the nature and extent of the challenges of implementation are also partly dependent on the goals that a particular policy, or set of policies, wants to achieve. For example, Sultana indicates that experience with policy implementation worldwide suggests that some education goals are more difficult to implement than others and so are likely to meet with more resistance from the school-level actors who have to put them into place.

Centralisation and decentralisation, as well as top-down and bottom-up reform processes, are probably better considered as a range of potential strategic resources to draw on – depending on the policy to be implemented and the context rather than as mutually exclusive and oppositional approaches. Vertical and horizontal communication structures in the system have an important impact on policy implementation and sustainability, irrespective of the model that may seem appropriate at a particular moment in time in relation to a specific policy or set of policies (Sultana, 2008: 47).. . Implementation gaps can arise from the policy itself when such a policy emanates from government rather than from the target groups. By this, it means that planning is top-down. And, by implication, the target beneficiaries are not allowed to contribute to the formulation of the policies that affect their lives (Makinde 2005).

Capacity building training is one of the key elements in public policy. In policy implementation, gaps in training may have a detrimental effect on reform and/or change. Successful acceptance and implementation of policies often depends on whether these policies are seen to be relevant to context and congruent with the overall direction of the reform process. Contradictory demands by different reform initiatives can lead to confusion and incoherence (Sultana, 2008). In addition to this, it is evident that a lack of institutional capacity is another obstruction to policy making and implementation. Inevitably, a strong research and education program on green building and implementation is vital globally. As Retzlaff (2010) declares, the American literature is more interested in educating developers and city officials about green buildings while Dutch scholarship focuses on research and education to promote innovation of green buildings and green building policies and to change personal behaviours.

Some of the research on green buildings in the Netherlands has taken place through demonstration projects designed to showcase new advances in building technologies. As already indicated however, policy implementation is a complex phenomenon and even developed countries may struggle to translate policy into action. Retzlaff (2010) confirms this notion completing his statement as follows: “although these initiatives have been able to disseminate new knowledge, only a small network of experts and developers is familiar with them and, as a result, there has been an implementation deficit.” The Commonwealth of Australia (2006) endorses this notion indicating that one of the most common implementation problems is the unavailability of personnel with the skills and knowledge to implement initiatives. An early assessment of the required and available resources and skills should be conducted during implementation planning, and training needs for successful implementation are an important consideration.

Motivation matters, especially when new policies unsettle roles and require actors and organisations to move out of comfort zones. Even when the factors that affect the behaviour of implementers lie outside the domain of direct management control, implementation is more likely to happen when there is an alignment between the needs and goals of different stakeholders. The smartest of policy designs can be torpedoed by a negative response to the question ‘what’s in it for me?’ (Sultana, 2008). Makinde (2005) also argues that, in addition to communication and resources, disposition or attitude is another key factor that affects policy implementation. Most implementers can exercise considerable discretion in the implementation of policies because of either their independence from their nominal superiors who formulate the policies or as a result of the complexity of the policy itself. The way the implementers exercise their discretion depends, to a large extent, on their disposition toward the policy.

Bhuyan, et al (2010) argues that leadership is essential for effective policy implementation. High level actors and influential leaders, they state, can communicate policy’s goals, rationale, and mechanisms, and champion the policy to ensure implementation, which requires coordination and cooperation. One will agree with the authors that if stakeholders have the same vision and understanding regarding the content of the policy they would collectively strive for its implementation and thus for its rollout. Lack of leadership and collective understanding will however have a negative impact on policy implementation and timing of the roll-out. Jenssen and Sippel (2009)

confirm this as they indicate that political and administrative leadership is cited as a precondition for successful local climate policymaking.

The Commonwealth of Australia (2006) also stresses that major policy initiatives often involve significant organisational change. This is by nature complex and requires senior-level attention and leadership as well as the right skills. Successful change management strategies require structured planning, design, communication and administration, as well as early and continuous stakeholder involvement. They state that it is important not to underestimate the importance of change management. Insufficient attention to this may lead to unexpected reactions and resistance to the change, reducing the likelihood of timely and successful policy outcomes. However, Jenssen and Sippel (2009) declare that political support and leadership may not be sufficient where financial constraints are too high (both costs of climate policies and lack of financial and human resources).

Communication is an important tool for effective management in any organization, project or initiative. Stakeholder management is therefore a key aspect of implementation. If stakeholders are not identified and consulted, they may object to various elements during implementation. For this reason, governance structures should ensure that the legitimate interests of a range of stakeholders are properly and appropriately considered (Commonwealth of Australia, 2006). It says if stakeholders are not adequately informed and involved, an organization runs the risk of failure during the implementation stage. Stakeholder management requires an openness and consideration as to why people are being consulted, how they will be consulted and how much influence they will have. If stakeholders are not identified and consulted, they may object to various elements during implementation (Commonwealth of Australia 2006). Otherwise, stakeholders many not have a realistic view regarding their part in implementation and it may be impossible to obtain buy-in.

Communication is an essential ingredient for effective implementation of public policy. Balanced, accurate and comprehensive information will avert risks prone to the implementation process. Through communication, orders to implement policies are expected to be transmitted to the appropriate personnel in a clear manner while such

orders must be accurate and consistent (Makinde 2005). As pointed out by Dahida and Maidoki (2013), lack of coordination or inadequate communication can hinder effective implementation. If intentions are not spelt out clearly through the right organizational channels established for the transmission of policy to those involved in policy formulation, the policy will not be put into effect.

Inadequate information can lead to a misunderstanding on the part of the implementers who may be confused as to what exactly is required of them. In effect, implementation instructions that are not transmitted, that are distorted in transmission, that are vague, or that are inconsistent may cause serious obstacles to policy implementation. Inadequate definition of goals makes a policy lack clarity, internal consistency and compatibility with other policy goals with the result that the successful implementation of such a policy becomes problematic. Makinde (2005) also reiterates that this is a problem of communication.

Retzlaff,(2010) for instance, acknowledges that some of the barriers to implementing green building policies in the United States include concerns about cost and a lack of information and these are issues that the federal government could effectively address. She insists that the development of green building policies needs to be based on broad and open discussions and negotiations between government and the development industry. Another cause of the implementation gap is the failure of the policy makers to take into consideration the social, political, economic and administrative variables when analysing policy formulation (Makinde 2005).

Therefore the level of success will depend on how the implementers see the policies as affecting their organisational and personal interests. Where a policy will result in reduction of pay, low self-esteem, or loss of position to the implementers, the attitude/ disposition will be affected adversely. On the other hand, if a policy will enhance the status, the pay or the self-esteem of the implementers, such implementers will be favorably disposed to it (Makinde, 2005: 64). The necessary groundwork and information dissemination thus are inevitable for effective policy implementation as is policy content and rationale. This is all about the policy formulation process, which is crucial.

As Bhuyan, et al (2010) point out, a policy designed without meaningful stakeholder engagement may be difficult to implement because it does not consider the needs of nor engender buy-in and ownership from those who will implement or "benefit" from the policy. Moreover, policies that result in new programs, services, or operational guidelines need to be disseminated to and understood by those people responsible for implementing and using them. Retzlaff (2010) attests to this. He asserts that while the American literature has not focused on the narrow scope of actors involved in developing green building policies, research has briefly touched on the idea that—as in the Netherlands—a limited number of specialized construction firms and architects dominates the sustainable construction field in the United States. Researchers in both countries see the inadequate number of people with expertise in green buildings as a barrier to implementing sustainable building polices.

2.2.11 A case study of Mexico: policy implementation challenges

As already indicated, policy implementation is complex and local authorities may be left in a dilemma. Cities face competing priorities and resource constraints in prioritising climate action, irrespective of their socio-economic profile. In developing countries, the challenge is more acute and is a barrier to scaling up smaller successful projects to a citywide level. For example, the Mexico City adaptation plan identified the necessity of building early warning systems as a disaster preparedness mechanism but requisite funding failed to materialise (World Bank Institute 2011). Romero-Lankao (2007, cited in McCarney, Blanco, Carmin, & Colley, 2011) also states that Mexico City has encountered challenges in managing climate change through relevant policies. He states that, the government has lacked other features of institutional capacity (e.g., human resources, money, and power) to manage air quality and greenhouse gas emissions.

Authorities lack sufficient and adequate personnel with the technical knowledge to monitor emissions and see that standards are met. On top of that, environmental efforts are constrained by institutional instability. High turnover rates among government personnel and technical staff have made training efforts less effective. It has already been mentioned that training is pivotal to the success of policy implementation.

(Romero-Lankao (2007), cited in McCarnery, et al (2011) concedes that Mexico City has developed important initiatives against greenhouse gas emission, establishing policy networks, roping in political leaders and research groups to develop a climate change agenda. However, this, he indicates, has not been enough to push effective policy. Policymaking has been constrained by two sets of institutional factors: the problem of fragmentation in local governance and a lack of institutional capacity. The Commission for Environmental Cooperation (2013) also confirms that the development of a green building policy in Mexico has been affected severely by changes in political climate. Green building policy has the ability to cross all political lines, and a policy can be shaped to be acceptable to all political interests.

2.3 Success factors to policy implementation

While policy implementation has been explained by some scholars and authors as a complex process, organisation and government entities have deployed what may be termed as success factors, that is, those elements that may be central to the success of a particular policy. According to Giacchino and Kakabadse (2003), the success factors therefore include both the elements that an organisation is able to control and those it cannot control. They make a summary of these factors showing their varying degrees of importance. For instance, they clearly state that commitment and co-ordination fulfill a central role in successful policy implementation. While commitment is regarded as the core construct of policy implementation, it is directly dependent upon the co-ordination of all the people involved. Thus type and degree of co-operation that is required to drive success is a function of the commitment.

Table 1: Summary of success factors

Success factor	Defined as…
	A well-researched and structured process to implementation.
(Effective) Approach	[Characterized by] clarity of vision, through attention to detail and fast decision-making.
(Positive) Attitude	An optimistic, team-oriented disposition and a persistent determination to succeed.
Commitment	A tangible and visible political and administrative will to deliver policy.
Cooperation	Collaborative behaviour between stakeholders to a policy, [characterized by] goal alignment, the development of strong personal relationships, and a high willingness to share skills and information.
(Effective)Planning	The detailed organization of activities.
(Effective) Resourcing	The focused deployment of skilled and motivated resources in quantities sufficient to provide a critical mass
Enthusiasm	A heightened level of personal/team

	motivation, [characterized by] an intrinsic belief in the policy, the presence of incentives and visible political support
Leadership	The ability to develop and command a following, [characterized by] clarity of vision and a legitimate mandate.
Location of political responsibility	The power emanating from the place or position that holds political ownership for the policy, and its ability to command authority over the deployment of resources
Management Style	The enthusiastic and optimistic behaviour of management, and their ability to adapt to prevailing circumstances
Ownership	A perceived state of belonging to, and responsibility for, a policy implementation programme.
Project Team/ Management dynamic	The presence of a group of individuals with different but complementary skills and expertise, working collaboratively towards a common goal.
Role delineation	The clear demarcation of responsibility between individuals, particularly between

	politicians and civil servants.
Skills and abilities	The capability and resourcefulness of individuals involved in implementation [characterized by] qualities such as extensive experience, adequate training and qualifications, and a practical approach to policy management.
Stakeholder involvement	Broad and active consultations with persons or entities likely to affect, or be affected by, the policy.
Trust	A high degree of confidence in persons involved in the implementation initiative, [characterized by] the belief that individuals will not sabotage the initiative, or cause deliberate harm.
Values/beliefs	People's conviction of the 'rightness' or 'goodness' of a policy initiative, because it is consistent with their personal values

Source: Giacchino & Kakabadse (2003:144)

2.4 Conclusion

Policy implementation is notably a complex process. Literature review of different authors, scholars and policy analysts and their studies enables the reader to understand the magnitude of the factors that impact on policy implementation. However, Brynard, et al (2005) illustrate that, just because implementation (noun) is not achieved, does not mean that implementation (verb) does not happen (Brynard et al, 2005). In concluding this chapter it is crucial to highlight the debate on the three generations of thinking cited by Brynard in defining implementation. Brynard asserts that three generations of research into policy implementation exist. The very first or classical generation of thinking on the subject began with the assumption that implementation would happen 'automatically' once the appropriate policies had been authoritatively proclaimed. The second generation set out to challenge this assumption, to explain implementation 'failure' in specific cases, and to demonstrate that implementation was a political process no less complex (and often more so) than policy formulation. The third or analytical generation, by contrast, has been less concerned with specific implementation failure and more with understanding how implementation works in general and how its prospects might be improved.

Although the United States of America and Western Europe have passed through different phases of policy implementation research, South Africa is currently in the midst of the implementation era (Brynard, 2005). Policies such as the green building policy in South Africa are new as the country strives to respond to the effects of environmental degradation, climate change and global warming. Brynard (2005) states that literature has in fact, come a long way in highlighting the inevitable complexity of the implementation process and the saliency of trying to understand this complexity. Various authors have affirmed that policy implementation is a complex course of action and that the process, starting with agenda setting and policy analysis, may not unfold as initially planned nor as automatically.

As Bhuyan, et al (2010: 9) indicate, “put simply, implementation is the process of carrying out and accomplishing a policy”. While this sounds fairly straightforward, policy implementation can be quite complex. Walt and Gilson (1994) in Mthethwa (2012) also confirm that policy implementation is not necessarily a coherent, continuous process;

instead, it is frequently fragmented and interrupted. Policy implementation, according to various authors, is an on-going process involving a number of key actors at different levels, processes and institutional contexts. It is crucial however to comprehend that the policy implementation process is to a large extent technical and thus calls for the easy flow of information among stakeholders, motivation, resources, balance of power and continuous consultation.

Mthethwa (2012) importantly points out that implementation does not always happen automatically and, as a result, it can be either successful or unsuccessful, altered after a decision to pursue it has been made, and removed from the agenda because those responsible for implementing it are convinced that it cannot be carried through. Implementation, Dahida and Maidoki (2013) indicate, will not automatically follow from policy decisions but needs to be treated as a "positive purposive process in it". Consequently; substantial effort and continuity of efforts is required to follow policy from intention to action. One will agree with Bhuyan, et al (2010) and come to the conclusion that the following dimensions of policy implementation can assist policy makers and other stakeholders render policy into action effectively:

- The policy, its formulation, and dissemination;
- Social, political, and economic context;
- Leadership for policy implementation;
- Stakeholder involvement in policy implementation;
- Implementation planning and resource mobilization;
- Operations and services; and
- Feedback on progress and results.

As Bhuyan, et al (2010) further argues, while policies seek to codify a set of goals and actions, the manner in which a policy is implemented is not linear and may change over time for a variety of reasons—only some of which are controlled by policymakers. Furthermore, one would support Schofield (2001) when he indicates that the expertise of local implementers should not be ignored as just impediments to implementation which is not just an administrative process. Implementation cannot be carried out without technical expertise. While policy makers may be key actors to public policy and formulation, implementation may be met by resistance and disregard where local

implementers are not involved from the beginning as significant stakeholders. The top down model to policy implementation which places emphasis on policy makers as key actors may be criticized as such. It is argued that this approach has a tendency to neglect local implementing officials' initiatives and to underestimate the strategies used by implementing actors to divert central policy for their own purposes (Mhizha, 2012). One would support the notion that the most important stakeholders in implementing policy are the service deliverers and/or implementers as well as target groups. This notion is inclined with the bottom-up model to policy implementation which was developed as the main criticism to the top down model. The behavioural aspect of implementation and the key role of local implementers should not be ignored (Schofield 2001).

In addition, if local bureaucrats [implementors] are not allowed discretion in the implementation process with respect to local conditions, then the policy will "likely fail" (Matland, 1995, 148). DeLeon and DeLeon (2001: 478) find that bottom-uppers are more likely to be reflective of community interests, while top-downers are more likely to impose policy narrowly upon focused interest groups. They conclude that bottom-up implementation is "more realistic and practical" and much more "democratic" than the top-down approach (Ibid). Further, if the policy is indeed meant to coerce people's behaviour, then the bottom-up approach may go beyond informing people of the proposed legislative action to manipulate behaviour. In fact, bottom-uppers may garner the consent of the target group before their representatives' vote for the law (Ibid). The bottom up approach ((Hjern & Porter (1981); Hull & Hjern (1982) in Hill & Hupe (2002)) lay emphasis on the target groups and service deliverers and state that policy is made at this level. Bottom up models are more descriptive in nature and state that implementation can be better understood by looking at the policy from the viewpoint of target groups and service deliverers. Policy implementation is assumed to occur at two levels (Matland, 1995):

1. macro implementation where the centrally located actors devise a government program
2. Micro implementation where local level actors react to these plans and develop their own plans and implement them.

Matland (1995) states that the implementation problems arise out of the interaction between policy and micro level institutions. It should be noted however that limited emphasis should be place on the autonomy of implementers as none of the stakeholders can do without representatives elected to formulate policies. These actors have the power to control policy by virtue of being elected to do so. Political will and leadership is, after all, significant to a great degree. Further, it is possible to influence the goals and strategies of the local actors by determining their institutional structure, resources made available to them and their access to the actual implementation arena (Schofield 2001).

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Research Methodology and Methods

This section intends to describe the proposed methodology for such a research. It includes a description of the proposed research design, and thus research strategy, sample selection, and proposed data collection methods, procedures, and analysis efforts.

3.2 Research Philosophy/paradigm

In this case study, we are exploring the implementation of the green building policy of the City of Tshwane which aims to promote environmental sustainability in the built environment. Merriam (2009) and Creswell (2007) have indicated that case studies or methods have their origins in Sociology and Anthropology as predecessors of what is now called qualitative research or qualitative inquiry. They point out that decades ago sociologists and anthropologists studied people and their lives as well as perceptions about their surroundings and the world they live in. That includes everything from public, religious, political, social and economic institutions/setting and phenomena to environment (for example, climate, pollution, and so forth), climate or the environment being the focus of the study in this case.

To substantiate this, it is important to cite Merriam (2009: 6) where she indicates that, “Anthropologists and sociologists went into “the field”, whether it was a village in Africa or a city in the United States, observed what was going on, interviewed people in the settings, and collected and analyzed the artifacts and personal and public documents relevant to understanding what they were studying. The written accounts of these studies were qualitative in nature.” This is precisely related to what the case study is attempting to achieve and interviews are employed to observe the implementation of the green building development policy as well as the impact of green buildings. Furthermore, there are forms of research that better illustrate what the researcher is attempting to explain – constructivism, which is often or also described as

interpretivism, relates to how people seek to understand the world in which they live and work. Interpretive research, which is where qualitative research is most often located, assumes that reality is socially constructed, that is, there is no single, observable reality (Merriam, 2009).

3.3 Research strategy/approach

Qualitative research is now used to explore and understand a diversity of social and public policy issues, either as an independent research strategy or in combination with some form of statistical inquiry (Ritchie & Spencer, 2002 in Huberman & Miles, 2002). This type of research begins with assumptions and the use of interpretive/theoretical frameworks that inform the study of research problems addressing the meaning individuals or groups ascribe to a social or human problem. To study this problem, qualitative researchers use an emerging qualitative approach to inquiry, the collection of data in a natural setting sensitive to the people and places under study, and data analysis that is both inductive and deductive and establishes patterns or themes. The final written report or presentation includes the voices of participants, the reflexivity of the researcher, a complex description and interpretation of the problem, and its contribution to the literature or a call for change (Creswell, 2007).

Qualitative research was selected as the most suitable strategy in this research because the aim was to answer questions about the what, how and why. The methodology is relevant as it aimed to uncover a deeper understanding of participants and/or respondents' understanding of constraints to the implementation of the green building policy. Data was collected from the main stakeholders and implementers. This was meant to assist the researcher's understanding of green buildings, how the green building projects should be designed to comply with the green building policy and why such a policy was developed**.** Implementers and policy makers were interviewed face to face in their natural setting and offices to capture their subjective perspectives of the implementation. Stofile (2008) asserts that such a subjective perspective is relevant to the belief that policy implementation is not a ready-made product, but rather that it is constructed and reconstructed by the participants. Qualitative research also allows the researcher to be the key instrument whereby he collects data himself through

documents and interviews using open-ended questions. That means the researcher is able to use various or multiple methods to collect data. Creswell (2007) illustrates the reason applicably when he points out that we conduct qualitative research because we want to understand the contexts or settings in which participants in a study address a problem or issue. In this case one would be referring to policy makers as well as implementers of the green building policy as the main issue or problem was to interrogate challenges or factors that affect the implementation of the green building policy as a by-law that was designed to curb the effects of climate change by the city council.

3.4 Type of qualitative research and research methods

The type of research design employed in this research is qualitative case study as the aim was to understand the implementation of the policy. A case study as a research strategy allows a researcher to focus on either single or multiple case studies, and the focus was the single case study which was the City of Tshwane. Research strategies are "approaches to social investigation" (Bryman, 2012: 42) classified as quantitative, qualitative or mixed. It is important therefore to understand the meaning of case studies as described by Bryman (2012, p. 709):

> "A case study is a research design that entails the detailed and intensive analysis of a single case. The term is sometimes extended to include the study of just two or three cases for comparative purposes".

It is also imperative to cite another author who offers a more appropriated definition of a case study in the context of the very topic of this research,

"A *case study* is an in-depth description and analysis of a bounded system. Part of the confusion surrounding case studies is that the process of conducting a case study is conflated with both the unit of study (the case) and the product of this type of investigation…the unit of analysis, not the topic of investigation, characterizes a case study" (Merriam, 2009: 40-41). The unit of analysis in this case is the CoT.

Therefore, the type of case study that was deployed in this research was collective because the focus was to evaluate the implementation of the green building policy in the

city of Tshwane. A collective case study involves more than one case, which may or may not be physically co-located with other cases. A collective case study may be conducted at one site (e.g., a school, hospital, or university) by examining a number of different departments or other units at that one site. Each unit is studied as part of a collection, regardless of whether the units themselves are located at single or multiple sites (Goddarddate? in (Mills, Durepos & Wiebe, 2010).

3.5 Sample selection

Purposive sampling was selected as the most suitable strategy with the CoT as a single case study. The city is the largest metropolitan municipality in South Africa and the third-largest city in the world after New York and Tokyo (Tshwane Vision 2055). It is densely populated and highly urbanized, making it a major contributor to pollution and environmental degradation as it provides industrial and construction sites, office space and other facilities to the public and private sectors.

Purposive sampling was carefully selected as the most appropriate for the selection of five respondents. That is, a representative of the office of the Mayor of Tshwane, a project manager, an architect, an engineer and quantity surveyor of the City as well as a policy implementation expert and implementer. As Merriam (2009: 81) explains, to find the best case to study, you would first establish the criteria that will guide case selection and then select a case that meets those criteria…thus the researcher first identified the case-bounded system, the unit of analysis-to be investigated.

3.6 Data collection method and procedure

Methods for data collection applied in this study were qualitative as the researcherconducted interviews, observed and used secondary date. Direct observation by getting access to projects and visiting the green buildings can help to gain understanding, and is often helpful in discovering additional information and challenges that other resources may not offer. Direct observation may also create an opportunity to conduct on-site interviews with key stakeholders (Yin, 2003 cited in Liu, 2012). Secondly data was collected through semi-structured interviews as this is one of the most important sources of case study information (Yin, 2003; Tellis, 1997 in Liu 2012).

It is a useful tool for understanding complex phenomena and gaining insights from the interviewees into a certain matter (Yin, 2003; Hastings & Perry, 2000 in Liu 2012). Other methods used in this study were secondary to semi-structured interviews which constituted the primary data collection method. The semi-structured interviews were structured in such a manner that they addressed the research question pertaining to constraints in implementing the green building policy of the CoT. Data was also collected from written published materials and open-ended interview questions. All the interviews were conducted in each and every respondent's office at their convenience. The researcher was therefore able to ask more questions. **(See Appendix A)**

3.7 Ethical considerations

Ethical issues to be considered when conducting this research include clear presentation of the purpose and objective of the research to interviewees as exclusively academic work. It is critical that the researcher considers issues of consent, privacy and confidentiality where sensitive information of data is disclosed.

3.8 Reliability

Patton (2001) states that validity and reliability are two factors which any qualitative researcher should be concerned about while designing a study, analysing results, and judging the quality of the study (Golafshani 2003). To be more specific with the term of reliability in qualitative research, Lincoln and Guba (1985,) in Golafshani (2003) use "dependability", in qualitative research which closely corresponds to the notion of "reliability" in quantitative research. In the same vein, Clont (1992) and Seale (1999) in Golafshani (2003) endorse the concept of dependability with the concept of consistency or reliability in qualitative research.

To ensure reliability in qualitative research, examination of trustworthiness is crucial. Seale (1999), while establishing good quality studies through reliability and validity in qualitative research, states that the "trustworthiness of a research report lies at the heart of issues conventionally discussed as validity and reliability". Patton (2001) cited in Golafshani (2003) with regards to the researcher's ability and skill in any qualitative

research also states that reliability is a consequence of the validity in a study. Kerlinger (1973) in Golafshani (2003) is of the view that words that are synonyms for reliability are: dependability, stability, consistency, predictability and accuracy. Guba date, cited in Shenton (2004) proposes four criteria that he believes should be considered by qualitative researchers in pursuit of a trustworthy study. By addressing similar issues, Guba's constructs correspond to the criteria employed by the positivist investigator:

a) credibility (in preference to internal validity);
b) transferability (in preference to external validity/generalisability);
c) dependability (in preference to reliability);
d) confirmability (in preference to objectivity).

Credibility according to Guba is an important element in ensuring trustworthiness. With regard to this study, well-established research methods were adopted. Data gathering methods and analysis used in this study were aligned with those that have successfully been employed in comparable projects and studies. The strength of the instrument and methods conducted in this study were reliable because the research was able to collect from relevant internal stakeholders and required information concerning constraints to the implementation of the city of Tshwane Green Building Development Policy. The approach and strategies employed was akin to that used in a comparable study on the challenges in implementing a retention policy in the Department of Home Affairs (Machete, 2011). Using this approach, the researcher was able to interrogate, unravel and fully explore and understand the challenges at the city council and reasons for non-implementation within set time frames.

In addition, before initially collecting data, preliminary visits were paid to the organisations and respondents in order to create early familiarisation between the researcher and participants. Brief telephone discussions took place between the respondents and the interviewer to further explain the background to interest in the study and the methods for collecting data. This established a relationship of trust between the parties, as opposed to suspicion. That is another important component of credibility in reliability of qualitative research. Shenton (2004) further discusses other components or criteria to trustworthiness. To allow transferability, they (researchers) provide sufficient detail of the context of the fieldwork for a reader to be able to decide whether the prevailing environment is similar to another situation with which he or she is

familiar and whether the findings can justifiably be applied to the other setting. In this regard, one would indicate that a clear description of data collection and fieldwork is displayed in the study and is indeed similar to various situations. Shenton (2004) also points out that the meeting of the dependability criterion is difficult in qualitative work, although researchers should at least strive to enable a future investigator to repeat the study. Finally, he asserts that to achieve confirmability, researchers must take steps to demonstrate that findings emerge from the data and not their own predispositions. The researcher has attempted to reflect the findings from the data as accurately as possible, while one would concede that it is difficult to prove dependability in qualitative research.

3.9 Validity

Although some qualitative researchers have argued that the term validity is not applicable to qualitative research, but at the same time, they have realised the need for some kind of qualifying check or measure for their research. For example, Creswell and Miller (2000) suggest that the validity is affected by the researcher's perception of validity in the study and his/her choice of paradigm assumption. As a result, many researchers have developed their own concepts of validity and have often generated or adopted what they consider to be more appropriate terms, such as, quality, rigor and trustworthiness (Davies & Dodd, 2002; Lincoln & Guba, 1985; Mishler, 2000; Seale, 1999; Stenbacka (2001) in Golafshani (2003). In searching for the meaning of rigor in research, Davies and Dodd (2002) find that the term rigor in research appears in reference to the discussion about reliability and validity.

Other authors differentiate between *internal validity* (how correct the research portrays the phenomenon it is supposed to portray) and *external validity* (to what extent the findings can be generalised to other environments that are similar to the environments where the research was first carried out) (Brock-Utne, 1996). The researcher's intention was not to generalise findings as this was a case study of the City of Tshwane without any comparison and also considering that the Metro is the only local government entity to formulate that specific policy. In addition, the City of Tshwane officials were specifically interviewed to probe into the constraints pertaining to non-implementation of the policy.

3.10 Conclusion

The chapter on research methodology comprised the research paradigm and research strategy as qualitative research or approach to inquiry. The type of qualitative research methods is also provided followed by a presentation of data collection methods as well as a brief account of ethical considerations. Lastly, reliability and validity of the study is discussed in the chapter.

CHAPTER 4: DATA PRESENTATION AND ANALYSIS

The research sought to determine the City of Tshwane's capacity to implement the Green Building Development Policy. Data collected is presented in this chapter based on the following research questions:

a) What are the challenges to the implementation of the green building policy?
b) What are the measures for addressing challenges to the implementation of the policy?

Data collected indicated that the policy formulating team were aware of the existence of the policy. It has emerged however that the persons who are supposed to implement the policy were not aware of the policy and its contents. The following issues emerged as areas of capacity requirements for implementing the policy:

a) Need for training
b) Incentive measures
c) Participation to secure "buy-in"
d) Information exchange
e) Communication and cooperation

4.1 Capacity requirements for policy implementation

4.1.1 Need for training and awareness

The perspectives of a Deputy Director (DD) and Architect from the Building Control unit were that training needs should have been considered in developing the policy. Data collected suggested that training through workshops could serve as a capacity building mechanism towards understanding, sharing knowledge and experience on the essentials of policy formulation. Training, it was perceived, could raise awareness about the policy at the very beginning of the policy design process.

4.1.2 Incentive measures

A Deputy Director who is also a Project Manager from the Environmental Management Services, when asked about specific requirements and resource capacity for implementation, mentioned certain incentives provided for complying with the policy. These incentives, she mentioned, are part of the implementation process. According to the respondent the green building application form which indicates which specifications to comply with, also includes a calculator which accords with the green building grading scheme. She indicated the grading scheme is based on bronze, silver or gold ratings. It emerged that these grading incentives are aimed at promoting sustainable building practices as is the aim of the green building policy.

4.1.3 Participation to secure "buy-in"

The Architect further indicated that Building Control as an instrumental unit in terms of implementation is not seen as a very important division by other city departments. He said this has always been a challenge although the unit needs to enforce right at the end where practice comes into play, where the buildings are actually being used and built. He stated that implementation required buy in and commitment from the building inspectors whose participation meant enforcing the policy on site. It emerged from the interview that buy-in from the public and compliance would only be achieved through the Building Control unit as proposed implementers. It was further established that the implementers could only buy into the vision if they had knowledge and skills.

4.1.4 Information exchange

It emerged from interviews with both Building Control officials and respondents that information sharing is a capacity requirement in policy implementation. It was highlighted that exchange of information relating to the policy was fundamental among all stakeholders including the target group and the entire public. The respondents highlighted the need for policy formulators to clearly communicate and define policy objectives as a way of building awareness.

4.1.5 Communication and cooperation

The Building Control Deputy Director was asked to explain whether there was political will for policy implementation. The response provided was that there should be a clear line of communication from senior managers to subordinates on matters involving them or relevant information for their daily performance. The participant indicated that most of those holding senior top management positions are on contracts. While their success on daily activities is informed by that of people on the ground, there is a break down in communication channels. When asked about the type of approach for implementation, the respondent indicated that all the relevant stakeholders should be engaged and cooperation among all the people on the ground should be emphasized. Cooperation, it was established from the respondent, meant staff should be afforded the opportunity to comment on the policy.

4.1.6 Administrative capacity

Human capacity, it was established, is another prerequisite to policy implementation. It also emerged from the interview with the Architect that human capacity entailed skilled staff and clearly defined roles for implementation. It was established that more personnel was required to adjudicate clients' building plans. *"What we need from the Building Control side is for them to create a division where the public can go to get the green stamps on their plans so that we know we can go ahead with the buildings".* He stated that there is currently not enough staff to scrutinise plans to determine whether the plans are in line with the promulgated by-laws.

The Deputy Director also indicated that policy implementation resides with the Building Control Office which is a subsection of the City Planning and Development Unit of the City. Their mandate as implementers should be to verify compliance of building plans with the green building policy and the South African Bureau of Standards (SABS) SANS 10400XA which is an addendum to the National Building Regulations.

4.1.7 Awareness

It emerged from the interview with the Director for City Sustainability in the office of the Executive Mayor that awareness is one of the key elements for stimulating green building practices. The respondent mentioned his department's involvement in intervention programmes such as the green neighbourhood concept which involved pilot projects. The projects showcase green building concepts such as retrofitting, solar water geysers, and insulation of ceilings. These, the respondent alluded, are ways to stimulate green economy activities and *"to display our mitigation programmes in different spheres."* Another Deputy Director from city sustainability, who is also an advisor on sustainability projects, mentioned as one of their awareness instruments an initiative called the Green Ambassador programme. It is an outreach and awareness programme established to shift communities' mind-sets and behavioural patterns towards living in a sustainable way. *"It is linked to actionable programmes."*

Du Plessis (2002) affirms that sustainability is not only the responsibility of governments and the construction industry. Citizens need to get involved and be aware of the impacts of their behaviour and their use and misuse of resources. It is important to develop campaigns that on the one hand inform the public regarding the benefits and opportunities of the use of environmentally friendly building materials and products and, on the other, encourage a change in consumer habits towards a more sustainable use of resources.

According to the EMS project manager there are model buildings at Rietvlei and posters. High level meeting with the Building Control Department have also been initiated to push for the implementation plan. *"I think leadership was good and at this stage the implementation plan is an important document in this department as a big sector of our climate change strategy. We are also doing a standard presentation like a road show to all the departments and 7 regions in the city to make everybody aware of the law and obligations".*

4.2 Challenges to implementing the Green Building Policy

4.2.1 Lack of information

When requested to provide his understanding of the green building development policy, the Building Control Deputy Director indicated that *"the entire section of the Building Control office and other Building Control managers such as Deputy Directors were not involved in developing the policy and by-law."*

According to the respondent, the Building Control Officer (Director) in the same office presented comments for developing the policy until it was promulgated. *"In fact, the Building Control Officer is currently working on comments that should be incorporated into the Green Building Policy to avoid confusion between the mandate of the Act and the green building policy."*

The target group expected to comply with the green building by-law, according to the Building Control official, include government departments, shopping centres, and corporate office parks. These categories, he indicated are expected to pay more to qualify for prioritisation of plan evaluations. However, the challenge is lack of information regarding the requirements for rolling out implementation.

4.2.2 Lack of staff

The Building Control Deputy Director stated that more human resource is currently required as there is a backlog in terms of capacity due to an increase in staff resignations. He clarified that the city council takes longer to fill positions thus creating more workload for the current staff. The official proclaimed that there tends to be low employee morale as some staff members are stressed because they have to work overtime due to the staff shortage. He expressed concern that staff is expected to perform effectively even though there are limited resources in terms of equipment and human capacity. The respondent, who is also responsible for quality management, expressed concern that his office is prone to non-conformance according to SABS standards. Khanna (2010) states that resource issues frequently arise not because implementation is inherently expensive or time-consuming but because existing issues

within the organisation impede it. Often, once a policy is set, it is left to wither on the vine. Resource allocation, of course, is not straightforward, even for companies that do well at managing policy change.

4.2.3 Lack of communication

The Building Control Deputy Director indicated that the policy was gazetted but the people responsible for implementation were not well informed as *"management did not make enough effort to sensitize all the parties."* He compared the policy to a town planning scheme indicating that before such a scheme is gazetted, relevant stakeholders are encouraged to give comments and input; otherwise the scheme will not cover all the requirements and relevant content. He further indicated that land surveyors, as the most relevant implementers, do not understand the policy as it was never distributed. Most of them only learned about the policy after it was promulgated and appeared in newspapers in March 2011. *"We only got it late last year by August. That is when it was sent to our emails, but only to management that it should be implemented."* When asked about the Policy, the Architect affirmed that while it was a very good policy, the challenge was that it has not been implemented since it was approved and promulgated. It was learned that the commencement date for implementation was the 1st of July 2013.

Roux (2002) declares that it is the public official who is confronted continuously with the implementation as well as the cause and effect of policy. The public official is therefore, in an excellent position not only to identify limitations and constraints in policy, but also to initiate effective procedures to rectify them. Inevitably public officials at grassroots level should be allowed to partake in policy formulation by providing information. These officials are mandated to perform duties that will ensure implementation of the policy on a daily basis.

Bhuyan, et al (2010) state that sometimes the leaders responsible for policy formulation might find their attention diverted elsewhere once the policy is adopted or the responsibility for leading implementation might shift to new individuals and groups. Khanna (2010) however argues that where policy is internally generated, it is the responsibility of the most senior executives to see that strategy is carried out. Where it is written in compliance with regulation, it is their responsibility to see that the law is

followed. The weekly meeting declares that a top-down approach is highly recommendable for policy implementation. Success is also seen to depend on senior management. The two leading success factors for policy implementation are clear directives from senior management and their active involvement (Khanna, 2010).

4.2.4 Overlapping instruments

Another challenge, the Deputy Director indicated, is the fact that the green building policy is an addition to the SABS XA regulation which was established to enforce compliance and eliminate maladministration in energy efficiency regulations through registered professional bodies. It emerged that the policy has not yet been implemented as some of its requirements are in contradiction with the national building regulations and the Building Standard Acts. He indicated that there is no clear indication on which carries the highest authority between the recently approved City of Tshwane Green Building Policy and the National Building Regulations and Building Standards Act (No. 103 of 1977). The interview with the Architect affirmed that the policy is very similar to existing building regulations. It was recommended that applicants should read and familiarise themselves with the policy or building regulations before they are imposed.

4.2.5 Working in silos

The Building Control Architect revealed that he conceded with the fact that in municipalities people work in silos as in farmlands. *"Everyone is just concentrating on their own little tube, without any communication whatsoever. In my personal capacity I have interest in sustainable designs and environment and 15 years ago it was a very strong from the European side especially the Germans and especially alternative energy was very much of interest at the university of Pretoria then and I am up to date through my own personal reading and interest. I have never received any formal personal invitation from any of us here in Building Control."* The issue on silos reemerged from the interview with the Deputy Director – EMS where it seemed challenges to implementation were linked to Building Control. She highlighted the importance of leadership in policy implementation, indicating *"in terms of my own department, leadership was good because they pushed for internal implementation*

while we were waiting for Building Control as well as making funding available for promoting this by law".

4.3 Measures to address the challenges

4.3.1 Restructuring

When asked to comment on possible measures against the said challenges, the Deputy Director - Building Control referred to current plans to restructure the municipality. He mentioned that the Building Control Office as the implementers of the policy is expected to get a new Director and head of division with the view to improve management channels and structures as well as the performance of the unit.

4.3.2 Sharing of information and training

The Architect recommended that the policy makers set up workshops and educate the whole staff, especially the building inspectors and plan examiners about the green building policy in order for it to succeed as it is about implementing on site. *"They should be given copies of this new legislation and the public must be informed. There should be campaigns and emails to all outlets in Pretoria for the public to familiarize themselves.* Expressing concern, the respondent proclaimed that *"there is the policy but we cannot impose it because we don't know it, and we cannot impose it because our customers/clients don't have the policy."*

The respondent further indicated that the author of the policy and the regulations in the policy should convene a meeting with the Building Control Officer (and Head of the division). *"It is a very typical problem, new legislation, but they have the know-how. The moment people are unsure and get into difficult position with the public it will be difficult for them to convince the public that this must be enforced. It will be overlooked or ignored."* The respondent also highlighted the importance of educating the public who come with designs, architects, and draftsmen about the policy, benefits and orientation of sustainable buildings as well as sustainable use of water.

"Human capacity is not the problem, the problem is that the green building policy has not been advertised and people have not received any training. If they get the administration, the administrative procedures in line and they get their own policy makers to enforce these polices then it will happen. Nobody knows what my role as an architect is expected to be."

The respondent further argued that they have not received any notification, training, or policy document. According to the respondent, staff discovered the policy document through their own searches and accidentally stumbled upon it. They were never informed by any one in terms of the delegations or in terms of the legal department of delegations as to who in Building Control will be responsible for the implementation, and *"not only the implementation but the actual supervision of that green building policy."* The perception according to the respondent is that *"it seems like it was created by another department (environmental department) and we as the Building Control are actually not involved with the green building policy."* He pointed out that further training of personnel and implementers such as architects, plan evaluators or surveyors was invaluable and crucial for implementation of the green building policy.

The participant declared that the said professionals are trained on the SABS Standards SANS 10400 XA regulations, so implementation should not be a challenge*. "We have enough capacity because what is going to happen with this implementation according to brief discussions is that we will prioritize plans that comply but the clients or applicants must be in a position to pay more."* The respondent stressed that they have attended a course on regulation XA which is part of the SABS new national building regulations and an extension of energy efficiency design. He declared that this training was not in any way related to the Green Building Policy even though there are obvious overlaps between the two on designs and shading demonstrations among other things. *"We do apply this law, it was promulgated in 2011 – energy efficiency in buildings, but it is done by the South Africa Bureau of Standards and it is being implemented by us here at Building Control. There are obviously overlaps but it's not the same document."* He stated that the green building policy is a little bit wider, intense and simplified to enable all municipalities to apply the minimum basics like windows, orientating buildings properly and making use of rain water.

4.3.3 Stakeholder management task teams

The Director and Deputy Director from the Executive Mayor's office were asked to articulate their direct contribution to the implementation of the green building development policy. They mentioned that their unit has established a multidisciplinary task team called the Sustainability Task Team involving all stakeholder departmental representatives from transport, water, waste, energy, health, city planning (implementers) and so forth. *"That is where we are able to communicate on a broader level what we are trying to attain and what the green economy is, in the city context. The other activity that the unit has embarked on was to call for expression of interest in relation to the City of Tshwane Green Economy Strategic Framework to request for information on technology systems, intervention programmes, invite whoever is in that space to come and share with us what they can do that will build up on the city moving towards the green economy."*

When asked about capacity to implement all the initiatives, they stated that staff members are sent to stakeholder and intergovernmental workshops to discuss issues on sustainability and green economy. The unit, according to the respondents, is a member of the International Council for Local Environmental Initiatives (ICLEI), the world's leading association of cities and local governments dedicated to sustainable development. A powerful movement of 12 mega-cities, 100 super-cities and urban regions, 450 large cities as well as 450 medium-sized cities and towns in 86 countries, their aim is to promote local action for global sustainability and to support cities to become sustainable, resilient, resource-efficient, bio-diverse, low-carbon; to build a smart infrastructure; and to develop an inclusive, green urban economy with the ultimate aim to achieve healthy and happy communities *(*www.iclei.org*).*

Among other frameworks, the City of Tshwane has partnered with the United Nations Environment Programme (UNEP) to develop a green economic strategy, which will help it become a sustainable urban area. UNEP is providing technical support and facilitating exchange programmes between Tshwane and cities from emerging economies. UNEP

says research suggests that green cities are economically beneficial and have social and environmental benefits (Tshwane 2055 INFO, 2013).

Another study conducted by UNEP also denotes that by taking a green economy approach, including through investing in low-carbon technologies, green buildings, and renewable energy, South Africa can support the same level of economic growth and create jobs, while producing lower greenhouse gas (GHG) emissions and cause less environmental damage (UNEP, 2013). Their involvement in such initiatives, the respondents alluded, is among various others such as the United Nations Framework Convention on Climate change.

The respondents denoted that all these efforts and collaborations are in support of city sustainability and initiatives such as the green building policy, hence a task team with the City Planning department who are responsible for implementation of the policy. They indicated that they are instrumental in providing input to the task team on sustainability, highlighting that city planning was one of the key partners identified particularly because they are the custodians of the green building by-law.

4.3.4 Policy review

Policy review as it emerged was among possible measures to constraints on the implementation of the City of Tshwane green building policy. This was alluded to by both the Building Control Deputy Director and a Senior Lecturer in the Faculty of Economic and Management Sciences of the University of Pretoria (UP). When asked to explain how the challenge to implementing the policy could be remedied, the Deputy Director indicated that the Built Control Officer (Director) is reviewing the policy as some of the contents, it appeared, were in contradiction with the country's National Building Regulations.

The interview with the policy implementation expert and lecturer at UP was intended to learn about common challenges and success factors to implementation. The respondent declared that challenges may differ with each policy, environment and problem under discussion. He recommended policy review as a possible solution to constraints in implementing the City of Tshwane Green Building Development Policy.

He indicated that without enough information, policy stakeholders would tend to be hesitant in providing support.

"If there is a problem, you don't know where you are going. Even the stakeholders would come on board without hesitation because they know where to support. As we need capacity in terms of contractors, public private partnership. If the policy is not clear, the stakeholders don't know where they will fit in. It becomes a problem and we need to go back to the conceptual level. There will always be problems with the implementation based on challenges at conception level."

As cited in Khumalo (2012), Dye (2002: 41) affirms. The initial stage to public policy process after agenda setting is policy formulation and this occurs in "government bureaucracies, interest group offices, legislative committee rooms, meetings of special commissions and policy – planning organisations". When an organization or government institute encounters challenges in implementing public policy, there is a need to review policy and the formulation stage. The think tanks, for the government, that usually comprise the legislatures staff, works at coordinating the policy making process and bringing the interested parties together to work as a team (Khumalo 2010).

4.3.5 Political will and support

The City Sustainability unit in the office of the Executive Mayor was asked to share their mandate based on the fact that the main frameworks for mitigating climate change and promoting sustainability emanated from the top. It was learned that the unit is responsible for facilitating strategy towards a green and sustainable future for the City of Tshwane. Their main role is the reduction of emissions in response to climate change. They coordinate efforts by the city to counter climate change and global warming through the City of Tshwane Green Economy Strategic Framework.

According to the two officials from city sustainability unit the framework articulates eight (8) key thematic areas some of which are waste management, transport, energy and green buildings. They indicated that the framework highlights the need for resilience and adaptation, *"especially our most vulnerable groups as critical areas that need some*

attention - and even the inhabitants need to know how to address any of those climate change or global warming issues."

4.3.6 Highlighting the benefits of green buildings

When asked about the cost of going green in buildings, the respondent (Architect) indicated that green buildings cost more to erect than standard and/or ordinary buildings. He however stated that the running cost of the building over a period of 20 years will make a lot of sense. He pointed out that one should not look at the stand cost now, or the implementation cost, but the material cost that goes into the building and where it is produced and what sort of environmental impact and production of raw material has on the building.

"If everybody in every municipality in South Africa, and thousands of people apply this policy, in 20 years it will make an impact on the environment and energy usage. In terms of building design the national building regulations is successful in Tshwane." Van der Merwe (2007) alludes to this stating that retrofitting of existing buildings can yield remarkable energy and resources saving results. In some cases these changes can increase energy efficiency by up to 70%, decrease piped water use by 80%, and lower discharge-to-sewer by 70%. The costs involved in the refurbishment of existing buildings can be paid back through the amount that is saved on utility bills, as an energy-efficient building is cheaper to operate than a normal building. She further declares that the South African government has agreed that it should lead by example in this regard, and has plans to retrofit about 106 000 buildings that are used by government departments throughout the country. This process is currently under way, and over 100 buildings in Tshwane, the Western Cape and the Free State have already been completed.

In terms of attending to private clients, the respondent once again emphasized training for draftsmen as the public are not informed about *"these regulations and they have their own views."* He argues that it is difficult to get them to comply because the public out there want to make alterations to their normal houses and have short term views, especially the developers. *"Energy efficiency is a theory that needs to be reviewed over a much longer term."* Over and above this challenge, Crawley and Aho (1999) argue that policing the compliance of buildings with regulations is a time-consuming and costly

task, which may not be welcomed by designers, developers, building owners and end-users.

4.3.7 Strong leadership and commitment to vision

The Building Control Architect asserted that if there was strong leadership and strong vision was imparted to each and every building inspector, the green building policy would be implemented and would be much more successful. His view was that the City used a top down approach. *"I think in general in a political environment you can say it's more top down. That is the reason why many of these promulgated policies are not implemented."*

The Deputy Director from EMS stated that the Green Building Development By-law and Policy was developed by her department in conjunction with the CSIR. She indicated that the policy is a response to climate change and global pressures such as loss of open space, diversity and resources such as water. Its aim, according to the participant, is to move towards sustainability in the city and to ensure that all building plan submissions to the city comply with the By-law.

When asked about the implementation process, she indicated that the city must comply internally while the public must comply externally with the Green Building Development Policy. She asserted that tenders and adverts for contractors should include a standard indicator stating that contractors must comply with the by-law or the policy. *"If a contractor wants to build a new clinic he must comply. We have had a meeting with stores and maintenance departments, and we are currently procuring in terms of the policy. For instance, in this office when they replace a bulb, it will be in line with the specifications of the policy."* The project manager highlighted that her department recently held a meeting with the Department of Environmental Affairs to request the latter to integrate compliance into all comments in Environmental Impact Assessment applications.

Specifically responding to the question regarding frameworks and an implementation plan, the respondent indicated that her department received the first draft of the plan in the first week of March 2014. Her department was then able to integrate their comments

into the draft plan and implementation processes to be aligned with. She pointed out that the plan is intended to assist the public to comply with the policy.

4.3.8 Time-frames for implementing policy

When asked about time-frames for implementing, the respondent explained that the implementation plan and procedures must first be finalized. According to the respondent, implementation was scheduled for July 2013, but the plan was outstanding. The Commonwealth of Australia (2006) argues that it is not uncommon for timeframe difficulties to arise after the policy decision and during implementation simply because an overly optimistic view about practical implementation aspects was taken during policy development. This need not mean that detailed implementation plans are required at this stage, but rather that sufficient attention is given to the practical constraints to effective implementation.

The respondent also stated that the policy is an ad hoc function for Building Control, citing as challenges time constraints and human resource constraints. *"It is a new thing so they are taking their time to ensure it is done correctly."* Explaining further when asked about the challenges pertaining to delays in implementation, she cited the expansion of the City of Tshwane, new requirements to the green building policy, as well as capacity in terms of understanding this policy.

4.3.9 Implementation plan

The Deputy Director - EMS was also asked whether there were adequate skills for implementation. She asserted that the implementers of the policy are not environmentalists considering the fact that they are expected to implement the policy. The respondent emphasized that skills are needed hence the appointment of the CSIR who are technical. *"Once the plan is finalized, the CSIR will train all the building inspectors and big developers in terms of content. In terms of public awareness, we developed posters, a pamphlet, and model building which goes with a flyer on what exactly was done in terms of the bylaw. It has been very limited because the*

implementation plan is not ready. Once the plan is finalized it will be elevated. We are looking at billboards, street pole adverts." She further indicated that it was crucial to inform the public about the benefits of the policy.

She concluded by declaring that it would be easy to implement the policy once the plan was finalized. She however highlighted that the biggest challenge will be RDP houses because budgets are very limited. *"There will be incremental costs. We are talking to our building department so they don't have to comply with all the mandatory requirements."* In addition to this, the Commonwealth of Australia (2006) elaborates, it is vital that there is a clear and commonly understood identification of key elements of shared implementation planning. These may include: governance and decision-making arrangements; possible resource and scheduling constraints; risk management strategies; shared funding arrangements; and the procurement and management of contracts.

4.3.10 Integration of global best practices

The City of Tshwane, being a signatory to documents of Agenda 21, has an obligation to integrate LA21 as a corporate issue into all its developmental activities. This fact was underlined during the 2003 City of Tshwane Summit on Sustainable Development and it was resolved by council on 18 September 2003 that a City of Tshwane LA21action plan be drafted to ensure sustainable development in the City of Tshwane (Environmental Resource Management Section 2007). For the purpose of this study, the link between the TIEP and Agenda 21 is of great significance as one of the objectives of the TIEP is to provide incentives for business and industry to improve their environmental performance, including green buildings (Environmental Resource Management Section 2007).

According to the TIEP Green Buildings by-laws and policy (2010), the green buildings concept is clearly supported and preceded by the Tshwane Integrated Environmental Policy TIEP) which states that green buildings initiatives and the promotion of incentives for the implementation thereof be investigated and implemented. Since the TIEP has been formulated in line with the LA21process, it must be regarded as the City of

Tshwane's environmental contribution to the corporate LA21 process (Environmental Resource Management Section 2007: 5). Given that climate change is not a problem that a single local government can solve by itself, learning and collaborating through networks allows a city government to expand its capacity to handle climate change issues (Lee, 2010 in McCarney, et al, 2011).

4.4 Analysis of research findings

It has been outlined in the introduction and background chapter that the study aims at exploring challenges that constrained the implementation of the City of Tshwane Green Building Development Policy. Based on chapter 4 which presents finding from individual interviews with key informants, the researcher was able to determine what are perceived to be policy constraints in the environmental policy. The interview findings thus present an opportunity and platform for an in depth analysis to be discussed in this chapter.

The researcher will employ policy implementation theories perceived to be the most suitable mechanisms for discussing the findings. The two theories are employed in concluding the literature review chapter in relation to how they may contribute to policy implementation failure or success. The interpretation of these theories is also based on the perceptions of respondents and findings from conversations with these informants. The top-down approach is aligned with what may be perceived as an approach used by policy formulators. The bottom-down approach, on the other hand, goes parallel with the manner in which policy formulation and communication about the policy was distributed to site implementers. Another model which does not feature much in analysing the finding is the rational model.

4.4.1 Top-down model

The main informants and presumed implementers of the policy revealed that the top-down approach was applied by the policy makers or senior management without clear dissemination of information about the policy. The analysis of data collected supports the notion put across by Parsons (1995) where he states that the top-down model has

been greatly criticised for not taking into account the role of other actors and levels in the implementation process. Furthermore, the criticism of top down approach has been that it fails to consider the significance of past actions in the same policy area; treats implementation as an administrative process and ignores the expertise of local implementers but sees them as impediments to implementation (Schofield 2001).

4.4.2 Rational model

Parsons (1995) also mentions another model that may be applicable to data analysis in this study. The rational model, he points out, places too much emphasis upon the definition of goals by the top, rather than on the role of the workers on the line. He further declares that the model blatantly excludes any consideration of how real people actually behave, the better to understand the logical relationship between input, process and output. An analysis of data collected from the interviews clearly indicates that the workers and street/site implementers were less informed, if at all, about their expected roles in implementing the policy. An architect in the implementing unit is cited as alluding to this perception. Khanna (2010) affirms that, on a practical level, those at the top of a hierarchy are also best placed to provide the clarity and direction respondents say is so vital to success.

4.4.3 Bottom-down approach

Parsons (1995) further deploys the bottom-up model to his illustration on pertinent challenges to policy implementation. Once again the researcher noted his views as they applied to analysis of data gathered. He indicates that bottom-up models lay great stress on the fact that ‘street-level’ implementers have discretion in how they apply policy. Professionals have a key role in ensuring the performance of a policy: teachers, doctors, planners, engineers, social workers, architects, all have opportunities and responsibilities of control and delivery of a service. My analysis of interview findings is that while the Building Control unit is expected to apply the policy to the general public or target groups, they were less equipped in terms of information, skills, and human capacity. They are mandated to ensure service delivery, but lack the resources and capacity. Simply put, they did not understand the way in which they were supposed to implement the policy. They further emphasised that they could not even use their own

discretion as they lacked the confidence to convince the public and successfully roll out the policy. In addition, lack of consultative measures among the implementing structures, from top to bottom was viewed as a challenge. Added to the increasing workload in some areas within the Building Control unit was the lack of training and clear guidelines for implementing the policy.

According to the respondents, the enthusiasm and commitment among the main implementers is there. What is lacking is information as they mentioned the fact that they stumbled upon the policy by accident in some instances. Also perceived to be a disconcerting factor was the overlap between the policy and existing National Building Regulations. The perceived view was that they have the knowledge and skills to execute the regulation of the built environment, however, the green building policy is fairly new and more information would be appreciated. It is crucial to mention that one of the respondents and policy formulation team member indicated that a draft implementation plan was recently released. The researcher was informed that these would serve as a guide and would enable the initiation of the implementation process.

4.4.4 Conclusion

An informed supposition to the findings points to consultation and information sharing as critical in policy making. Interrogating stakeholders is fundamental if policy implementation is to take its course. Cloete (1992) in Booysen (2005) also recommends consultation for public policy processes. This means using an audience as a sounding board and eliciting opinions, suggestions, advice or recommendations about an issue before or after a decision unilaterally. They point out that it is also a weak and ineffective form of participation if the decision-maker is not committed to accept the views of his or her audience.

Khanna (2010) avows that good policy implementation depends on carefully putting together policy formulation, planning, and execution. It says new policies should be prepared for well in advance. Cloete and Wissink (2000) further substantiate this concept by arguing that career public managers are both receivers and manufacturers of policy problems. They have considerable power to determine what goes onto the

policy agenda. Spratt (2009) affirms that in examining implementation barriers, it is important to assess how policy-related information is disseminated and understood at multiple levels—government, nongovernment, mass organizations, and community. If any of these stakeholders lack policy information, their ability to implement the policy is limited.

As already indicated, one of the challenges to policy implementation is lack of planning. The Commonwealth of Australia (2006) clearly states, an implementation plan should reflect adequate consideration of key risks to implementation, throughout the entire implementation process — not just at the beginning. This is particularly important where policy or programme implementation involves untested service delivery models or new technology, or where significant behaviour change is expected.

Human resource was also highlighted as one of the challenges in implementing the green building policy. Cloete and Wissink (2000) cite the issue of internal capacity as one of the criteria to use in assessing the status of policy problems. They state that a conservative and bureaucratic response to agenda-setting requires officials to determine whether they have the internal capacity to deal with issues before they place them on the government agenda. This approach argues that should officials place issues on the agenda, knowing they do not have the internal capacity for dealing with them, such behaviour will set them up for failure.

From the findings, it is evident, as Brynard (2009) upholds, that substantial research has demonstrated the value of training in successful policy implementation. Implementers are more likely to proceed if they feel confident in their ability to overcome possible barriers to transforming an intention into practice. However, most developing countries disregard the significance of training as a success factor. In Brynard (2009), Younis (1990) alludes to this notion, indicating that training is often neglected in developing countries. There seems to be no doubt that insufficient training in a country has a deleterious effect on development in general and on the success of policy implementation in particular. In addition, it is crucial that knowledge and tools for sustainable construction be transferred to the people who have to use them. However, it is also crucial that the people who have to use these tools are involved in the development of tools and technologies.

Working in close collaboration with institutions such as the CSIR, the Innovation Hub and tertiary institutions in improving research and innovation on sustainability is crucial. Research organizations can also play an advocacy role through their often close links to Government and involvement in policy development (du Plessis 2002). It should also be noted from the findings that national and local governments need to lead by example, greening their own facilities and practices and following their own policies and regulations (du Plessis 2002).

CHAPTER 5: CONCLUSION/RECOMMENDATIONS

The study set out to determine constraints to the implementation of the City of Tshwane Green Building Development Policy. Various challenges were discussed throughout the study together with possible success factors, and an analysis of interviews was conducted. It can thus be concluded from these findings and analysis that the incorporation of green initiatives in legislation and regulatory structures by government at all three levels/spheres is a necessary call for action. It is important however to mention that institutions, government spheres, in particular local government through its various entities, should create an authentic perception among all stakeholders in implementing intervention policies and frameworks pertaining to the growth of a green building market. This, based on the background to green building conception, will be stimulated by collaboration among all necessary stakeholders such as policy, policy making bodies, local communities, local research institutes, officials (as implementers of policies and service delivery) and experts in the green building field.

Green building is a new market to be explored and thus the perception of the built environment professionals and target groups should be refined and attuned to the notion of green building as a national building opportunity. It is most definitely a necessity in highly urbanised and populated cities such as Tshwane. Awareness and knowledge will generate commitment to the social obligation behind sustaining the development and growth of a green building market that is necessary to the environment and inhabitants. After all, policies will have no effect unless they are implemented. Professional awareness of green building and sustainable development marks the beginning of the profound efforts to implement strategies against climate change and global warming in cities across the world.

Considering the challenges analysed in this study, the City of Tshwane has to embark on ways to improve or review the conception or formulation process to ensure implementation of the policy. Public policy practitioners and authors on the topic have however indicated that the process for implementing policy is complex and once adopted, there is no guarantee that policy will always be implemented as envisioned or will achieve the intended results. Best international practices are employed in the study

as lessons on how other countries have planned for implementation of their green building policies and programs.

It has emerged that key success factors include proper planning, training needs assessments, human resources capacity, clear channels of communication, constant consultation, education and research as well as sound financial resources and incentives. It has also emerged that clear policy directives could have speeded process towards the implementation of the city of Tshwane policy. A top-down approach, it may be concluded, can be appropriate if policy implementers understand their respective roles as street and/or site implementers. Any approach to implementation if well executed may reap success, however challenges cannot be ruled out as there are risks in policy as is the case with any other regulatory framework. In this case, stakeholders should have been incorporated in the development of the policy as well as in its perceived implementation strategies and planning. Ambiguity in evolving policy implementation processes poses a great challenge. A further study once the policy implementation process has been fully initiated would be highly recommended.

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Appendix A
Interview questions

Deputy Director & Architect - Building Control Department (Implementers)

- What makes a green building?
- What is your main role in this green building project?
- What are the benefits of green buildings?
- What challenges do you face in this type of projects?
- Are you aware of any state legislature related to green building?
- What does the Tshwane Green Building Development Policy mean to you?
- What are the greatest challenges in implementing the policy?
- Are green buildings more expensive to construct and operate?
- What are your recommendations in addressing the challenges?

City of Tshwane (Mayoral representative – City Sustainability Department); and Environmental Management Services (Policy formulators)

- What does the Green Building Development Policy entail?
- What is the policy aimed at achieving?
- What is the history behind the development of this policy?
- What role does the policy play in the city?
- When was the policy developed?
- How does the city plan to implement the policy?
- Who are the stakeholders in implementing the policy?
- Whom is it expected to benefit?
- Currently are there any benefits yielded from the policy?
- Are there any projects related to the policy thus far?
- What are the challenges encountered in implementing the policy?
- Why has there been a delay in implementing the policy?
- Does the implementing institution have the resources to effectively implement the policy?

- Is there leadership capacity to implement the policy?

Policy implementation expert (University of Pretoria)

- What are the common challenges to policy implementation?
- What are the success factors for policy implementation?
- Can you share information on best international practices for policy implementation?
- What would be your recommendations for the constraints in implementing the City of Tshwane Green Building Development Policy?
- Do you have any other comments on the policy and implementation?