The feasibility of a green procurement practice for low cost housing in the City of Tshwane Metropolitan Municipality

Mini-thesis submitted in partial fulfillment of the requirements for the degree Masters in Environmental Management at the Potchefstroom Campus of the North-West University

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ABSTRACT

Green Procurement is defined as taking into account environmental criteria for goods and services to be purchased in order to ensure that the related environmental impact is minimized (Incite Sustainability, 2008: vii).An inherent feature of green procurement is the integration of environmental considerations into purchasing policies, programmes and actions (Stigson & Russell, 1998:9).

The European Commission states that green public procurement should ideally cover areas such as the purchase of energy-efficient computers and buildings, office equipment made out of environmentally sustainable timber, recyclable paper, environmentally-friendly public transport, organic food in the cafeteria, electricity stemming from renewable energy sources and air conditioning systems complying with environmental solutions(European Commission, 2004:5). The International Council for Local Environmental Initiatives (ICLEI) recommends the inclusion of the construction of new buildings, restoration and renovation as well as the purchase of building material as one of the areas that have to be addressed when developing green procurement policies.

The City of Tshwane Municipality (CoT) intends to move towards a green procurement practice. The City plans to attain the latter without deviating from the intentions and parameters of the South African Government's procurement legislation and further more within the limits of its current budget constraints. The intention of the study was to investigate the feasibility of a green procurement practice in the CoT and to give special attention to low cost housing. The results of the study suggest that it is feasible to implement the practice. The City of Tshwane was found to have relevant and progressive policies in place and what was found lacking was the application and integration of the policies into existing programmes. Green procurement barriers that the CoT will have to overcome were identified as awareness, motivation, economic, legal, institutional, information and technical barriers.

The study concludes with recommendations to the CoT with regard to potential opportunities the City can take advantage of when implementing a green procurement practice.

Key Words: Green procurement practice, City of Tshwane, Feasibility

OPSOMMING

"Groen Verkryging" kan gedefinieer word as die inagname van omgewingskriteria by die aankoop van goedere en dienste met die doel om gepaardgaande omgewingsimpakte so ver as moontlik te mitigeer (Incite Sustainability, 2008: vii). 'n Inherente eienskap van groen verkryging is die integrasie van omgewingsfaktore in aankoopbeleid, -programme en –aksies (Russell, *et al,* 1998:9).

Groen verkryging behoort volgens die Europese Kommissie (2004:5) op alle terreine toegepas te word, soos bv. die aankoop van energie-effektiewe rekenaars en –geboue, kantoormeubels wat van volhoubare houtbronne gemaak is, hersirkuleerbare papier, omgewingsvriendelike publieke vervoerstelsels, organiese voedselsoorte in kafeteria's, volhoubare elektrisiteitsopwekkingsbronne, asook omgewingsvriendelike lugversorgingsisteme. Die Internasionale Raad vir Plaaslike Omgewingsinisiatiewe (ICLEI) beveel aan dat aspekte soos die konstruksie van nuwe geboue, die opgradering van bestaande geboue, asook die keuse van boumateriale in ag geneem behoort te word by die ontwikkeling van 'n Groen Verkrygingsbeleid.

Die munisipaliteit van die stad Tshwane beoog om Groen Verkryging as inherente deel van hul bedryf te implementeer, sonder om af te wyk van die doelwitte en parameters van die Nasionale Regering se wetlike raamwerk rakende aankope, of om die huidige begroting onder druk te plaas. Die doel van hierdie studie was om die lewensvatbaarheid van 'n Groen Verkrygingspraktyk m.b.t. laekoste-behuising in die stad Tshwane te ondersoek. Die resultate van die studie het daarop gedui dat die implementering daarvan wel moontlik is, en dat relevante beleidsraamwerke om Groen Verkryging te fasiliteer reeds in plek is. Die leemte wat ontdek is, is dat die integrasie en implementering van sodanige beleidsaspekte nie plaasvind in bestaande programme nie. Uitdagings wat aangespreek moet word om Groen Verkryging volledig te implementeer is geïdentifiseer as bewusmaking en motivering van alle partye, asook ekonomiese-, wetlike-, institusionele-, inligtings- en tegniese aspekte.

Die studie sluit af met enkele aanbevelings oor moontlike Groen Verkrygingsgeleenthede wat deur die stad Tshwane gebruik kan word in die implementering van ‘n Groen Verkrygingsbeleid.

Sleutelwoorde: Groen verkryging, groen aankope, omgewingsvriendelike aankope, Stad Tshwane, lewensvatbaarheid

Declaration

I declare that this research report, apart from the contributions mentioned in the acknowledgements, is my own, unaided work. It is being submitted for the Degree Master of Environmental Management at the North-West University, Potchefstroom Campus. It has not been submitted before for any degree or examination at any other university.

(Signature of candidate)

_____ Day of _____ 2009

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CONTENTS

ABBREVIATIONS AND ACHRONYMS

BBBEE	Broad Based Black Economic Empowerment
BEE	Black Economic Empowerment
CDM	Clean Development Mechanism
CDS	City Development Strategy
CERs	Certified Emission Reductions
CFL	Compact Fluorescent Lighting
CoT	City of Tshwane
DANIDA	Danish International Development Agency
EMS	Environmental Management Systems
GDCSA	Green Building Council of South Africa
GEF	Global Environmental Facility
ICLEI	International Council for Local Environmental Initiatives
IDP	Integrated Development Planning
IIEC	International Institute for Energy Conservation
LEAP	Local Authority Environmental Management and Procurement
LCA	Life Cycle Assessment
MFMA	Municipal Finance Management Act
MHDP	Tshwane Municipal Housing Development Plan
NEMA	National Environmental Management Act
PPFA	Preferential Procurement Framework Act
RDP	Reconstruction and Development Plan
SCP	Sustainable Consumption and Production
SEED	Sustainable Energy and Environment for Development
SET	Sustainable Energy Tshwane
SEA	Sustainable Energy Africa
SIDA	Swedish International Development Agency
TIEP	Tshwane Integrated Environmental Policy
USAID	United States Agency for International Development

CHAPTER 1

INTRODUCTION

This chapter introduces the mini-thesis. It provides background to the research (Section 1.1), presents the problem statement (Section 1.2) and gives an outline of the research aim (Section 1.3), research question (Section 1.4), research sub questions (Section 1.5) as well as objectives (Section 1.6). The general structure and the orientation of the mini-thesis are also briefly discussed (Section 1.7).The chapter concludes by providing an overview of the study which briefly introduces each chapter.

1.1 Background

Public Procurement in South Africa is governed by legislation and policies that seek to address the imbalances of the past and promote the awarding of contracts for goods or services to historically disadvantaged individuals through a preferential procurement system. Section 217 of the Constitution of South Africa, 1996 (Act 108 of 1996) prescribes that public procurement must be in accordance with a system which is fair, equitable, transparent, competitive and cost-effective. The act further makes provision for organs of state to compile and implement procurement policies that provide for categories of preference in the allocation of contracts and the advancement of persons disadvantaged by unfair discrimination (SA, 1996:97).

South African National Government produced a General Procurement Guideline document that is intended to serve as a statement of the Government's commitment to a procurement system that promotes the emergence of sustainable small, medium and micro businesses which will add to the common wealth of our country as well as achievement of enhanced economic and social well-being of all South Africans (SA, date unknown). This guideline introduces five core principles of behaviour named the Five Pillars of Procurement upon which proper and successful government procurement

rests. The five pillars are namely a) Value for money (Quality) b) Open and effective competition c) Ethics and Fair dealing d) Accountability and reporting and e) Equity. Even though all the five pillars are communicated as equally important, the last pillar i.e. equity has been elevated and the Guidelines state that no public procurement system should be operated if it is not founded on this pillar.

The framework within which construction procurement takes place is provided by the South African National Standard 294 that ensures fair, equitable, transparent, competitive and cost effective procurement of construction services.

Green Procurement is defined as taking into account environmental criteria for goods and services to be purchased in order to ensure that the related environmental impact is minimized (Incite Sustainability, 2008: vii). The purchase of energy efficient buildings and computers, office equipment made out of environmentally sustainable timber, recyclable paper, environmentally-friendly transport, energy stemming from renewable energy sources and air conditioning systems complying with environmental solutions are some of the areas covered by green public procurement (European Commission, 2004:5). An inherent feature of green procurement is the integration of environmental considerations into purchasing policies, programmes and actions. The environmental attributes of such green products are the use of less toxic materials, energy and water efficiency and making use of recycled material (Russell, *et al,* 1998:9).

1.2 Problem Statement

Building houses and installing services has a direct impact on the natural environment, which in turn places constraints on the environment (Sowman & Urquhart, 1998:7). The construction and operation of buildings accounts for 50% of all CO2 released into the atmosphere making them a major contributor to global warming (Crane & Swilling, 2007:3). Green construction

procurement in low cost housing will require the consideration of environmental factors in land identification, planning, design and development of low cost housing projects.

The City of Tshwane Metropolitan Municipality intends to move towards a green procurement practice. The City plans to attain this without deviating from the intentions of the Government procurement legislation and further more within the limits of its current budget provisions.

1.3 Research Aim

The focus of this study is to establish the feasibility of a green procurement practice in the City of Tshwane. The research will focus directly on green procurement with special attention to low cost housing.

1.4 Research question

Is a green procurement practice in respect of low cost housing financially feasible for the City of Tshwane?

1.5 Research sub- questions

1.5.1 What is the current policy with regard to green procurement in the City of Tshwane?

1.5.2 What are the financial implications of procuring green products in low cost houses for the City of Tshwane?

1.5.3 What are the financial benefits of green procurement in low cost houses for the City of Tshwane?

1.5.4 Which institutional arrangements will have to be in place for the success of the green procurement practice?

1.6 Research Objectives

1.6.1 To investigate the current policy and practice with regard to green procurement in the City of Tshwane.

1.6.2 To critically assess the potential and financial implications for a successful green procurement practice in low cost houses for the City of Tshwane.

1.6.3 To investigate the potential financial benefits of green procurement for the City of Tshwane.

1.6.4 To investigate the institutional arrangements that have to be in place for the success of the green procurement practice and report on them.

1.7 General structure and orientation of the mini thesis

The mini-thesis contains eight chapters. The chapters are designed to be complementary and to develop a coherent picture of the mini-thesis. An annexure that relates to certain sections of the mini-thesis is included. The mini-thesis also contains a reference list of all sources of information used to inform the theoretical points and methodology of the study.

1.8 Overview of the study

Chapter 1 introduces the research. It discusses the context in which the research was undertaken. The chapter provides insight into public procurement and green procurement. The aim of the research, research question, problem statement and research sub-questions and objectives are introduced and the general structure of the mini-thesis is briefly discussed. The chapter concludes with the overview of the mini-thesis by providing a summary of each of the eight chapters.

Chapter 2 outlines the methods and methodology applied in the study. The chapter provides an outline of the document analysis, interviews and the desk top study used to generate data. The process of data analysis is also described.

Chapter 3 introduces green procurement and provides the different approaches recommended by literature on steps to be followed when implementing a green procurement practice.

Chapter 4 discusses the South African legislative framework that provides an enabling environment for the implementation of green procurement practice.

Chapter 5 provides insight into the City of Tshwane and the policy framework will act as a guide for the implementation of a green procurement practice. The chapter provides insight into the City of Tshwane strategic processes, Environmental Policy, City of Tshwane sustainable energy commitments and the City's supply chain management policy.

Chapter 6 reports on the outcomes of the desk top studies, outlines the potential incremental costs and the benefits of constructing environmentally sound low cost houses.

Chapter 7 reports on the outcome of the interviews and the institutional arrangements that will have to be in place for the implementation of the practice.

Chapter 8 provides a summary of the study as well as recommendations for moving towards the desired state. It outlines a summary of the key findings in relation to the research question and provides recommendations relating to the key findings. The chapter ends with a discussion on limitations of the study.

1.9 Conclusion

The chapter has introduced the research. It provided background to the research (Section 1.1), presented the problem statement (Section1.2) and gave an outline of the research aim (Section1.3), research question (Section 1.4), research sub questions (Section 1.5) as well as research objectives (Section 1.6). The general structure and the orientation of the mini-thesis were also briefly discussed (Section 1.7).The chapter concludes by providing an overview of the study which briefly introduces each chapter (Section 1.8).

CHAPTER 2

METHODOLOGY

Introduction

This chapter outlines the methodology and methods that were applied to attain the objectives of the research. The chapter starts by dealing with the terminology (Section 2.1) then provides the rationale behind the document analysis (Section 2.2), desktop studies (Section 2.3), case studies in South Africa (Section 2.4) and the interviews conducted with CoT officials (Section 2.5).

For the purpose of this mini-thesis the City of Tshwane is used as a case study. Berg (1998: 212) defines a case study as a systematic gathering of enough information about a particular person, social setting, event or group to permit the researcher to effectively understand how it operates. In order to address the research question i.e. (Is *a Green procurement practice financially feasible for the City of Tshwane*), a multi method approach was applied which included, document analysis, desk top study, case studies and interviews.

2.1 Terminology

2.1.1 Financial feasibility

The term financial feasibility is defined as a preliminary action undertaken to determine and document a project's viability the results thereof assessed to inform the decision whether it is a logical step to proceed with. Bennett (2003: 52) states that financial feasibility studies are conducted to assist in the decision making process by showing that funds proposed to be invested in a project have the potential to generate economic return to those investing in the project that is, at least, equal to that available to them from other similarly risky investments.

2.1.2 Green procurement

Green procurement is defined as the integration of environmental considerations into purchasing policies, programmes and actions (Stigson & Russell, 1998:9). Green procurement refers to the inclusion of the environmental criteria for goods and services prior to purchase in order to ensure that the related environmental impact is minimized (Incite Sustainability, 2008: vii).

2.1.3 Construction Procurement

The Construction Industry Development Board Act, 2000(Act 38 of 2000) defines construction procurement as “procurement in the construction industry, including the invitation, award and management of contracts”. The Act further states that construction procurement involves not only construction work contracts, but also supplier contracts that involves the purchase of construction materials and equipment as well as services contracts relating to any aspect of construction including professional services. The latter is extended to include demolitions. (SA, 2000)

2.1.4 Low cost houses

Low cost houses which are also referred to as Reconstruction and Development Plan (RDP) houses are government sponsored houses that are awarded to persons with a gross household income of R1 500 and less. Low cost houses are intended to provide housing for the poor.

2.2 Document analysis

Terre-Blanche and Durrheim (1999:153) notes that interpretive analysis sometimes requires use of documentary sources such as letters, newspaper articles, official documents and books. The CoT strategic planning documents, 2007 – 2008 quarterly reports; environmental and housing action plans were analyzed as the primary source of data and also to investigate the CoT current policy with regard to green procurement. The documents were

also assessed to check a) CoT future plans regarding low cost housing development and b) the inclusion of green procurement principles in CoT policies. Documents listed in Table 1 were selected to deal with Sections 1.5.1 (*i.e. What is the current policy with regard to green procurement in the City of Tshwane?)* and 1.6.1(*i.e. To investigate the current policy and practice with regard to green procurement in the City of Tshwane*) of this study.

Table 1. Documents, codes and reasons for analysis.

DOCUMENT	CODE	REASONS FOR ANALYSIS
City Development Strategy	CDS	The CDS was developed to translate the City's vision into a strategic action plan. It provides a selective set of initiatives that, over 20 – 30 years will serve to provide a coherent framework of action for all role players, municipality, private investors and the community. The Strategy is focused at identifying interventions with the highest impact and priority. The document was assessed because it is important for all housing initiatives in the CoT to be aligned to the CDS. It is a filter which is applied to all programmes and projects to ensure that all activities and expenditure are in support of the CDS.
Guidelines for environmentally friendly general facilities in the CoT	TEFG	The document was developed to provide broad guidelines for planners and project managers towards improving the environmental sustainability of envisaged facilities. The guidelines further aims at ensuring appropriate resource use in the design and construction of facilities thereby creating healthy environments.
Tshwane 2020 IDP Plan	IDP	IDP is a legislative requirement in terms of the Local Government: Municipal Systems Act, 2000(Act 32 of 2000) and serves as a single, inclusive and strategic plan for the development of the municipality.
CoT Supply Chain	SCMP	The policy consolidates all relevant

DOCUMENT	CODE	REASONS FOR ANALYSIS
Management Policy		procurement legislation and policies and set parameters to inform procurement in the CoT
Tshwane Integrated Environmental Policy and Implementation plan	TIEP	The TIEP is a set of guidelines and principles of action for managing and protecting the environment. It further provides clear statements of intent and principles for the management of all aspects of the environment in a sustainable manner.
Tshwane Municipal Housing Development Plan	TMHDP	The TMHDP is a strategic document intended to ensure that all activities in the CoT Housing Department are aligned to contribute towards a common goal. It provides a framework within which all housing developments will take place in the City. The MHDP further takes cognizance of the broader framework set by the Millennium Development Goals, National and Provincial directives as well as the Tshwane Council's Strategic Priorities and objectives in terms of the City Development strategy , Tshwane Five Year Strategic Plan and Programme of Action(2006 – 2011) This plan was assessed to investigate inclusion of TIEP green targets that relate to low cost housing development.

In addition to the listed documents various pieces of legislation of relevance to the study was studied so as to provide the policy and legislative context.

2.3 Desk top study

An investigation of green suppliers and the green market in South Africa was conducted by studying the available databases and comparing the price ranges to the conventional suppliers. The latter exercise was conducted to address Section 1.5.2 *(i.e. What are the financial implications of procuring green products in low cost houses for the City of Tshwane?)* and Section

1.6.2 (i.e. *To critically assess the potential and financial implications for a successful green procurement practice in low cost houses for the City of Tshwane Municipality).* Availability, pricing and representativity of service providers is also reported on because this has a direct impact on Government's Preferential Procurement Policy.

2.4 Case studies

Reports on South African pilot projects where green low cost housing was piloted were studied so as to give insight into financial benefits observed post implementing green procurement in low cost housing. The pilot projects were studied to deal with Section 1.5.3 *(i.e. What are the financial benefits of green procurement for low cost houses in the City of Tshwane?)* and Section 1.6.3 *(i.e. 1.6.3 To investigate the potential financial benefits of green procurement for the City of Tshwane)* of this study.

2.5 Interviews

According to Terreblanche and Durrheim (1999: 128) interviews give interviewers an opportunity to get to know people quite intimately as an effort to understand how they think and feel. Seidman (1991:03) adds that "at the root of interviewing is an interest in understanding the experience of others and the meaning they make of that experience". A semi – structured interview method was applied.

Interviews with ten officials from various departments in the CoT that are involved in low cost housing development (i.e. Planning, contract specifications, approval, environmental management, monitoring and evaluation of contracts) were conducted. Information collected from the interviewees was interpreted to assess the readiness of the institution to implement a green procurement practice. The interview schedule is attached as annexure 1.

Interviewee list included the following officials a) Housing and Sustainable Development department, the Executive Director Housing Administration, one

technical support officer and one project coordinator overseeing the construction of low cost houses b) Building Control Manager c) Sustainable energy for environment and development advisor d) four Environmental Management officials and e) Director Energy Quality Safety and Environment from the CoT. These officials were selected because on their involvement with green procurement initiatives, eco efficient initiatives or low cost housing development. Semi structured interview afforded the author an opportunity to probe in terms of the institution's readiness to implement a green procurement practice (as indicated in Section 1.5.4 and 1.6.4).

All the interviews were guided by five standard questions which were:

a) Are you familiar with the concept of green construction procurement?
b) Are the required technical skills to implement a green construction procurement practice available in the City of Tshwane?
c) In your opinion, are the existing policies and guidelines providing a sufficient base from which a green construction procurement practice can be initiated in the CoT?
d) In your opinion, will the procurement of green low cost housing yield any benefits for the CoT.
e) In the order of priority (3= highest and 1= lowest) please indicate which will you rate as the biggest barrier to green procurement in the CoT?

Current Procurement legislation	Higher capital cost attached to green products	Capacity of the institution to implement the practice? e.g. expertise, top management support, human resources.

2.6 Conclusion

This chapter has given insight into the methodology applied to the research and included the terminology used in the research (Section 2.1) the rationale behind the document analysis (Section 2.2), the desk top study (Section 2.3) ,

case studies (Section 2.4) and the interviews that were conducted (Section 2.5). The chapter concludes by listing the questions that were used to guide the semi-structured interviews.

CHAPTER 3

INTRODUCING GREEN PROCUREMENT

Introduction

This chapter starts by a) defining green procurement (Section 3.1) b) listing critical steps towards a green procurement practice (Section 3.2) c) reflecting on the barriers to green procurement (Section 3.3) and also list features of green low cost housing as defined by the National Department of Health (Section 3.4). The chapter concludes by summarizing the issues addressed in this chapter.

3.1 Defining green procurement

According to the European Commission (2004:5) green public procurement covers areas such as the purchase of energy-efficient buildings, office equipment made out of environmentally sustainable timber, recyclable paper, environmentally-friendly public transport, organic food in the cafeteria, electricity stemming from renewable energy sources and air conditioning systems complying with environmental solutions. The environmental attributes of such green products are the use of less toxic materials, energy and water efficiency and making use of recycled material. Green Public procurement extends further to using suppliers who themselves meet strict environmental standards to ensure that the greening of the supply chain is also an integral part of green procurement process (Stigson & Russell, 1998: 9).

The International Council for Local Environmental Initiatives (ICLEI) recommends that green procurement policies should ideally address areas such as a) the purchase of products (i.e. office furnishings) b) routine services (i.e. ongoing maintenance for municipal buildings) c) maintenance and management of public property (i.e. green spaces, street lighting) d) the

construction of new buildings, building restoration and renovation, including the purchase of building materials (i.e. school buildings) e) purchase of services (i.e. through contracting) and f) organization of municipal events (i.e. local festivals)(ICLEI, 1999).

3.2 Steps towards green procurement

A body of literature recommends various steps towards the adoption of a green procurement practice (ICLEI: 1999, European Commission: 2004, World Watch Institute: 2003). Two approaches that are evident from the latter are the “bottom up” approach or alternatively the “top downwards” approach. The various options are briefly discussed:

3.2.1 Bottom up approach

The European Commission recommends the following steps as essential steps towards a green procurement practice:

3.2.1.1 Step one - The first step recommends the identification of products; services or activities are the most suitable on the basis of their environmental impact and of other factors, such as market availability, available technologies, costs and visibility.

3.2.1.2 Step two - The second step recommends the identification of institutional needs and expressing them appropriately. This involves selecting a green title to communicate institution’s policy to the outside world, ensuring optimum transparency for potential service providers or suppliers and for the citizens the institution is serving.

3.2.1.3 Step three- The third step recommends the drawing up of a clear and precise technical specification using environmental factors where possible. This step includes a) verifying environmental characteristics in databases/ eco labeling b) learning from best practice c) selecting a scientifically sound life cycle costing approach d) considering product or service environmental performance and e) encouraging innovative green offers considering the use of performance based or functional specifications.

3.2.1.4 Step four -The fourth step entails the establishment of selection criteria on the basis of exhaustive lists of criteria mentioned in the public procurement directives. Potential service providers or suppliers can be informed that they can use environmental management schemes or declarations (e.g. ISO 14001) to prove compliance with the criteria.

3.2.1.5 Step five - The fifth step entails the establishment of an award criteria where the criteria of the "economically most advantageous tender" is chosen, the inclusion of a relevant environmental criteria either as a benchmark to compare green offers with each other or as a way of introducing the environmental element and giving it a certain weighing. Life cycle costing should also be considered.

3.2.1.6 Step six – The sixth step recommends the setting of a relevant extra environmental condition in addition to the green contract by using contract performance clauses. This step suggests that, where possible, environmentally friendly transport methods must be insisted on.

3.2.1.7 Step seven - The last step requires the institution to always make sure that everything that has been asked of potential bidders and their offers relates to the subject matter of the contract.

(European Commission, 2004: 4)

Even though the European Commission steps do not out rightly allude to the importance of capacity building within the institution, political will, starting with pilot projects, these aspects are covered comprehensively in the rest of the handbook produced by the Commission.

3.2.2 Top down approach

Lamoureux (2008) recommends a ten-step process that an institution can adopt to go green. A summarized discussion of the ten steps will now be looked into:

3.2.2.1 Step one – Securing political buy-in and top management commitment for the organization to go green. This entails the creation of green policy and securing green corporate mandate.

The latter should come from the top and it should be communicated to all officials that green procurement is a priority within the organization and that all procurement of services and products must have minimum green requirements.

3.2.2.2 **Step two** – The second step requires determining the status quo and the key role-players. Questions to be asked at this step are the following : a) which products or services are procured b) by whom c) when d) what is the environmental impact of these products or services and e) what are important decisions that need to be made in future.

3.2.2.3 **Step three –** This step recommends the development of green specifications and standards for every product procured. Based on the status quo analysis, the organization is advised to then prioritize identified products to green and wherever possible make use of existing environmental standards such as environmental management systems , environmental ratings and/or best practices.

3.2.2.4 **Step four** recommends the establishment of a green selection criteria and its impact on award decisions. This step entails the alignment and mainstreaming of conventional procurement criteria into green procurement. The latter will include taking a decision on what percentage of the procurement scoring must be based on green considerations i.e. 10%, 20%, 40%. The selection criteria must be outlined, prioritized and weighted.

3.2.2.5 **Step five** requires the identification of products and services that are green. This step amongst other things includes considering defining automatic exclusion rules of suppliers that still employ manufacturing processes that produce banned chlorofluoro carbons and toxic by- products.

3.2.2.6 **Step six** recommends that the institution consider the use of the life-cycle costing approach. The organization must consider the environmental impact of the product it is considering from “Cradle to Grave” before making a decision. The analysis must be informed by factors such as efficiency, waste, recyclability, and material

composition. With regard to services the environmental impact of such services and the equipment used must be considered.

3.2.2.7 Step seven recommends the inclusion of green performance clauses in every contract. This step advices the organization, as a precautionary measure to make certain that it incorporates clauses into every contract that allows the enforcement of penalties or termination of the contract should the supplier fail to meet the minimum green and sustainability requirements that they had committed to.

3.2.2.8 Step eight – The step recommends that once policies and practices are in place, these must be communicated to all levels of staff, suppliers, vendors, politicians and any other stakeholder. In addition efforts must be made to explain the policies as well as the creation of opportunities for training on the complex categories that supplier and procurement officers have to manage on a regular basis.

3.2.2.9 Step nine - This step recommends the use of green technology and entails considering the use of e-procurement, e-sourcing, and other e-systems, running on energy efficient technology as well as buying online. Furthermore, all policies and manuals must be maintained in easy to access e-documents on indexes, searchable and easily accessible corporate internet.

3.2.2.10 Step ten – The final step recommends that the entire process be made easy**.** This step advices that as far as practically possible every policy, process and system developed and deployed in support of green procurement must be easier to use than the alternatives**.**

The various steps have common elements namely a) compiling a procurement practice inventory b) securing the political and/or top management support c) setting product specific targets d) dissemination of information e) institutional capacity building f) compiling an action plan g) establishing a monitoring program and reporting results and the world watch institute advices further that a pilot project should be identified and the

encountered challenges be used as learning opportunities. The European Commission approach proposes a “bottom up” approach whilst Lamoureux recommends a “top downwards” approach. The next section discusses a continual improvement approach that is recommended by ICLEI.

3.2.3 Procura+ Milestones Model

To provide an enabling environment for local authorities ICLEI produced in 2005, through its Local Authority Environmental Management and Procurement (LEAP) project, a set of eight tools namely a) Standard Policy for Municipal Green procurement b) Managing the Procurement Process c) Dealing with barriers to green procurement d) Standard Specifications e) Tender evaluation f) Database of specifications and products g) Developing the supply chain h) Market promotion and development. The tools and guidance are crafted to create an enabling environment for local authorities initiating a green procurement practice and to facilitate the integration of green procurement principles into environmental management systems.

Applicable to this part of the discussion is the tool named ‘Standard Policy for Municipal Green Procurement’ which uses a five-step process based on the Procura + Milestones model that encourages continuous improvement and the formation of an action plan for green procurement. The tool also contains examples of good green procurement practices across Europe that can be extrapolated to the South African context.

The tool recommends the following milestones:

3.2.3.1 **Milestone one:** This milestone entails conducting a status quo exercise by compiling a procurement inventory detailing the cost of selected products procured, budgets and sustainability considerations already applied.

3.2.3.2 **Milestone two:** The second milestone entails the setting of product specific targets based on capacities and municipal priorities e.g. to attain 12 % reduction in waste destined for landfill sites by 2010. It is during this milestone that the CoT Tshwane Integrated

Environmental Policy targets can be used to inform product specific targets.

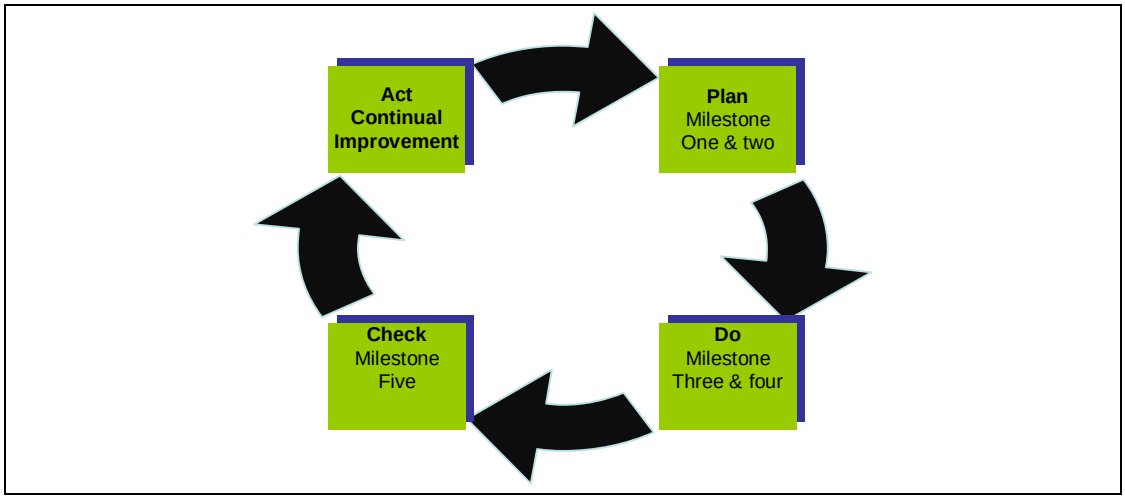
3.2.3.3 **Milestone three:** The third milestone prescribes the development of an action plan that takes into account the duration of existing contracts and staff available for implementation. It is during the compilation of the action plan that critical actions directed towards securing political and/or top management support, product information dissemination mechanisms, identification and appointment of responsible persons will be identified and included in the action plan.

3.2.3.4 **Milestone four:** This step recommends the implementation of the action plan in a step by step process in various administration units concerned, allowing time for communicating information and consultation.

3.2.3.5 **Milestone five:** Step five recommends monitoring progress with the help of the procurement scorecard and report results both to local public and political representatives as well as to the global community through ICLEI.

(ICLEI: 2005)

Fig 1: Adaptation of the Procura+ milestones to the Plan, Do, Check and Act EMS Model



3.3 Barriers to green procurement

For the purpose of this study, a hypothetical classification that was applied by a case study conducted by the Institute for Environmental Studies, a Dutch university research centre in 1995 is selected. For the purpose of evaluation, the study classified the barriers to green procurement into six categories namely: awareness and motivation, economic, legal, organizational, information and technical barriers (Stigson & Russel,1998:67).

The barriers would need to be dealt with as a precursor to an effective implementation of a green procurement practice. The barriers are briefly discussed in the following section.

3.3.1 Awareness and motivation barriers. These refer to consciousness of product ecological footprint connected to resource consumption patterns and the willingness to do something about it (Stigson & Russell, 1998: 67).

3.3.2 Economic Barriers – The premium cost of alternative and/or green products are currently higher in comparison with conventional products. These cost do not include the internalization of environmental costs and cost benefit analysis methods (Stigson & Russell, 1998:68). The lowest cost option is traditionally applied in the CoT municipality and it is seldom that deviation takes place taking into consideration single source and quality occurs.

3.3.3 Legal – Legal barriers refer to the procurement legislative framework and the interpretation thereof (as outlined in Section 1.1). Currently in the CoT, procurement officers are of the view that the prescripts of the Supply Chain Management Policy of a fair, equitable, transparent, competitive and cost effective procurement practice are a barrier to the greening of municipal procurement (as indicated in Council Report September 2005).

3.3.4 Organizational or institutional barriers refer to the competency of the procurement officers and the availability of institutional arrangements or structures that enable communication and exchange

of required information. The expertise of environmental and procurement experts, flexibility and innovative thinking are required for an effective green procurement practice so as to overcome challenges (Stigson & Russell, 1998:57).

3.3.5 Information barriers refer to the lack of available and reliable information regarding the product or service environmental characteristics. Ideally the guiding principle should be, wherever possible the selection of the most environmentally acceptable or preferable products and services (Stigson & Russell, 1998:7). The European Commission recommends the use of company or contractor Environmental Management Systems as reliable tools.

A further complication observed in the South African's context is the availability of accurate and consequential information; extend or maturity of eco-labelling schemes, availability of providers of information e.g. SABS, as well as a National lead department that will undertake the task of establishing product information centres.

3.3.6 Technical barriers refer to challenges associated with green product identification, technical specification and standards. The local market availability of environmentally sound products is also crucial as this will be judged against the product's carbon footprint. Furthermore technical specifications and standards should also inform the selection criteria and whether the criteria will be the consideration of performance over design standards? Does one select greener supplier or greener products? Green product identification should ideally also provide information on methods employed to inform the criteria. This requires the taking of an informed decision and the allocation of responsibility on who decides i.e. environmentalist or procurement specialist? The decision must also give direction on whether the final product will be selected based on the use of life cycle analysis or eco-labelling.

The International Institute for Energy Conservation (IIEC) lists the following as barriers towards green construction procurement in South Africa a) the fact that sustainable development has not become a standard practices yet b) The absence of a well defined institutional setup to support the green buildings movement c) the scale of green buildings operation limits mainstream market participation and the fact that pilot projects currently implemented are small scale and limited in scope d) existing local initiatives and agendas are often ignored and e) International programmes are often not complementary to the local interests, needs and existing programmes.

3.4 Features of a green low cost house

The former National Department of Housing (now Department of Human Settlements) through its guideline document on environmentally sound low cost housing (SA, date unknown: 4-12) lists the following as some, but not all, features of an environmentally sound low cost house:

3.4.1 Energy efficiency

The attributes of renewable energy and energy efficiency include the application of passive solar design principles and the application of energy saving fixtures that can dramatically improve the occupant's quality of life and may include: a) maximizing natural daylight by orientating and shaping building b) locating and sizing of windows to provide good natural ventilation c) provision of overhangs to protect the northern side of the house from the sun in summer and to allow the winter sunlight to enter the house d) installation of energy efficient lighting e) selection of energy star appliances f) installation of solar water heaters g) light colours for roofing and wall finish material and h) wall and ceiling insulation to achieve the retention of heat in winter.

3.4.2 Water efficiency

Water efficiency refers to the installation of water efficient fixtures and adoption of water efficient practices that will include, amongst other things a)

Design of water efficient landscapes b) Efficient plumbing layout to prevent the “dead leg” , i.e. a long pipe between the geyser and the tap which causes cool water to be drawn before hot water is discharged c) Sufficient water pressure and pipe sizing for optimum performance of water saving devices d) Rainwater harvesting e) Installation of water efficient taps, shower heads, irrigation and dual flush toilets and f) Sustainable storm water management

3.4.3 Materials/resource efficiency

Materials and products used in the construction which are sustainable.
These are materials and products which a) Have zero or low toxicity b) Have a re-used or recycled content c) Are harvested and/or manufactured from resources that are plentiful or renewable d) Emits zero or no emissions e) Have high recyclability potential f) Are durable g) Are produced locally h) Are re-usable and recyclable i) Have minimal packaging and j) Favours the use of public transport.

3.4.4 Operation and maintenance efficiency

The operation and maintenance efficiency refers to post construction processes that includes, amongst other things a) Testing and adjustment of installed green systems to ensure correct operation b) Provision of training and awareness regarding green systems provided so as to ensure correct operation of maintenance c) Regulate continuous sustainability efficiency by ensuring that upgrades and replacements are in line with green building specifications.

3.4.5 Horticulture efficiency

Horticulture efficiency is designed to minimize bio-physical impacts of the construction and includes, amongst other things a) Protection and retention of existing indigenous landscaping and natural features b) Trees to shade and protect buildings c) Water wise plants with low pesticide needs d) Composting of trimmings e) Urban and peri-urban agriculture (fruit trees, vegetable gardens, etc.) and f) the use permeable paving material where applicable.

(CoT, 2007b:*2-3)*

3.5 Conclusion

This chapter started by defining the green procurement concept (Section 3.1) then moved on to outline the steps towards green procurement (Section 3.2). The chapter then further discusses some barriers to green procurement that the CoT might encounter (Section 3.3) and concludes by listing the features of a green low cost house (Section 3.4) as described by the former National Department of Housing.

CHAPTER 4

ENABLING LEGISLATIVE FRAMEWORK

Introduction

The focus of this study is the financial feasibility of a green procurement practice in the CoT with special attention to the construction of low cost housing. This chapter provides a summary of legislation that promotes an enabling environment to support green procurement. Legislative framework that governs local government policies is included in Section 4.1 and municipal procurement regulatory framework is discussed in Section 4.2.

A discussion on legislation, policies and strategies in South Africa that have relevance to green procurement is outlined in the next section**.**

4.1 Legislative Framework

4.1.1 Constitution of the Republic of South Africa, Act no.108 of 1996

The Constitution is the supreme law of the Republic and obligations imposed by it must be fulfilled. The Constitution contains a Bill of Rights, which sets out inalienable rights applicable to every South African, which includes both natural and juristic persons. Of importance to this study are sections 24, 26, 217 as well as 231-233

Chapter 2, Section 24 of the Constitution provides everyone with the right of access to (a) an environment that is not harmful to their health or well-being; and (b) have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that i) prevent pollution and ecological degradation; ii) promote conservation; and iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development (SA, 1996:10).

Chapter 2, Section 26 deals with housing and lays down the right of access to adequate housing and commits the state, within its available resources, to achieve the realization of this right (SA, 1996:12).

Chapter 7 of the Constitution deals with local government (municipalities) and makes provision for Municipalities to govern local government affairs of their respective community, subject to national and provincial legislation. Section 152 obligates Municipalities to, amongst others a) ensure the provision of services to communities in a sustainable manner and b) promote a safe and healthy environment (SA, 1996:63).

Chapter 13, Section 217 sets parameters for public procurement and prescribes that it must be in accordance with a system that is fair, equitable, transparent, competitive and cost-effective (SA, 1996:97).

Furthermore, Chapter 14 Section 231 – 233 of the Constitution of the RSA confirms that customary International law is recognized as law in the RSA unless it is inconsistent with the constitution or an Act of parliament. Section 231 (5) confirms that all international agreements which were binding on the RSA prior to the enactment of the constitution continue to be in force. Section 233 further states that Courts must prefer any reasonable interpretation that is consistent with international law over alternative interpretations inconsistent with international law. The constitution also provides for the respective rights and obligations of Government regarding the adoption of international agreements (SA, 1996:103).

The previous paragraph has relevance to global priorities that bears importance to this study which are represented in table 4.

Table 4: Synthesis of Global Priorities applicable to green procurement.

Priority / Protocol	Overview and Imperative
a) Agenda 21	Agenda 21 is a blueprint for sustainable development and it is in its programme of action that, amongst other, sustainable construction industry activities are promoted. In accordance with Agenda 21, member states are required to develop sustainable human settlements through the adoption and implementation of policies and technologies that promote sustainable resource utilization whilst meeting their construction needs. Without deviating from their national plans, objectives and priorities member states are also required to, among other a) Formulate programmes to enhance the utilization of local materials by the construction sector and b) Adopt standards and other regulatory measures which promote the increased use of energy-efficient designs and technologies and sustainable utilization of natural resources in an economically and environmentally appropriate way. (Agenda 21, 1992)
b) The Habitat Agenda	The Habitat Agenda recognized the imperative need by member states to improve the quality of human settlements and Habitat II addressed the need for sustainable human settlement development in an urbanizing world. Habit II highlights the importance of, amongst other matters i) Promoting research, exchange of information and capacity building with respect to affordable and technically environmental sound building, maintenance and rehabilitation techniques ii) Providing incentives for engineers, architects, planners and contractors and their clients to design and built accessible energy efficient structures and facilities by using locally available resources and to reduce energy consumption in buildings. iii) The promotion of an integrated water use planning with a view to identify effective and cost efficient alternatives for mobilizing a sustainable supply of water to communities and other uses, iv) Promoting more energy – efficient technology and alternative / renewable energy for human settlements and reducing the negative impacts of energy production and use on human health and on the environment, v) Encourage the development of environmentally sound and affordable construction methods and the production and distribution of building material. (Habitat II, 1996)
c) Kyoto Protocol	Article 12 of the Kyoto protocol defines Clean Development Mechanism (CDM) which is a market based mechanism for developed countries to buy carbon credits from developing countries (Ward, 2008: 8). The latter provides a framework for the accreditation of projects that can earn sealable certified emission reduction (CER) credits and trade conditions between countries with emission reduction or emission limitation commitments and developing countries.

	The type of projects that can earn a CDM status are for example building housing development incorporating renewable energy technologies , energy efficient building and construction methods, a rural electrification project using solar panels etc (Kyoto Protocol, 1997).
d) Johannesburg Plan of Implementation (JPOI)	Member states committed to encourage relevant authorities at all levels to take sustainable development considerations into account in decision-making, including on national and local development planning, investment in infrastructure, business development and public procurement. This would include actions at all levels to, amongst other things promoting public procurement policies that encourage development and diffusion of environmentally sound goods and services. (Johannesburg Plan of Implementation, 2002)
e) Marrakech Process	The Marrakech process is a global process to support a) the implementation of projects and strategies on sustainable consumption and production (SCP) and b) the elaboration of the 10-Year Framework of Programmes on SCP (10YFP) The custodian Department in South Africa for the process is the Department of Environmental Affairs (DEA). DEA facilitated in November 2008 a roundtable discussion on how the process was going to unfold in South Africa and the intended alignment of this process to the National Framework on Sustainable Development. Proposed focus areas to be included in the 10YFP are a) Sustainable building and construction b) Sustainable public procurement c) Global climate change d) Integrated waste management e)Energy efficiency f) eco-labeling and g) Integrated Water Resource Management . A draft document was circulated for stakeholders to make inputs (SA, 2008).

4.1.2 The Housing Act No 107 of 1997

The former National Department of Housing (now Department of Human Settlements) is responsible for providing housing and the development of regulatory framework that informs housing matters in South Africa. The vision of the Department is *"to promote the achievement of a non-racial integrated society through the development of sustainable human settlements and quality housing."*

The Housing Act 1997(Act No 107 of 1997) provides a framework to guide housing provision in South Africa and compels, among other matters all spheres of government to give priority to the needs of the poor. According to the latter Act government must whilst providing economically, socially, sustainable houses, take cognizance of the impact of housing on the environment. (SA, 1997)

The Department produced a Policy on housing in 2004 that recognizes that the environment within which a house is situated is as important as the house itself in satisfying the needs and requirements of the occupants (SA, 2004).

The Department also introduced a "Breaking New Ground: Comprehensive Plan for Development of Sustainable Human Settlements" in September 2004 with the intention of setting new parameters to redirect and enhance existing mechanisms to move towards more responsive and effective housing delivery. The new plan also envisaged expansion of the Department mandate to encompass the entire residential housing market and enhancing the role of the private sector (SA, 2004).

Of importance to this study, the Plan introduced a shift from housing delivery simply to address backlogs but promoted a move towards creating sustainable human settlements in line with the Habitat Agenda. The Habitat Agenda defines Sustainable Human settlements as "*well managed entities in which economic growth and social development are in balance with the*

carrying capacity of the natural systems on which they depend for their existence and result in sustainable development, wealth creation, poverty alleviation and equity". (Habitat II, 1996) A salient feature in human settlements that is also included in the JPOI and MDG is changing the unsustainable patterns of production and consumption.

Furthermore the plan provides for, through one of its guidelines: "*the integration of previously excluded groups into the City, and the benefits it offers,* ***and to ensure the development of more integrated, functional and environmentally sustainable human settlements****, towns and cities".* (SA, 2004)

The National Department of Housing made a commitment with inputs from the Environmental Sound Housing Task Team in its 2002 Environmental Implementation Plan to promote Environmentally Sound Low Cost Housing (SA, 2002). This commitment was to be realized through the implementation and design of water and energy efficient housing, use of renewable resources as well as the promotion of planting of trees in low cost housing projects. The Housing Department later on conceded that the incremental cost of installing green fixtures was a barrier for them to meet the provision of environmentally sound low cost housing (Gichia and Barrister: 2005). National Department of Housing produced a guideline document in 2008 named "Guidelines for environmentally sound low cost housing".

4.1.3 National Environmental Management Act 107 of 1998 (NEMA)

The Act serves as a cornerstone for environmental management matters in SA and makes provision for the regulation of development that may have a negative impact on the environment. The Act further introduces environmental management principles that, amongst other things serve as the general framework within which environmental management and implementation plans must be formulated. The principles promote the precautionary principle approach and state that development must be socially, environmentally and economically sustainable and further state that where impacts cannot be

avoided, the best practicable environmental option must be selected (SA, 1998:12).

4.1.4 South African National Standard 204: Energy Efficiency in Buildings

The Department of Minerals and Energy developed in 2005 a National Energy Efficiency Strategy for South Africa that set a national target of energy efficiency improvement of 12% by 2015. The intention of the SANS 204 is to provide a national mode of affordable practice for cost, energy and environmentally effective building design, construction, operation and maintenance, products, systems and professional services to be developed according to the targets outlined in the latter strategy. The standard provides a framework for integrated planning and design of energy use in buildings, which is a fundamental aspect for sustainable building construction. (CSIR, 2008)

4.1.5 South African National Standards 294 (SANS 294) for construction procurement processes, methods and systems

Standards South Africa's technical committee for construction published standards for construction procurement in 2005. The standards were developed to promote transparency through uniformity in construction procurement in the public and private sectors. The standards provide a framework within which construction procurement may be conducted in a fair, equitable, transparent, competitive and cost effective manner. (SANS, 2005)

4.2 Municipal Procurement Regulatory Framework

4.2.1 Municipal Finance Management Act 56 of 2003 (MFMA)

Chapter 11, Sections 110 – 119 of the Municipal Finance Management Act provides a framework for the procurement of goods and services through the implementation of a supply chain management process and further makes provision for municipalities to compile supply chain management policies.
(SA, 2003)

Part 112 (2) of the Act states that the supply chain management policy of a municipality or municipal entity must be fair, equitable, transparent, competitive and cost effective and comply with a prescribed regulatory framework for municipal supply chain management (SA, 2003:112). The MFMA does not make any provision for green considerations or environmentally soundness, and has been cited by officials as a barrier to the implementation of green procurement.

4.2.2 Preferential Procurement Policy Framework Act 5 of 2000 (PPPFA)

National Treasury issued the Preferential Procurement Regulations in terms of the PPFA that prescribe requirements for developing and applying evaluation criteria and goals to achieve required outcomes (SA, 2000).

4.2.3 City of Tshwane Supply Chain Management Policy (SCMP)

The CoT developed the SCMP to give effect to, amongst other matters a) Section 217 of the Constitution; and b) part 1 of Chapter 11 and other applicable provisions of the Act as well as provide a framework within which procurement will be conducted in the CoT with due considerations of the objective for uniformity in supply chain management system between organs of state in all spheres and consistency to the national economic policy (CoT, 2005).

4.3 Conclusion

This chapter has not exhausted all the legislation that has relevance to this study but has reflected key commitments that the CoT is obligated to meet in Section 4.1 and 4.2. Legislation and regulations that inform procurement at a local sphere of government places emphasis that it should be conducted in fair, equitable, transparent, competitive and cost effective manner and further provide opportunities for the advancement of historically disadvantaged individuals.

Correct interpretation of the legislation does not promote the setting of a bid condition that will exclude certain categories of potential bidders for bidding for contracts; it only provides the protection or advancement of categories of persons disadvantaged by unfair discrimination. The CoT should be cautious in implementing procurement legislation in isolation but must also realize its obligation as a sphere of government to comply with all the international regulatory framework, initiatives and implementation plans to which the South African Government is committed (as outlined in Table 4).

CHAPTER 5

CITY OF TSHWANE CONTEXT

Introduction

This chapter aims to address research sub question 1, namely 1.5.1 *What is the current policy with regard to green procurement in the City of Tshwane?* The Chapter also intends to address objective 1.6.1 which states: To investigate the current policy and practice with regard to green procurement in the City of Tshwane by reporting on the findings of the document analysis as indicated in Section 2.2.

For the purpose of this study the City of Tshwane (CoT) has been selected as a case study. This chapter starts with a brief introduction to the City of Tshwane (Section 5.1), provides insight into the Tshwane Integrated Environmental Policy (TIEP) Section 5.2, and provides an outline of the City of Tshwane Sustainable Energy Commitments (Section 5.3) that bear influence on the introduction of a green procurement practice in the CoT.

5.1 City of Tshwane

The CoT Metropolitan Municipality is situated in the Gauteng province and serves the administrative capital of the Republic of South Africa. The Municipality came into operation on 5 December 2000 when 13 municipalities serving the former greater Pretoria Metropolitan area were amalgamated. The vision of the City is "T*o be the leading International African Capital City of excellence that empowers the community to prosper in a safe and healthy environment".* Developmental decisions in the CoT are informed through an Integrated Development Plan process the outcome of which is a City Integrated Development Plan document which in turn informs all development for a period of five years. (City of Tshwane, 2008). The IDP process is briefly explained in the next section.

5.1.1 City of Tshwane Integrated Development Plan 2020

Integrated Development Planning (IDP) seeks to attain sustainable development and is defined as an approach to planning which is aimed at involving the municipality and the community to find the best solutions for meeting the needs of the City. It provides a strategic planning instrument which manages and guides all planning, development and decision making in the municipality (CoT, 2007:2). The second Tshwane Five Year IDP Cycle (2006-2011) commenced with the approval of the TIDP 2006 -2011 in May 2007.

Crane and Swilling (2007:1) argue that IDPs, since their inception, have not achieved a positive contribution towards sustainable development. This they state, is evident as IDPs have not considered a sustainability perspective that suggest that the only way in which poverty eradication can be achieved is by uncoupling our production and consumption systems from rising levels of natural resource use (2007:1).

For green procurement in low cost housing to be part of the CoT it will have to be prioritized and reflected in the City IDP. Green procurement offers an opportunity for local authorities to implement sustainable resource consumption and production.

5.1.2. City Development Strategy (CDS)

The City Development Strategy was compiled in 2004 to influence the development path of the City over the next 20 years. The strategy aims to provide the basis for social compact and a process of sustainable growth that will offer new opportunities for poor and marginalized communities. A clear distinction between the City strategy and the IDP is that the strategy lives beyond the five year period cycle of the IDP and further focuses on a selective set of initiatives that over 20-30 years, provide a coherent framework of action for a much wider set of role players in both public and private spheres. (CoT, 2004)

At the core of the City Development Strategy is the identification and offering of new opportunities for the poor and the marginalized whilst ensuring sustainable growth in Tshwane. The CDS identified the North of Tshwane as the “Zone of choice” where the bulk of Council resources will be directed to support massive infrastructure development and economic hubs. The Zone of choice presents an excellent opportunity for the CoT to implement environmentally sound practices in the provision of infrastructure, economic hubs and housing.

5.1.3 The Municipal Housing Development Plan (MHDP)

The Housing and Sustainable Development Department sector plan in the CoT, where the interest of this study lies, is reflected through the Municipal Housing Development Plan (MHDP) which, once adopted by Council will be part of the Tshwane IDP. The MHDP is primarily a strategic management tool or an integrated housing framework to assist the City of Tshwane to focus its energy to ensure that all its activities in the Housing and Sustainable Development Department are working towards the same goals in response to a dynamic environment. In this regard it states, the MHDP will take cognizance of the broader framework set by the Millennium Development Goals, National and Provincial directives like the Gauteng Department of Housing 5 year Strategic plan, as well as the CoT’s Strategic Priorities and objectives in terms of the City Development Strategy 2025, Tshwane five year strategic plan and programme of action (2006 – 2011) and its Integrated Development Plan (CoT, 2007c: 6).

The MHDP is intended to establish a shared housing strategy (which will inform both Provincial and municipal planning processes) within which housing will be delivered (SA, 2008:5). Part of the purpose of the MHDP as a strategic management tool is to identify and incorporate provincial, national and global priorities that bear importance to housing development.

The CoT Municipal Housing Development Plan estimates the current housing backlog in the City to be 133 808 (CoT, 2007c:10). The huge housing backlog, which is not exclusively a CoT problem translates into a need for housing to be delivered at a faster rate than ever before in the history of the country (Sowman & Urquhart. 1998:3).

The MHDP, through one of its objectives commits to ensuring the alignment with provincial and national housing and planning directives and policies but the plan makes no mention at any point of the National Framework for Environmentally Sound Housing Development.

The MHDP is silent about the impact of housing development on natural resources in the CoT. As a result the MHDP has not translated how housing development in the City will take cognizance of international and national priorities for example the national energy target reduction of 12 % energy use by 2015, and the subsequent intervention in ensuring that future housing development will minimize energy use so as to contribute to the attainment of the target.

Ideally the MHDP should extend, in addition to the Millennium Development Goals, to include important global priorities like the Johannesburg Plan of Implementation as well as the Habitat Agenda and the related call for sustainable human settlements with due consideration on the use of natural resources (as outlined in table 4).

Tshwane Integrated Environmental Policy targets are not included in MHDP and thus a commitment to environmental protection is not visible in currently planned housing development.

The absence of mechanisms and guidelines for translating policy principles into action is a major stumbling block to achieving sustainable development at the local level (Sowman and Urquhart, 1998:11). Failure on the part of the MHDP as the housing sector plan, with the ultimate responsibility of representing housing development in the CoT's IDP, to include environmental

considerations might result in poor integration of global priorities, programmes and plans (as reflected in table 4) into the CoT sustainable human settlements policies.

5.1.4 City of Tshwane Indigent Policy

To give effect to the government's broader social agenda and anti-poverty strategy by providing free basic services to the poor of the poorest in Tshwane the City developed a Tshwane Indigent Policy in 2008. The Policy's cornerstone is Section 27 of the Constitution of the RSA 1996 (Act 108 of 1996) which enshrines rights in terms of access to sufficient food and water as well as social security, including where SA citizens are unable to support themselves and their dependants, appropriate social assistance(SA, 1996:12). The Policy defines an indigent as *any household of which the members are South African Citizens who due to a number of economic or social factors are unable to pay Municipal basic services* (CoT, 2008:5).

It is through this Policy that the Government is employing "through legislative and other measures" resources for indigents to get access to a low cost house, energy, water and food through various programmes including government grants. The policy makes provision for the allocation of free twelve kilolitres of water and hundred kilowatts of electricity to indigent's household per month. The funds are catered for through the Municipal budget and topped up from subsidies received from the equitable shares (CoT, 2008). The latter, provides impetus to the City to adopt eco-efficient low cost housing that will result in the poor saving on energy, water and waste costs.

According to a study commissioned by the former National Department of Housing in 2008, poor households are spending up to 30% of income on energy sources. The study states that poor quality low cost homes contribute to the high expenditure because they require much energy for space heating. The poor thermal performance of low cost houses contributes to the proportionately financial burden of energy on the poor (SA, 2008: vi).

5.2 Tshwane Integrated Environmental Policy (TIEP)

In theory the COT has committed to move towards a green procurement system through its Tshwane Integrated Environmental Policy, an approved corporate environmental policy that came into operation in January 2005. This commitment is captured firstly in the economic development overarching goal that reads as " *To ensure that environmental sustainability influences economic development in Tshwane and promotes global competitiveness, provides jobs, aids in reducing poverty and improves living and business environments*". It is further stated in the economic development's first objective that intends to give due care and consideration to human health and environmental impacts when planning economic activities that the goal will be operational through among others by a) providing incentives for businesses, industry and parastatals to improve their environmental performance, including green buildings and procurement and b) implementing a supply- chain management system favouring suppliers that show environmental responsibility (CoT, 2005b:15) . The commitment is secondly included in the Environmental Resource Management Second Objective that reads as follows: To assign financial costs to environmental resources, wherever possible, for cost accounting purposes. The Policy states that this objective will be attained by investigating the promotion of a green procurement practice and the implementation thereof (CoT 2005b:19).

To operationalize the TIEP, a number of output strategies and initiatives were designed and the following section discussed those that bear relevance to the study:

5.2.1 Green Buildings By-laws

In March 2007 the CoT embarked on a process that will result in the compilation of green buildings by-laws as well as a green building incentive scheme for the City in line with its TIEP implementation plan. The project is coordinated by the Agriculture and Environmental Management Department and the project objective is to develop a green building by-law and an incentive scheme for developers in the City of Tshwane.

The Scope of the project includes:

a) All buildings in CoT's area of jurisdiction, both new and existing buildings;

b) An expectation or projection to address all relevant aspects as contained in the TIEP, the draft CoT Spatial Development Strategy: 2010 and beyond, and any other relevant CoT strategic planning activities and documents, institutions, mechanisms, organizational structures, procedures, projects and tools;

c) The alignment to international, national, provincial and local legislative and policy obligations in terms of the "*green buildings*" concept for new and existing buildings;

d) Its bases on the principles of sustainability and must thus include the natural, social, and economic environment.

(CoT, 2007b)

The success of the project will culminate in the City having a By-law that obligates developers in the CoT to include green considerations in their activities, products and services. Stigson and Russel (1998:109) state that a clear insight to the target audience is fundamental to behavioural change efforts. He further indicates that behavioural change strategies fall into three basic categories or variations thereof namely a) Normative strategies, those that motivate change by drawing on the strength of intrinsic beliefs and values of the target audience (e.g. honesty, kindness to children, protection of the environment) b) Coercive strategies , those that rely on force (e.g. legislative requirements, disciplinary action) and c) utilitarian strategies , which rely on direct rewards (stick and carrot approach). He argues that the normative strategies are the most effective and sustainable, the coercive as well as the utilitarian strategies tend only to be effective for as long as they are enforced. A law without enforcement, he states, is unlikely to be followed if the general public does not believe in its inherent value. The CoT has selected the coercive (by-law) combined with a utilitarian approach (incentive scheme).

The approach selected by the Agriculture and Environmental Management Department is in line with the recommendations put forward by the Habitat

Agenda (as outlined in table 4). A critical ingredient towards the success of the project, in the opinion of the author, is for the project to be preceded by an extensive education and awareness drive for both CoT officials and external stakeholders.

5.2.2 Green procurement guidelines

The CoT produced in 2007 a guideline document "*Best Practice: The procurement of environmentally friendly products and services"* to give effect to green procurement obligations stated in the TIEP. The aim of the guideline is to a) communicate potential benefits of adopting green procurement b) identify product categories the CoT can implement as low hanging fruits and c) set targets within which the selected product categories will be procured through green procurement. Even though the guidelines were approved by Council and will be phased in over a number of years, they have a limited impact because they are not compulsory and the onus is placed on the buy in from the affected department (Personal communication with Dr Jan Olivier: 29 August 2008).

The selected product categories from 2006 – 2011 are energy efficient light bulbs, geyser blankets, insulated piping, dishwashing liquids and liquid detergents that adhere to the SABS 20825 standard, phasing out of all mercury containing devices, energy efficient white appliances, use of environmentally friendly produced paper, pesticides to comply to the Stockholm convention, planting of street trees, street and park furniture manufactured from recycled material and environmentally friendly paints.
(CoT, 2007a)

The CoT has also produced Guidelines for environmentally friendly general facilities in the CoT and the Green infrastructure guidelines to promote the incorporation of environmental considerations during construction of facilities in its area of jurisdiction. Similar to the green procurement guidelines the latter cannot be enforced and are currently meant to raise awareness and promote good environmental practice (Personal communication with Dr Jan Olivier: 29 August 2008).

5.3 City of Tshwane Sustainable Energy Commitments

The CoT is a participant or member municipality in a number of initiatives and programmes that commit the municipality to take necessary steps either by policy formulation or integration into existing policies/plans to meet targets in terms of energy as key to sustainable development. The Cape Town Declaration on Energy and the Tshwane Energy Strategy Implementation Plan was adopted by the CoT Mayoral committee as a working document on 20 January 2004.

The adoption of the Cape Town Declaration on Energy obligates the CoT amongst other to a) Implement a green procurement policy by 2006 b) Reduce energy consumption by at least 20% in all municipal operations by 2005 and c) ensure that all low –income formal housing has insulated ceilings, new housing by 2005, retrofit existing by 2007 and build houses to be energy efficient. The City has clearly not met all the commitments it had entered into when it adopted the Cape Town Declaration. A summary of selected initiatives that the CoT is participating in is briefly outlined in the next section.

5.3.1 Cities for Climate Protection Campaign

The Cities for Climate Protection Campaign was initiated by the International Council for Local Environmental Initiatives (ICLEI) in 1993 and has worked with 670 local authorities worldwide. The aim of CCP is to assist local authorities to reduce green house gases emissions (Ward, 2008:124).

5.3.2 Sustainable Energy for Environment and Development Programme

Sustainable Energy for Environment and Development Programme (SEED) is a capacity building programme that aims to integrate sustainable energy practices and approaches into urban development in South Africa. SEED is run by an NGO Sustainable Energy Africa (SEA) and the programme provides i) Training for professionals and politicians ii) Advocacy and lobbying iii)

Resource materials and tools iv) Institutional and project development support (Ward, 2008: 124).

The CoT has participated in the SEED programme since August 2003 and has also signed a Memorandum of Agreement with Sustainable Energy Africa that informs the direction of the programme. The City of Tshwane has an appointed SEED advisor who has been capacitated through training and exposure to national and international best practice whose expertise is available to implement projects that integrate sustainable energy and environmental issues into urban development e.g. sustainable low cost housing development.

5.3.3 Energy as a Key Element of an Integrated Climate Protection Concept for the City Region of Gauteng.

Energy as a Key Element to an Integrated Climate Protection Concept for the City Region of Gauteng (EnerKey) project is in association with research institutions from both South Africa and Germany. The three involved Metropolitan Municipalities of Gauteng Province are the City of Tshwane, Ekurhuleni and the Johannesburg Municipality in association with the Universities of Johannesburg and Stuttgart and the City of Stuttgart. EnerKey is a research based project and covers issues such as sustainable energy, integrated energy modeling, traffic and mobility. It furthermore looks at socio – economic aspects of energy and assesses appropriate technologies. (CSIR 2008)

The project is based on an exchange of knowledge and experience between the energy divisions of the Local Municipalities of the Gauteng region in South Africa and the City of Stuttgart in Germany, as well as research institutions in both countries.

5.4 City of Tshwane Supply Chain Management Policy

In line with the legislative provisions of the Constitution of South Africa, 1996 (Act 108 of 1996), Section 217, the CoT developed a Supply Chain Management Policy in October 2005. The Policy sets parameters within which the procurement of goods and services will take place in the CoT and further outlines the supply chain process. The Policy ensures that the intentions of the Government Public Procurement (as outlined in Section1.1) are achieved through the allocation of points based on price, quality and equity.

Efforts by the CoT Environmental Management Division to include a product or service environmental performance as an additional point in the evaluation process were thwarted by procurement officials. The officials stated concerns that it represents a deviation from Government's preferential procurement intentions and further falls outside the prescriptions of the Municipal Finance Management Act (Council report: September 2003 and personal communication with Ilse Kotze 25 August 2008). The latter dictates a need by national Government to clarify the objective of green procurement and communicate that it is not intended to create market discrimination but to further a sustainable competitive market which includes environmental issues on equal terms with a) value for money (quality) b) open and effective competition c) ethics and fair dealing d) accountability and reporting and e) equity

5.5 Conclusion

This Chapter gives a report on the outcome of investigating the current policy and practice with regard to green procurement in the City of Tshwane and focused on a) The City of Tshwane and strategic processes (i.e. IDP and CDS) that bears importance to the implementation of a green procurement practice (Section 5.1) b) The Tshwane Integrated Environmental Policy and the green procurement commitment contained in the Policy (Section 5.2) c)

CoT sustainable energy commitment (Section 5.3) d) The CoT Supply Chain Management Policy (Section 5.4) and the conclusion.

The investigations revealed that the Environmental Management Division of the City (as reflected in Section 5.2) has made strides in attempting to implement green procurement but has encountered challenges with procurement officers stating procurement legislation as a barrier. The CoT was found to have progressive policies in place that will provide a sufficient base from which a green procurement practice can be initiated. The CoT would require innovative and transformational leaders to overcome the existing barriers that are perceived to work against the full implementation of a green procurement practice.

The City has compiled a number of policies strategies, implementation plans as well as guidelines for example, the Tshwane Integrated Environmental Policy, Best Practice guidelines, Tshwane Energy Strategy that communicate a commitment to sustainable development and now need to complement these by concrete actions and projects (CSIR, 2008).

CHAPTER 6

FINDINGS

Introduction

This chapter aims to address research sub question 2 that reads 1.5.2 *What are the financial implications of procuring green products in low cost houses for the City of Tshwane*? The Chapter also intends to address objective 1.6.2 that states: *To critically assess the potential and financial implications for a successful green procurement practice for low cost houses in the City of Tshwane Municipality*. The Chapter further addresses research sub question 3, that reads 1.5.2 What are the financial implications of procuring green products in low cost houses for the City of Tshwane as well as objective 1.6.3 that states: To investigate the potential financial benefits of a green procurement practice for the City of Tshwane.

6.1 Current pricing for a single RDP / low cost unit

The size for a current RDP is a minimum forty (40) square meters of gross floor area and modified technical specifications as provided by the NHBRC. (SA, 2007) The latter is an improvement to the 36 square meters low cost houses that was built prior to 1 April 2007. The improvement also introduced a new housing subsidy scheme amount of R38 984.00 for the top structure (see table 6.1)

Table 6.1 Detailed cost breakdown of the 40 square meter house.

PRODUCT	ITEM DESCRIPTION	AMOUNT
40 Square meter house	Earthworks (provisional)	563.59
	Concrete, Formwork and Reinforcement	3 061.05
	Windows	990.79
	Brickworks	10 155.69
	Roof structure	2 665.15
	Doors and Frames	1 182.26
	Finishing and paintwork	1 578.20
	Electrical	785.00
	Plumbing and toilet	4 713.13
	material	25 694.86
	Labour	6 942.52
	Sub Total	32 637.38
	P & G	3 543.99
	Overheads	1 494.68
	Profit	1 307.84
Total Construction Costs		R 38 984.00

(SA: 2007)

6.2 The cost of an environmentally sound low cost house

This study selected to apply green architectural services to environmentally sound low cost houses that limit intervention to key actions that are no-cost or low cost interventions. Klunne (2002) refers to no-cost or low cost interventions as pure necessities with a potential of yielding very short pay back periods. These include the provision of a dwelling building plan that consist of relevant passive solar design, thermal efficiency and water conservation principles crafted to achieve a) Optimization of dwelling solar orientation b) Correct sizing and positioning of windows c) Installation of roof overhangs to reduce summer heat d) Efficient planning of internal layout that will utilize solar benefits for comfort and f) Planting of trees for shading.

A desktop study of green suppliers was conducted to inform this part of the study. This study found that even with access to enabling resources such as a) unrestricted access to the internet b) telephone facility c) resourceful networks, it was difficult to source a variety of green products and services within South Africa. Green Suppliers are scattered and scarce in South Africa. This is an area regarding green procurement that will require further research. Information was available regarding different aspects of, and initiatives around green procurement in South Africa, but it was not easy for the author to find an assorted choice of green suppliers and products.

Quotations collected for the purpose of this study around the City of Tshwane area (i.e. Omi Delta Rosslyne, Mpho ya Rona Construction, Builders Warehouse Gezina) revealed a 30% incremental cost (R11 692.2). The quotations included a) Energy efficient lighting b) installation of low flow tap aerators c) 600mm roof overhang on the Northern side of the dwelling. Information was available from a number of organizations that were able to guide one to potential sustainable buildings information resources namely the CSIR, Sustainable Energy Africa, Green Buildings Council of South Africa, Green Buildings Website, Green space website, Urban sprout and Enviropedia. Easily accessible, reliable and consistent information is essential to the success of a green procurement practice.

6.2.1 Alternative sources of funding

According to Gichia and Bannister (2005) the development of sustainable human settlements and green housing also referred to as eco-efficient housing is targeted by a number of sources of funds and other forms of support.

Gichia and Bannister (2005) list the following as potential sources of finance and potential donors:

a) Department of Minerals and Energy (DME)

The Department of Minerals and Energy is responsible for the National Electrification Programme that is aimed at affordable and sustainable electricity to 2, 5 million households, mainly in poor rural areas. The DME published in 1996 the Manual for Energy Conscious Design, which concentrated on the practical aspects of the passive solar housing design in South Africa (Holm, 1996). The Department recently launched a Liquefied Petroleum Gas (LPG) pilot project in Attridgeville, Tshwane. The objective of the project is to contribute towards the demand side management objectives of the department as well as to offer households an alternative source of energy for cooking and heating. The project has earmarked the conversion and connection to the LPG of twenty thousand households and is rolled out by giving out 6kg gas cylinder, a cooker top and a heater connection at an initial cost of R100 per household. Households are then able to refill their gas cylinder at R84.00 whenever necessary (Personal communication with Benevolent Tumagole, 27 August 2008).

DME is also responsible for coordinating the Clean Development Mechanism (CDM) in South Africa. The Clean development Mechanism (as outlined in Table 4).b) offers an opportunity to obtain funding for projects in developing countries which lead to greater levels of energy efficiency. The Department views energy as the best tool to minimize environmental impacts of coal combustion as this reduces pollution and improves the environment. (SA, 2008)

b) DANIDA

Since 1993 the Danish International Development Agency has been operating through funds allocated to it by Denmark. The agency's core function is to target environmental programmes in developing countries (as quoted by Gichia and Bannister: 2005).

c) World Bank

An Environmental Finance Group was established by the International Finance Corporation (IFC), which is the private sector arm of the World bank, to consider both commercially viable projects and higher risk ventures in a wide range of environmental sectors. In 1995 the IFC developed a joint initiative with the GEF to support SMME activities in testing methods of financing the incremental cost of green projects. This programme offers funding opportunities at low or near market interest rates to NGO and private sector intermediates. (Gichia: 2003)

d) Global Environment Facility (GEF)

The Global Environment Facility is an independent donor organization established in 1991 to fund projects that provide global environmental benefits such as the mitigation of green house gas emissions. The World bank, the United Nations Environmental Programme, and the United Nations Development Programme are the executing agencies for GEF projects. GEF attempts to create a significant demand for energy efficient technologies at the lower end of the market while lowering prices of these projects. A large scale project aimed at transforming perceptions and attitudes to energy efficiency was jointly undertaken by the world bank and the DoH through GEF Funds. In these projects the costs of basic energy efficient transformations in a low-cost house was calculated to approximately R2 700 for a stand-alone home.

e) IIEC

The International Institute for Energy Conservation is an international not-for-profit organization with the mission to promote the wise use of energy and other natural resources for the benefit of sustainable development. The IIEC has been active in South Africa since 1993 and has facilitated and/or implemented projects in the areas of low-cost housing, sustainable transport and a variety of projects related to climate change mitigation. The Sustainable Homes Initiatives (SHI) is one such project which provides a

range of support and training to bring about a change in the building, finance and materials sectors in low cost housing. A complementary programme to the SHI is the green professional scheme which enables SHI to place professionals in communities which cannot afford to pay for green professional intervention and who are interested in green low cost houses. The scheme includes the following professionals: engineers, architects, town planners, project managers and financial managers.

(IIEC, 2000)

f) SouthSouthNorth (SSN)

The SSN is a partnership of south countries assisting with the transaction and development of Cleaner Development Mechanism projects. SSN focuses on testing and building capacity around CDM projects in South Africa. The SSN is currently investigating a pilot project that can be implemented under the framework (pers. Communication with SEED advisor Mr. S Mutswari. 8 May 2008).

g) Bonessa/ Efficient Lighting Initiative

ESKOM and GEF jointly established a national company in 1999 with the aim of promoting low energy compact fluorescent lighting (CFL) in low cost housing in South Africa. As part of the programme roll-out, Bonessa developed a series of related projects such as an educational and awareness campaign and the supply of free CFL lamps with new electrification connection in order to encourage conservation lighting from the onset. The project has been rolled out in a number of areas in Tshwane.

h) Breaking New Grounds Plan

One of the objectives of the “Breaking New Grounds” plan is to enhance and deepen partnership between government and the private sector in the development of sustainable human settlements. Through the BNG plan, private business could be invited to consider contributing to green low cost housing through their social responsibility programmes.

6.3 Benefits of adopting a green construction procurement in low cost houses for the CoT

For the purpose of reporting on this section of the study, a desktop investigation of pilot projects was conducted. Pilot projects that will be reported on are discussed in the following section.

6.3.1 International Institute for Energy Conservation (IIEC) Johannesburg Projects

The International Institute for Energy Conservation (IIEC) recorded the following benefits from pilot projects conducted in Soweto and Alexandra in Johannesburg, South Africa, where environmentally sound interventions were incorporated:

a) The built low cost houses were thermally efficient and provided all year round comfort as they do not overheat in summer or become excessively cold in winter.
b) The home owners directly benefited from energy expenses savings as it was found that energy efficient low cost houses required 70% less energy than conventional built homes.
c) The provision of sustainable living environments.

(IIEC:2000)

6.3.2 Kutlwanong Housing project – Kimberly Northern Cape

The Kutlwanong housing project was developed by incorporating passive solar design principles which included the orientation of the houses, provision of adequate roof overhangs for summer shading, the materials used, the inclusion of ceilings and other such factors. Monitoring of the Kutlwanong houses has indicated energy savings of up to 60% and indoor temperatures

on winter nights of around 21ºC, without additional heating being used. For the low income community in a region of the country that experiences very cold winters the latter is particularly significant as a fuel-cost-saving measure. (Urban green file, 2002).

Kutlwanong Housing project (as quoted by the IIEC: 2000) put forward projections that an energy efficient house brought an anticipated carbon dioxide saving (from coal and paraffin) of approximately 776,800 kg/annum per 2 300 houses. This has a beneficial impact on Global Greenhouse Gas Mitigation.

6.3.3 Kuyasa Khayelitsha, Cape Town

The Kuyasa Khayelitsha housing project involved retrofitting eight low-cost houses and two crèches with simple energy-saving devices such as insulated ceilings, low-watt bulbs and solar water heaters. The retrofitted buildings allow a saving of up to 40% on electricity bills because they are found to be 5% warmer in winter and 5% cooler in summer (Urban Sprout, 2009). Additional benefits that were observed indicated that the buildings also reduce localised air pollution, helping prevent pulmonary pneumonia, carbon monoxide poisoning and other respiratory illnesses. A direct benefit is the decrease in the deadly fires common in high-density and low-income settlements (Urban Sprout, 2009).

6.4 Expected benefits

The review of current procurement practices in the construction of low cost houses to move towards green or eco efficient low cost houses will yield the following benefits:

a) Reduced operating costs for the beneficiaries by increasing productivity and using less energy and water,
b) Improved public and occupant health due to improved indoor air quality, reduced burden on municipality provided health services.
c) Reduced environmental impacts (e.g. green house gas emissions) and the costs related to rehabilitating degraded lands,

d) The CoT will lead by example,
e) The CoT will benefit from reduced waste destined for landfill sites and therefore increasing the lifespan of its landfill sites,
f) The CoT will benefit from the reduced demand on resources (grid electrification) and services,
g) The bulk of services procured by the CoT can influence the markets and thus reducing the current costs of green products,
h) Reduced environmental impacts on the CoT's natural environment.
i) Compliance to global priorities (as outlined in table 4) and CoT Energy strategy (as indicated in Section 5.3)

(Klunne, 2002.Tyler, 2007)

Once a green procurement policy is in place the CoT can initiate processes and procedures for green low cost houses to receive accreditation for sealable certified emission reduction (CER) credits trade in the clean development mechanism (as indicated in Table 4). The trade can assist the Municipality to recoup the incremental costs of greening. The Council is further missing an opportunity of influencing sustainable technology markets by capitalizing on its buying power.

6.5 Conclusion

This chapter reported on the desktop study that was conducted to investigate the financial implications for the CoT in the event it adopts greening of low cost houses. The chapter focused on a) the current pricing of RDP houses (Section 6.1) b) The cost of an environmentally sound low cost house (Section 6.2) c) The benefits of adopting green construction procurement in low cost houses (Section 6.3) and e) Expected benefits that were informed by case studies.

CHAPTER 7

RESULTS OF THE INTERVIEWS

Introduction

This Chapter is aimed at addressing research sub question 4 that reads 1.5.4 *Which institutional arrangements have to be in place for the success of the green procurement practice*? The Chapter also intends to address objective 1.6.4 that states: *To investigate institutional arrangements that have to be in place for the success of the green procurement practice and report on them.*

7.1 Outcome of the interviews

7.1.1 Capacity of the Institution to implement a green procurement practice for low cost houses

The conducted interview (as outlined in Section 2.5) revealed that officials within the lead department are confident that skills to implement a green procurement practice are available in the CoT. These could be enhanced through interdepartmental coordination and the working together of professionals and/or specialist from various operational units within the Municipality. The lead department is also confident that for the procurement of products identified in the best practice guideline document (as outlined in Section 5.2.2), external expertise would not be required.

Officials interviewed from the Housing and Sustainable Development Department were not confident on the internal expertise available to support a green procurement practice in low cost houses and stated that vigorous capacity building and skills transfer will have to precede the implementation of the practice (Personal communication with Siyabonga Jezile, 10 July 2008). A summary of the interview outcome is represented in table 7.

Even though officials interviewed from the Agriculture and Environmental Management Department communicated the sufficiency of framework policies and guidelines they also recommended an additional user-friendly and refined document specific to greening low cost houses.

Table: 7 Representation of responses from interviewees

Perceived readiness of the CoT to implement green procurement practice	**Number of responses**	
	Yes	No
1. Are you familiar with the concept of green construction procurement?	9	1
2. Are the required technical skills to implement a green construction procurement practice available in the City of Tshwane?	5	5
3. In your opinion are the existing policies and guidelines providing a sufficient base from which a green construction procurement practice can be initiated in the CoT	7	3
4. In your opinion will the procurement of green low cost housing yield any benefits for the CoT.	9	1
Perceived barriers to implementing green procurement		
5. Current procurement legislation	Highest barrier	
6. Higher capital costs attached to green procurement	Medium barrier	
7. Capacity of the institution to implement practice	Lowest barrier	

The absence of a lead department at the National sphere of government and the interpretation of the Municipal Finance Management Act 2003 (Act No 56 of 2003) by procurement officers were cited by the lead Department as major barriers towards green procurement in the CoT. The latter Department has opted to integrate green procurement into environmental management systems which have been implemented in selected Departments in the CoT. It is through the latter process that the compiled green procurement guidelines (as outlined in Section 5.2.2) are on a continuous basis communicated to appointed environmental representatives.

7.2 Institutional arrangements that will have to be in place

A need was communicated by interviewees from the lead Department for a green procurement inter-departmental team that will look into the implementation of the green procurement practice in the CoT. The proposed team will be constituted by representatives from CoT Finance Department, CoT Legal services, Agriculture and Environmental Management, Energy and Electricity and any other members the team deems necessary to co-opt.

7.2.1 Enabling Policies

Efforts by the CoT Environmental Management Division to include a product or service environmental performance as an additional point in the evaluation process were unsuccessful because procurement officers stated concerns that in their view it represent a deviation from Government's preferential procurement intentions and further falls outside the prescripts of the MFMA (Council report: September 2003 and personal communication with Ilse Kotze, 25 August 2008).

In light of the above, a need for National Government to demonstrate a commitment to sustainable development (as outlined in the Constitution of SA, Act 108 of 1996, Chapter 2, Section 24(b) i – iii) is identified by the interviewees. This will include a directive that adopts green procurement in all Government institutions and organs of state (Personal communication with Dr Jan Olivier: 29 August 2008). In addition, National government will have to appoint a National lead Department (e.g. Department of Environmental Affairs, Department of Trade and Industry, Department of Minerals) that will ensure the allocation of resources towards a) capacity building b) monitoring of compliance c) synergizing national and international programmes d) alignment of regulations, policies and strategies and e) evaluation and

reporting on progress and challenges. The intended inclusion of green procurement in the 10YFP is anticipated.

The TIEP and the Tshwane Energy Strategy provides adequate framework from which the green procurement practice in low cost houses can be implemented. The integration of the objectives of these into the IDP and function specific policies is essential.

7.2.2 Dedicated resources

With inputs from the Agriculture and Environmental Management Department the CoT established an environmental vote during the 2007/2008 financial year that was included in the IDP and funded to the total amount of R3 million(Personal communication with Ilse Kotze, 25 August 2008). The funds were set aside for addressing environmental projects geared towards correcting significant findings recorded through the Environmental Management Systems process. The funds were used for the construction of bund walls, removal of alien invader plants in CoT property etc. The existence of the environmental vote is a good starting point where additional sources for external donors can be channelled into. The environmental vote can in future be utilized to absorb the incremental costs of greening low cost housing.

7.2.3 Education and Awareness

The awareness around green procurement varied from a clear understanding of the concept (Environmental Management Division) to those who knew it has something to do with environmental considerations (Housing and Sustainable Development Department). Internalization of the practice to own context was found to be a gap, the Environmental Management Division has not evolved to a complete green procurement practice (IT equipment, cleaning material, Departmental fleet).

7.2.4 Alignment of existing green initiatives

This study recommends an integration of current initiatives in the CoT that all have a certain element of green procurement. This intervention will require no immediate additional costs to the CoT and will entail restructuring the Attridgeville Liquefied Petroleum Gas project, the Soshanguve/Olievenhoutbosch Solar Water Heaters project, planting of fruit trees at low cost houses in the City and CFL roll out project in a manner that these are included in newly built north orientated low cost houses as a part of the package.

7.3 Conclusion

The chapter has reported on a) the outcome of the interviews (Section 7.1) b) Institutional arrangements that will have to be in place for the adoption of a green procurement practice (Section 7.2).The City will be required to allocate dedicated personnel and resources for the implementation of the practice and also ratify these through a Council resolution.

CHAPTER 8

CONCLUSION AND RECOMMENDATIONS

Introduction

In this chapter final conclusions and recommendations are made in terms of the research question introduced in chapter 1, Section 1.4, namely: *Is a green procurement practice in respect of low cost housing financially feasible for the City of Tshwane?*

The chapter summarizes findings as portrayed in table 8.1 and there-after makes recommendations that will create an enabling environment.

8.1 Summary of findings

Table 8.1: Summary of the findings.

Research Objective	Findings	Study Recommendations	Applicable section in the study
1. The current policy and practice with regard to green procurement in the City of Tshwane.	In place • Tshwane Integrated Environmental Policy • Green procurement guidelines • Green infrastructure guidelines • Guidelines for environmentally friendly general facilities in the CoT • Green Buildings by-law and incentive scheme (work in progress)	Review of current CoT supply chain policy and MHDP to promote the integration of green procurement principles.	• Section 5.2 • Section 5.3
2. Potential and financial implications for a successful green procurement practice in low	Rand dollar exchange variations experienced from May – November 2008 brought about product price increments within very short periods of time. Premium costs of selected green interventions were estimated at 30% when	• Strengthening partnerships the City is already a member municipality to, or establishing new effective partnerships (e.g. GBCSA) • Pro-actively sourcing	• Section 6.2 • Section 6.2.1

Research Objective	Findings	Study Recommendations	Applicable section in the study
cost houses for the CoT.	compared to conventional product cost.	alternative funding mechanisms including investigating CDM opportunities.	
3. Potential financial benefits of adopting a green procurement practice for the CoT benefits	Low cost houses are rolled out as part of SA government strategy to mitigate the impacts of poverty. Poor quality homes contribute to high expenditure on municipal provided services. Poor thermal performance of low-cost houses and high energy costs adds to the greater financial burden of energy on the poor. CoT mitigates the latter by providing an allocation of free basic services to the poor. Benefits not taken advantage of: • Reduced operating costs for the beneficiaries by increasing productivity and using less energy and water • Reduced environmental impact and the related rehabilitation costs. • Influence on the green markets	• Applying life-cycle analysis with regard to the current low cost housing development approach • Internalizing environmental costs with regard to the construction of low cost houses. • Aligning and integrating current greening initiatives at low cost houses in the City • Selecting pilot projects and implementing them.	• Section 6.3
4. Institutional arrangements that have to be in place for the success of a green procurement practice.	• No baseline information regarding the City's procurement patterns. • Lead division(Environmental Management division) currently not receiving desired top management support • Absence of a National Lead department was cited as a barrier	• The establishment of a green procurement unit or alternatively an interdepartmental task team that will be tasked to compile a green procurement project plan and implementation plan. • Top management commitment to the TIEP and its supportive output strategies as well as implementation plan.	• Section 7.2

8.2 CoT Top Management Support

Through approving the TIEP, CoT top management committed to striving towards economic and social development without impacting negatively on its environment. The next logical step, a gap (as per Council resolution 5 & 6 dated 27 January 2005) is the cascading of the TIEP objectives to all line functions in the CoT to operationalize the policy through relevant implementation plans. The call for green procurement in the CoT must be tabled at top management meetings and subsequently respective operational units implementation plans can be drawn to address it. The magnitude of the selected green procurement projects and products are an integral part of influencing the scale of economies and the potential to drop market prizes.

8.3 The appointment of a lead National Department

The former Department of Environmental Affairs and Tourism and now Department of Water and Environmental Affairs is the custodian department to put mechanism or processes in place for the realization of Sustainable Development in South Africa. This includes all environmental global priorities, agendas, conventions and protocols that South Africa has ratified or is signatory to. Currently green procurement initiatives are driven from a number of departments namely Department of Minerals and Energy (National Energy Efficiency Strategy of RSA, General notice 908 of 2009), Department of Trade and Industry (Environmental Standards Unit), Department of Housing and the National Centre for Cleaner Production (Cleaner production capacity building and pilot projects) and this presents a fragmented and uncoordinated approach for municipalities interested in implementing a green procurement practice.

Ideally the appointed lead department must consider initiating a number of programmes that produces manuals or guideline documents about environmentally sound products and services. This could provide general guidance on choosing environmentally preferable products and can further

contain positive lists of brand-name products structured into best and second best options (Van der Grijp: 1998: 68). The manuals will enhance access to information, easy interpretation, required standards and product performance.

Furthermore the appointed lead department can serve as an interface between government and the private sector for all green procurement initiatives in South Africa. Indications are (as outlined in Table 4) that green procurement will be included in the 10 Year Framework Programme on Sustainable Consumption and Production and also aligned to the National Strategy on Sustainable Development. Both these programmes are coordinated by the Department of Water and Environmental Affairs (DWEA).

It is through constructive, structured and coordinated processes that green procurement objectives and targets can be cascaded down to other spheres of government including local government. The structured approach will provide an opportunity to identify synergies between a number of initiatives and pilot projects as well as serve as a platform to share best practice.

It is also recommended that the lead Department's mandate be extended to include, amongst other matters the identification of new investment opportunities around green procurement.

8.4 Clear and visible political will

South Africa has committed to the implementation of green procurement by virtue of being a signatory to a number of global instruments e.g. JPOI, Agenda 21, and Habitat II. What is lacking is a clear political will where green procurement could receive priority and be addressed and resourced together with other government priorities(i.e. Social and economic). Green procurement, amongst other things prescribes the use of local resources to minimize the product's carbon footprint and this may mean the use of local producers, suppliers and the creation of local jobs resulting in a direct impact on poverty. This is a cause for further research including methods to

contextualize green procurement to meet local needs. The role of formalized political structures like the South African Local Government Association is essential to reflect political will (Personal communication with Helen Davies, Incite Sustainability, 19 August 2008).

8.5 Integration of green procurement into the IDP of the CoT

The study recommends the review of the MHDP to include sustainable human settlements principles as defined by the Habitat Agenda. The review of the MHDP must also ideally be extended to reflect the principles of environmentally sound low cost housing, JPOI, TIEP, and the CoT best practice guidelines. The integration of environmental considerations into the CoT Housing and Sustainable Development plans will hopefully communicate the City's commitment to sustainable development and send a message to developers who are interested in doing business in Tshwane. The inclusion of green considerations into the MHDP is one of the ways, relevant to this study, that green construction procurement can be placed on the CoT IDP.

8.6 Review of procurement legislation to explicitly make provision for green procurement.

A study commissioned by the International Institute for Sustainable Development indicates that the absence of an explicit provision for green procurement in the Municipal Finance Management Act, 2003 (Act 56 of 2003) has been cited as a barrier by a number of South African Municipalities (Personal communication with Helen Davies, Incite Sustainability, 19 August 2008). This dictates a need by National Treasury to provide a clear directive that makes provision for green procurement. The review of applicable procurement legislative framework is required to align conventional procurement to green procurement.

The earlier cited study further revealed that the failure on the part of Municipalities that have drafted procurement policies to successfully integrate

these policies into their procurement practices is not exclusively a CoT problem. The alignment of green procurement policies to the applicable procurement policies namely Supply Chain Management Policies, Preferential Procurement Policies, Broad Based Black Economic Empowerment (BBBEE) Policies is an integral step towards the attainment of green procurement practice.

8. 7 Capacity building of key personnel and politicians

The current public procurement regulations are geared towards addressing the imbalances of the past and to empower previously disadvantaged individuals. The introduction of a green point system must be cautiously approached and must be implemented in a manner that still provide for fair, transparent, equitable, quality and equity procurement processes. Politicians and the top management will have to be reassured that BBBEE targets will still be attained even when green procurement is implemented.

ICLEI currently provides networking opportunities for municipal procurement officers in a form of training seminars and workshops as well as congress and exhibitions. These also enable their members to implement green procurement without deviating from the intentions of government public procurement prescripts.

Training seminars and learning opportunities further provide procurement officers with an opportunity to learn about the necessity to influence market through environmental demand, and to meet and exchange information and experiences (Stigson & Russel, 1998:81).

This study further anticipates that the planned adaptation of the Procura+ manual will include a guide for procurement officers that will provide a step by step approach to green procurement. The guide should ideally also provide direction in terms of the product evaluation criteria, tips on watching out for green washing, setting technical specifications and other matters which have been cited as barriers in this study.

Lastly the lead department in the CoT must be capacitated and resourced to drive the process of green procurement in the Municipality. It is also proposed that the Agriculture and Environmental Management Department's mandate be extended to include the sourcing of additional donor funds to top up the environmental vote. The environmental vote can be utilized to cover initial incremental capital cost on green procurement products. Implementing departments must still take full responsibility for sustaining a green procurement practice until such time that markets are influenced by the high demand for green products.

8.8 Strengthening of partnerships

Fostering of partnerships between the CoT and the private sector is one of the prerequisites towards sustainable low cost housing. Collaboration between other spheres of government namely: DEA, DME, and joint responsibility between contractors, government and beneficiaries to influence demand side is essential towards attaining green construction procurement. The CoT is furthermore involved with key organizations and/or programmes namely SEED, ICLEI, Enerkey Projects and the adoption of green construction procurement will assist the CoT in expediting mutuality benefiting projects within the parameters of these partnerships. Currently the process of identifying projects takes long as the CoT does not have readily available potential green projects that require funding(Personal communication with SEED advisor Mr. Sam Mutswari: 30 July 2008) .

Eco-efficient initiatives in the CoT must be implemented at a scale that qualifies these projects for CER accreditation. This will position the City in favourable state to engage in CDM which can act as a source of funding for the green vote.

8.9 Role of the private sector

The study noted the scarcity of information and alternatives in environmental products and services from local distributers (as outlined in Section 6.2). The establishment of forums such as the South African Environmental Goods and Services, Green Buildings Council of South Africa etc. was noted as work in progress to address the situation. The former represent the coming together of South African Department of Trade and Industry stakeholders so as to provide a common platform to promote the South African environmental goods and services and its interests as well as stimulate trade in environmental goods and services. (EGSF, 2009)

8.10 Conclusion

The absence of a Council resolution specifically on green procurement is limiting the CoT in terms of taking advantage of the numerous advances made by countries that are required to curtail their carbon emissions. The CoT has further not invested in an exercise of compiling baseline information in terms of services and products it procures (Personal communication with Dr Jan Olivier: 18 August 2008) and as a result has limited information regarding the impact that its procurement activities are having on the environment. The compilation of baseline information is one of the recommended first step towards green procurement, once conducted, will result in the CoT being in a position to set quantifiable and quality based targets on mitigating those impacts through implementing a green procurement.

By omission, the CoT continues to deliver low cost houses that place a high demand on energy and other municipal services and mitigates this by providing free basic services for the indigents. Sustainable answers are available for the CoT to take advantage of but would require innovation and flexibility.

The CoT needs to realize that it is contributing directly, through its own operations to major environmental impacts such as air pollution, greenhouse

gas emissions, and the reduction of biodiversity as well as the generation of waste. With the current thermally inefficient houses the poor bear the brunt of temperature extremes when considering the rate at which global warming is taking place. An environmental sound house provides a pro-active approach to implementing adaptation strategies.

The CoT will further “walk the talk” and enhance the implementation of its upcoming Green Buildings by-law and incentive scheme.

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ANNEXURE 1

THE PROFILES OF THE INTERVIEWEE

Designation	Responsibilities	Date of interview
CoT SEED advisor Agriculture and Environmental Management Department	CoT SEED advisor	8 May 2008
Acting Director Environmental Policy and Resource Management Agriculture and Environmental Management Department	Project leader in the development of the Tshwane Integrated Environmental Policy. Currently facilitating the development of the green buildings by-laws and incentive scheme	25 August 2008
Deputy Director Environmental Audit, Risk & Management Systems Development Agriculture and Environmental management Department	Green procurement champion in the CoT	18 August 2008
Functional Head Environmental Management Systems Planning.	Facilitates the implementation of the Environmental Management Systems within the CoT.	26 August 2008
Executive Director Housing Administration Housing and Sustainable Development Department	Responsible for housing matters inclusive of low cost housing projects	10 July 2008
Project Manager Technical Advisor Housing Provision Project Management Housing and Sustainable Development Department	Delivers technical inputs into contract specification for low cost housing development and investigates bottlenecks affecting delivery.	10 July 2008
Building Control Officer City Planning, Development and Regional Service	Manages the function of building inspectors and oversees the approval of building plans in the CoT.	21 July 2008
Project Manager Soshanguve Area Housing and Sustainable Development Department	Oversees the implementation of construction contracts within the agreed upon timeframes and specifications	15 July 2008

Director Energy Quality Safety and Environment	Coordinating the implementation of Pilot projects geared towards energy efficiency and demand side management and compiling reports on lessons learnt.	27 August 2008
Functional Head Environmental Audits	Coordinated the compilation of the green infrastructure guidelines.	11 September 2008