CITY OF TSHWANE

SUSTAINABLE PROCUREMENT STRATEGY

March 2017
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<tr>
<td>B-BBEE</td>
<td>Broad-Based Black Economic Empowerment</td>
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<td>BEE</td>
<td>Black Economic Empowerment</td>
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<td>BEA</td>
<td>Building Efficiency Accelerator</td>
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<td>CDM</td>
<td>Clean Development Mechanism</td>
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<td>CESU</td>
<td>City Energy Support Unit</td>
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<td>CNG</td>
<td>Compressed Natural Gas</td>
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<td>CSU</td>
<td>City Sustainability Unit</td>
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<td>EE</td>
<td>Energy Efficiency</td>
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<td>EEDSM</td>
<td>Energy Efficiency and Demand Side Management</td>
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<td>EMS</td>
<td>Environmental Management Systems</td>
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<td>GBCSA</td>
<td>Green Building Council South Africa</td>
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<td>GHG</td>
<td>Greenhouse Gases</td>
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<td>HDI</td>
<td>Historically Disadvantaged Individuals</td>
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<td>HPS</td>
<td>High Pressure Sodium</td>
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<td>ICLEI</td>
<td>International Council for Local Environmental Initiatives</td>
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<td>IDP</td>
<td>Integrated Development Plan</td>
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<td>IPAP</td>
<td>Industry Policy Action Plan</td>
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<td>ISO</td>
<td>International organisation for standardisation</td>
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<td>LCC</td>
<td>Lifecycle Costing</td>
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<td>LED</td>
<td>Light Emitting Diode</td>
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<td>MDS</td>
<td>Material Data Sheet</td>
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<td>MFMA</td>
<td>Municipal Finance Management Act</td>
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<td>MW</td>
<td>Megawatt</td>
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<td>NDP</td>
<td>National Development Plan</td>
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<td>NEMA</td>
<td>National Environmental Management Act</td>
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<td>NGP</td>
<td>New Growth Path</td>
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<td>NPV</td>
<td>Net Present Value</td>
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<td>OEM</td>
<td>Original Equipment Manufacturer</td>
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<td>O&amp;M</td>
<td>Operations and Maintenance</td>
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<td>PFMA</td>
<td>Public Finance Management Act</td>
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<td>PPPFA</td>
<td>Preferential Procurement Policy Framework Act</td>
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<td>PV</td>
<td>Present Value</td>
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<td>RE</td>
<td>Renewable Energy</td>
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<td>REIPPPP</td>
<td>Renewable Energy Independent Power Producer Procurement Programme</td>
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<td>SABS</td>
<td>South African Bureau of Standards</td>
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<td>SACN</td>
<td>South African Cities Network</td>
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<td>SANS</td>
<td>South African National Standards</td>
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<td>SANAS</td>
<td>South African National Accreditation System</td>
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<td>SCM</td>
<td>Supply Chain Management</td>
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<td>SEA</td>
<td>Sustainable Energy Africa</td>
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<td>SEED</td>
<td>Sustainable Energy for Environment and Development</td>
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<td>SCM</td>
<td>Specific Environmental Management Act</td>
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<td>SMME</td>
<td>Small Medium Micro Enterprise</td>
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<td>SP</td>
<td>Sustainable Procurement</td>
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<td>SPS</td>
<td>Sustainable Public Procurement Strategy</td>
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<tr>
<td>SWH</td>
<td>Solar Water Heating</td>
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<td>TIEP</td>
<td>Tshwane Integrated Environmental Policy</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<td>UNEP</td>
<td>United Nations Environmental Programme</td>
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<td>WMA</td>
<td>Waste Management Act</td>
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ACKNOWLEDGEMENTS

There was wide consensus on the objectives and recommendations are shared by stakeholders who contributed to the development of this Sustainable Procurement Strategy (SPS).

The City of Tshwane’s Sustainability Unit, in collaboration and with the support of South African Cities Network (SACN) led the process of developing the strategy.

The following representatives led the project:

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<tr>
<th>CITY OF TSHWANE</th>
<th>SACN</th>
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<tr>
<td>Dolly S. Mafa</td>
<td>Sandiswa Tshaka</td>
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<td>Moraka J. Kaotsane</td>
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The following individuals from the City of Tshwane made valuable contributions to the finalisation of the SPS.

| Lutske Newton     |
| Lynette Bekker    |
| Lucas van der Walt|
| Lardo Stander     |
| Pieter Robinson   |
EXECUTIVE SUMMARY

The City of Tshwane has embarked on a journey towards a low-carbon, climate-resilient and resource-efficient economy by ensuring that its own procurement choices yield economic, environmental and social benefits. Strong emphasis and priority is given to the preservation of the environment for present and future generations, and in achieving national developmental priorities.

The City of Tshwane is committed to being a world-class knowledge capital by enhancing service delivery and socioeconomic development through improving processes and standardising quality. The City remains the only municipality in the country with five of its service delivery departments certified with the International Standards Organisation (ISO) 9001 system. This achievement was driven by the City's Research and Innovation Unit which was established in 2012.

The City is already demonstrating best practice without necessarily having an overarching strategy on sustainable procurement (SP) with its elements incorporated into a number of internal policy frameworks, strategic planning documents, institutional support and collaborations, as well as key initiatives. In 2013, the City established the City Sustainability Unit (CSU) to guide the transition to a green economy and promote city sustainability. The City has particularly shown leadership and excelled in the area of sustainable mobility initiatives after committing to greening 40% of its bus fleet by 2020 when the former Executive Mayor signed the Clean Bus Declaration in 2014. The government’s progressive Renewable Energy Independent Power Producer’s Procurement Programme (REIPPPP) has led to the first commercial 4.4 MW biogas plant in Bronkhorstspruit in the city, successfully introducing the idea of waste used as a resource. The Tshwane Food and Energy Centre initiative provides poultry and vegetable farming training to beneficiaries to become small-scale BEE farmers, including a photovoltaic solar-powered plant that reuses livestock's organic waste as feedstock for biogas production.

This development of this strategy was guided by the new ISO 20400 SP standard designed for stakeholders involved in and impacted by the procurement process, to deliver improvements and value beyond the procurement process by acting in an ethical and transparent way that contributes to the health and welfare of society. It also draws on some common and shared best practices on integrating green requirements in all stages of the procurement process – from purchase through to disposal.

This SPS aims to further enhance the City’s drive to mainstream sustainability into citywide operations. Its development has been based on the assessment of what is possible under the current regulatory landscape, the procurement process, market availability of sustainable products and services and the opportunities in the procurement value chain to stimulate product innovation, new enterprise development and green jobs.

The strategy relates to greening the procurement of goods and services and, in turn, informing the market of the objectives and priority areas so that it can gradually adapt. The greening of goods and
services requires integrating SP requirements into the supply chain management (SCM) system and decision-making process, and to consider the full economic costs, which specifically include environmental costs, with the aim of promoting long-term environmental, social and economic sustainability.

SP policy instruments such as the environmental management system (EMS), technical specifications, the use of eco-labels and lifecycle costing (LCC) are critical enablers to successfully integrate sustainable considerations throughout the procurement process, as well as for minimising the environmental footprint associated with procurement choices, and meeting the obligations of environmental legislation and regulations.

The SPS addresses the gaps in managing environmental risks and organising the City’s Supply Chain Management (SCM) system towards sustainability. Sustainable procurement must be embedded in the SCM Policy and requires support from decision-makers, industry and society to achieve the broad national policy mandate to use procurement to promote resource efficiency and the green economy.

The integration of SP into the City’s procurement must be a gradual and structured approach in accordance with the existing legislative framework governing public procurement, giving consideration to the availability of the supply of alternative products with enhanced sustainability performance. Performance must be monitored and evaluated through the continuous measurement of outcomes and improvement in private sector innovation in promoting the supply and demand of sustainable alternatives. Effective monitoring and evaluation must be based on redesigning and incorporating sustainable procurement into the City’s e-procurement supplier database platform to enable the ability to measure and report on performance targets.

Successful implementation of SP would be dependent on public and private initiatives through visible participation, capacity-building and continuous monitoring and improving on SP activities. Public and private collaboration that includes capacity-building must be the preferred approach to collectively support the implementation. Building capacity through increasing knowledge on SP must be an effective tool to promote sustainable development and gravitate towards a “greener” economy.

To enable practical implementation, an action plan has been developed based on implementation barriers identified by stakeholders, as well as drivers and enablers for the uptake of SP in the City. The action plan is crafted to be implemented over a three-year period.

The implementation of SPS is expected to drive the shift towards sustainable consumption and production patterns. It is envisaged to –

- enable the development and stimulation of a domestic market for more sustainable goods and services;
• support resource-efficiency across economic sectors; and
• reduce greenhouse gas (GHG) emissions.
1. INTRODUCTION

This SPS provides guidelines for the City of Tshwane for more strategic purchasing that drives and supports resource efficiency, local manufacturing, and socially and environmentally-responsible practices.

1.1 WHO IS THE SPS DEVELOPED FOR?

The strategy is guided by the draft ISO 20400 standard for SP intended for stakeholders involved in and impacted by procurement decisions and processes. The ISO 20400 standard compliments the ISO 26000 social responsibility guidance on ethical and transparent business practices that contribute to the health and welfare of society.

The SPS aims to foster a relationship between the City and stakeholders to use SP as a tool to support various policy goals, especially in transitioning to a green economy. It encourages stakeholders to bring value beyond the procurement process by differentiating and adopting programmes to tackle the environmental degradation and consider issues of governance, human rights, labour practices, fair operating practices, consumer issues and community involvement which are integral parts of sustainable development.¹

1.2 WHAT IS SUSTAINABLE PROCUREMENT?

Applying the concept of sustainability to procurement is defined by the International Council for Local Environmental Initiatives (ICLEI) as:

“Sustainable procurement means making sure that the products and services an organisation buys achieve value for money and generate benefits not only for the organisation, but also for the environment, society and the economy. Sustainable procurement is also used by both public and private sector organisations to ensure that their purchasing reflects broader goals linked to resource efficiency, climate change, social responsibility and economic resilience, for example”.

This definition considers economic, social and environmental benefits when making purchasing decisions. It incorporates human health and environmental concerns in the search for quality goods and services at competitive prices. ICLEI recognises the opportunity for private and public sector collaboration in SP to drive markets towards innovation and sustainability and deliver on broad policy objectives of resource-efficiency and climate change mitigation.

1.2.1 BENEFITS OF SUSTAINABLE PROCUREMENT

SP enables a response to water and energy resource constraints, food security and reducing carbon emissions, as well as technological innovations to minimise waste. It promotes a shift towards

¹ For further information consult ISO 20400 Sustainable Procurement and ISO 2600 Social responsibility.
sustainable consumption and production patterns that enable the development and stimulation of local markets for more sustainable goods and services. The demand for more sustainable goods and services becomes a catalyst for local manufacturing to invest in resource-efficient technologies that create green jobs and income. These resource-efficient technologies are becoming increasingly more affordable, resulting in shorter payback periods for investment, and greater cost savings.

Sustainable consumption and production and green economy promote sustainable development and poverty-alleviation measures.

SP also suggests giving consideration to basic human rights, and respect for core labour practices and standards by business partners along the value chain.

1.2.2 FOCUS AREAS

As a member of ICLEI and in line with good practice, the City’s policy imperatives and strategic initiatives that deal with socioeconomic and environmental consequences must be in line with the ICLEI’s definition of SP. Taking local and national priorities into account, the SP focus areas are represented in the figure below.

<table>
<thead>
<tr>
<th>Focus areas</th>
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<td>Local procurement/localisation</td>
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<td>Support for small, medium and micro enterprises (SMMEs)</td>
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<tr>
<td>Preferential procurement and broad-based black economic empowerment (B-BBEE)</td>
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<td>Recycling economy</td>
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<td>Ethical procurement (human rights, labour practices and fair operating practices)</td>
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Organisational governance

Figure 1: SP focus areas

SP presents the opportunity to support SMMEs along with other policy priorities, eg local procurement and localisation, as well as greening, ethical and responsible labour practices that positively impact local communities.

Many of Tshwane’s required products or services are not available locally. The quality, quantity and reliability of local supplies are inadequate, and the potential exists to empower the sectors of society that are most affected by unemployment, especially small, black and disadvantaged entrepreneurs, women and the youth, by providing them with the necessary skills to become successful entrepreneurs.
The City’s R3 million refuse bag manufacturing facility launched in May 2016 in Region 5, Refilwe, Cullinan is operated by Mesarasarane Trading and Projects Cooperative Limited; it is made up of locally unemployed youths and women on a three-year contract. The facility supplies refuse bags to Wimpy, Shell Garage, Studio 14 Gallery and Tea Garden restaurant businesses in Cullinan. The identified market is expected to stem the unemployment tide by creating jobs and boosting entrepreneurs in the resilient manufacturing industry.

Small enterprises are in need of the market access and opportunities to upgrade, invest and expand. The potential exists for Tshwane to create the market structures and support for local emerging entrepreneurs.

The City’s Fresh Produce Market provides a unique market access for the mutual benefit of local and national suppliers, buyers and consumers to trade.

The recycling economy in the green procurement value chain is still evolving and has the most potential to stimulate local economic development. By turning waste into valuable raw materials, recycling presents a world of opportunity for small local businesses to build competitive manufacturing industries that create jobs and livelihoods. Optimising benefits out the latent value of waste, mainly for economic development, and supports the case for the City’s move to reengineering waste management services by managing waste through reuse and recycling with landfilling being the add-on component.

The City has established eight buy-back centres in low-income areas, where participating community members are rewarded for collecting and bringing in recyclables. Kwaggasrand waste disposal sites have been converted into multipurpose material recovery facilities (MRF) providing support to the cooperatives movement as more of them are engaged in waste management operations. The facility is a partnership with New GX Environ Solutions where recyclables are processed from a free bag system distributed by the city residents, including a composting facility where green waste is shredded and turned into organic compost, and turning building rubble into aggregate.²

Ethical procurement responsibility extends beyond the legislative requirements, the United Nations Universal Declaration of Human Rights and the International Labour Organisation standards hold all business partners in the value chain to the same standards of human rights, ethical conduct and fair business practices.

These priorities must be supported by a strong organisational governance intervention, including a SCM policy that provides a framework to address the economic, social and environmental impacts of procurement, incorporating national policy objectives, training of procurement staff, supplier

² For further information consult the Situational Analysis Report.
development and the redesign of the e-procurement supplier database. Redesigning the e-procurement implementation project is crucial in ensuring effectiveness to support SP.

1.3 PURPOSE OF THIS SPS
The SPS seeks to give effect to the City’s commitment to greening its economy to a low-carbon, climate-resilient and resource-efficient economy. The strategy is critical to further enhance the journey towards mainstreaming sustainability and the green economy. This strategy is a milestone for the City and South Africa, and may serve as an example for the development of similar strategies by other government institutions in the country.

1.3.1 OBJECTIVES OF THIS SPS
The following objectives of this SPS complement and strengthen the City’s commitment towards achieving its sustainability goals:

(a) Embed SP within the SCM Policy
(b) Identify the environmental, social and economic criteria and standards for SP that can be incorporated into procurement decisions
(c) Empower staff to be innovative and demonstrate leadership by incorporating sustainability criteria into procurement decisions
(d) Collaborate and support suppliers and service providers to develop environmentally-friendly products and services
(e) Demonstrate the City’s commitment to sustainable procurement through improved service delivery to residents, other public agencies and the private sector
(f) Mainstream sustainability into citywide specific operations and developmental goals
(g) Identify action plans across City departments.

1.4 METHODOLOGY
The development of this SPS involved an assessment of current SP practices (status quo) to identify the gaps that need to be addressed in drawing up the strategy (approach), including the action plans to achieve the desired objectives.

Figure 2 below illustrates the methodology used and the outputs produced as milestones of the project.
Figure 2: Methodology followed for the development of the SPS

The methodology used was a consultative process of information-gathering involving key City stakeholders, through an inception meeting, the use of questionnaires and stakeholder engagement meetings to gain an understanding of the existing initiatives, challenges and expectations to develop a strategic approach for the City. A desktop literature review of the legal framework, current trends and practices was also conducted in an effort to understand and establish a best approach to the City’s initiative.

Further consultations and engagements with different stakeholders are required and must continue to happen, as the strategy is a live document and requires continuous updating and entering into dialogue with stakeholders focused on setting goals.
2. Status quo
The status quo analysis was based on an assessment of the current state of SP in a national and city context. The assessment explored the policy landscape and the extent to which national legislative instruments deal with the economic, social and environmental principles of SP. It also looked at the extent to which strategic planning, operational plans, institutional support, partnerships and interventions support and promote the sustainable procurement drive within the City.

The assessment further explored the rules of engagement of the procurement process of key spend areas in order to determine the enabling and inhibiting conditions.

A comparative analysis of high pressure sodium (HPS) and light emitting diode (LED) lighting technologies was conducted as a case study because it is a core competency of the City, with public lighting being a major contributor to a largest chunk of its spending on energy. The City’s Energy Efficiency Demand Side Management (EEDSM) Programme taking place has resulted in the increased number of HPS streetlight retrofits between 2010 and 2012. The study compares the HPS and the rapidly-evolving LED technology in terms of cost and efficiency and addresses the perception that sustainable alternatives are costly and challenge the uptake of SP due to budget constraints.

A market analysis of the City's 15 most procured SCM products was conducted to determine the availability of environmentally-friendly alternatives, local supply and sustainable practices, as well as opportunities in the procurement value chain with the potential to stimulate local economic development.

2.1. Findings
SP is a policy tool embedded within national procurement legislation and sector-specific regulations. Its priorities are linked to broader national development goals.

2.1.1 National legislative and policy mandate

South Africa’s legislation and regulations support the implementation of SP. The national policy landscape lacks a dedicated single policy framework on SP. A Green Paper on Public Sector Procurement was introduced for discussion in April 1997 for organs of state to develop a policy to influence the behaviour of vendors to comply with all environmental legislation, to offer less environmentally-damaging products and services and develop products from recycled materials. The Green Paper went a step further by indicating how the above concepts can be considered in supply chain management decisions.

3 For further information consult the International Institute for Sustainable Development (IISD), Implementing Sustainable Public Procurement in South Africa: Where to start (Turley & Perera, 2014).

4 For more information consult Notice 691 of 1997; Green Paper on Public Sector Procurement Reform in South Africa
The governing framework that regulates public procurement is the Constitution of South Africa. The PFMA sets out the operational framework for public procurement in South Africa and makes provision for the use of procurement as a policy tool. It gives procurers and policymakers the opportunity to integrate environmental and social elements into the procurement process. National Treasury regulations published under the Public Finance Management Act (PFMA) of 1999 establish the regulatory framework for SCM functions and processes for municipalities. The Municipal Finance Management Act (MFMA) 56 of 2003 regulates, amongst others, the roles and functions of municipal officials and the management of the financial affairs of the municipalities and other institutions in the local sphere of government, in a sustainable manner so as to enable municipalities to deliver the best possible service to communities.

Section 217 (1) of the Constitution and section 51 (1)(a) of the PFMA state that the procurement and provisioning system is “fair, equitable, transparent, competitive and cost-effective”. The principle of “competitive and cost-effective” means consideration of the lowest possible cost and best value for money over the life of a product, service or capital project.

Section 112(ii) of the MFMA exemplifies the economic principle of SP for the supply chain management policy to assess bids based on best value for money which can be interpreted as either value for money in terms of purchase price or value for money across a lifecycle. The National Development Plan (2012), New Growth Path (2011) and the Industrial Policy Action Plan prioritise both localisation of industrialisation and resource-efficiency. In an effort to increase jobs and deepen industrialisation, the local procurement accord sets an aspirational target of up to 75%, and a commitment by economic groupings in South Africa to work together to increase the levels of goods and services bought from local producers.

Section 217(2) of the Constitution, as well as the Preferential Procurement Policy Framework Act (PPPFA) 5 of 2000 and its regulations, the B-BBEE Act 53 of 2003 and its legislative framework exemplify the social principle of SP. Section 217(2) of the Constitution stipulates that government entities, in the implementation of their procurement policies, must give preference to certain categories of persons. The PPPFA and B-BBEE are the models for procurement decisions to strategically impact society. SP initiatives include measures to advance the development of both SMME as well as B-BBEE, and increase the number of historically-disadvantaged individuals (HDIs) participating in the country's economy.

The environmental principle of SP is enshrined in section 24 of the Constitution, which provides the right to every person for a non-harmful environment and simultaneously mandates the government to protect the environment. The environmental principles regarding procurement decisions are subject to the provisions of the National Environmental Management Act (NEMA) 107 of 1998. Chapter 2 of NEMA provides the framework for integrating environmental management principles into all decisions
which may have a significant effect on the environment. The framework includes ensuring the development of alternatives to lessen the possible harm on the environment. The **Waste Management Act (WMA) 59 of 2008** developed under the NEMA is a specific environmental management act (SEMA) – a policy tool that protects the health of the people and the environment. The most significant aspect of the Waste Act is the adoption of a waste management hierarchy **which recommends that waste must first be avoided; if not it must be reduced, reused, recycled or recovered, and only disposed of on land if there is nothing else to be done with it.**

Environmental management encompasses aspects of strategy, policy, procedure and activity that form an organisation’s response to environmental issues. That includes policy instruments such as **“eco-labelling”**, which primarily deals with the environmental performance of a product or service. South Africa does not have any legislation and regulations on **“eco-labelling”**. However, NEMA should be viewed as a framework for the integration of eco-labels as a policy instrument enabling SP.

Environmental management includes a holistic approach to ensure pollution and waste is managed in an integrated way. The principle of the White Paper on Integrated Pollution and Waste Management 2000 for South Africa is specific to pollution and hazardous waste management, and represents a paradigm shift from dealing with waste only after it is generated. This policy paper led to the enactment of the Waste Management Act in 2008.

Market-based instrument specifically environmental related taxes and charges also play a role in supporting the sustainable development. National treasury environmental fiscal reform policy paper 2006 focuses and elaborates on options for environmental fiscal reform and policies that could be used to achieve both environmental and revenue-raising objectives. This policy paper proposes carbon tax as a strategy to reduce GHG emissions. The main aim of the carbon tax is to bring about environmental fiscal reform that prompts desired behaviour change, and to promote sustainable development.

In South Africa, environmental levies on plastic bags, local electricity, electric filament lamps and carbon dioxide emissions from motor vehicles are imposed within the confines of the Customs and Excise Act 1994. The intention is to offset the negative impact resulting from use of non-green products and services. The rationale is to change consumer behaviour that determines the desire to manufacture a good, and accordingly, the nature and quantity

Government policy on reduction of dependency on fossil fuels and the enhancement of security of electricity supply is articulated in **the 2011 White Paper on National Climate Change**. It outlines the goals for an effective climate change response and the long-term transition to a climate resilient and low-carbon economy and society objectives is for the reduction of dependency on fossil fuels and the enhancement of security of electricity supply, building resilience to climate change in and ensuring that ecosystem resilience is not disrupted. The commitment and targets are to substantially reduce its GHG
emissions 34% below its “business-as-usual” growth trajectory by 2020, by 42 per cent by 2025, and be decline in absolute terms by 2036.\(^5\)

2.1.2 LEGISLATION LIMITATIONS AND CHALLENGES

The MFMA budget process is a spending plan for both operating expenditure for a fiscal year and a capital acquisition that has a multi-year impact on the finances. This spending plan indicates how available funds must be used to deliver goods and services, and ensures that they are spent for the purposes for which they were allocated. The PFMA governs the timing, outlines what adjustments budgets must deal with and the minimum content for three-year budgets. The budgeting process, timing of spending and resource allocation is about achieving fiscal sustainability in the short to medium term which challenges the long-term lifecycle costing principles for SP. Lifecycle costs include the price of acquisition of a product, as well as the financial costs associated with ownership, including installing, using, operating, maintaining, upgrading and disposing of it. The PFMA and MFMA on the other hand place emphasis on the price of acquisition rather than operational expenditure, and thus challenge SP decisions.

Procurement processes are complex, comprehensive and subject to several pieces of legislation which make it difficult to interpret and apply laws and policies. It makes it even more daunting to understand the economic, social and environmental power of the purchasing decisions at operational level in order to obtain maximum value when buying and making use of goods and services. There are more than \(^6\)80 different legal instruments that govern public sector procurement, resulting in a less-than-ideal regulatory environment.

2.1.3 NATIONAL SP INITIATIVES

The government's REIPPPP not only allows for large-scale investment in renewable energy, and the associated financial and employment benefits it brings; it also includes an ambitious 75% local content commitment for successful bidding energy companies. The progressive programme was guided by the 1998 White Paper on Energy Policy, 2003, the White Paper on Renewable Energy, and the 2011 National Climate Response White Paper as the founding regulatory framework. In the City of Tshwane, this has led to the first commercial 4.4 MW biogas plant in Bronkhorstspruit that generates 36GWh per annum, successfully introducing the idea of waste used as a resource. The plant makes use of mixed waste, including manure, primarily, paper sludge, fruit and vegetables plus abattoir waste streams. This project was initiated in 2007 but was only commissioned in 2015 due to the complexity of the transaction and absence of a clear framework for small independent power producers compared with the short turnaround times which have become synonymous with the REIPPPP.

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\(^5\) For further information consult the Situational Analysis

\(^6\) For further information consult the 2015 Public Sector Supply Chain Management review
Other national initiatives run by municipalities, such as the Energy Efficiency and Demand Side Management (EEDSM) Programme of retrofitting existing public lighting with more energy-efficient alternatives, and the installation and replacement of solar water heating (SWH) continue to evolve into standard methodology for the design and implementation of national policies on SP.

2.1.4 SP IN THE CONTEXT OF THE CITY OF TSHWANE

As indicated before, the City demonstrates visible intentions and support for SP. Elements of SP have been incorporated in a number of internal policy frameworks through strategic planning, institutional support, collaborative efforts and programmes.

a) CURRENT POLICY FRAMEWORK THAT SUPPORTS SP

The foundation policy framework that supports SP is the 2005 Tshwane Integrated Environmental Policy (TIEP) and the 2014 Transition to a Green Economy Framework. The 2016 SCM Policy is consistent with seven elements of the SP cycle from demand management, acquisition management, logistics management, contract management, disposal management, risk management and performance management. Section 47(2) of the SCM Policy supports the minimisation of risk through sustainable supply chain that considers the environmental, economic and social consequences of design, non-renewable material use, manufacture and production methods, logistics, service delivery, use, operations and maintenance (O&M), reuse, recycling options, disposal, and suppliers’ capabilities to address these consequences throughout the supply chain. The SCM Policy however lacks measurable environmental requirements, as well as a number of other key policies and strategic plans that promote the SP drive in the City.

b) SP PARTNERSHIPS

The CSU was established in 2013 to drive the green economy innovation and ensure that SP is being mainstreamed into City operations through policy development, research, awareness-raising and demonstration projects supported by the SACN. This partnership has resulted in an update of the city’s state of energy as well as an assessment of vulnerability to climate change, development of the GHG emissions inventories from 2012/13 to date, the Tshwane Green Outreach Programme, a sustainability financing mechanism strategy as well as this SPS.

The City participates in the City Energy and Climate Change Support Unit (CESU) of Sustainable Energy Africa, which provides support to South African cities in their transition to clean energy through such mechanisms as capacity-building and training, technical support, exchange programmes and engagement in the national policy development process.

In terms of shared best practices, the City appears on international, regional and local platforms to share best practices in the areas of policy support, financial innovation, and programmes in an effort to ensure a just transition to a low-carbon, resource-efficient and climate-resilient economy. It joined the C40 network of the world’s megacities which is committed to addressing climate change, and as such signed the Clean Bus Declaration committing the City to greening 40% of its fleet by 2020.
Its partnership with the Green Building Council South Africa’s (GBCSA) green building leadership network has led to an active participation in the Building Efficiency Accelerator (BEA) pilot study led by the World Resources Institute, to double the rate of energy efficiency by 2030.

The City is committed to take a leadership role globally in the implementation of SP through being a member of the Global Lead Cities Network. The City is also a long-term member of ICLEI as well as being a partner in the Mega Cities Energy Research-based Programme between South Africa and Germany to improve sustainability in three major metros in the Gauteng Province. The City’s collaboration with the City of Basel (Switzerland) “Mutual Learning-Basel-Tshwane” is looking at the feasibility of developing a collaborative clean development mechanism (CDM) project.

The City remains a dormant member of United Nations (UN) Global Compact and is currently not optimising the benefit from a global network of support, best practice and emerging solutions on sustainable development.

c) SOME KEY SP INITIATIVES

In the City of Tshwane, there are emerging best practice SP initiatives in transport and mobility, cleaner energy technologies and waste management.

The City is leading in the area of transport and mobility in Sub-Saharan Africa because of its commitment to ensuring that 40% of the A Re Yeng fleet (its Bus Rapid Transport system) runs on cleaner alternative compressed natural gas (CNG) by 2020; this was done when the former Executive Mayor signed the Clean Bus Declaration in 2014. The City has since launched 40 CNG-run buses from dual engines, and invested in 10 electric vehicles. Initiatives such as the Tshwane Green Ride and the construction of bicycle lanes are aimed at sensitising communities to the importance of non-motorised transport and environmental benefits.

The Tshwane Food and Energy Centre was launched in April 2016 to provide poultry and vegetable farming training to beneficiaries in order for them to become small-scale black economic empowerment (BEE) farmers. The centre also provides sustainable service delivery through renewable energy using photovoltaic solar powered plants that reuse livestock organic waste as feedstock for renewable energy production (biogas), and rainwater/groundwater harvesting to avoid reliance on municipal bulk infrastructure.

Other initiatives introduced are the installation of solar water geysers, mini-hydro generation of electricity in partnership with the University of Pretoria, and retrofitting municipal buildings and street light energy with efficiency lighting technologies.

d) KEY SPEND AREAS

The City’s key spend areas are SCM products and services, provision of municipal basic services and infrastructure projects. Based on the City’s 15 frequently most procured SCM products shown in figure 3 below, energy is the biggest spender due to public transportation services (liquid fuels) being energy
intensive from a demand and supply side. It is also the biggest contributor to carbon emissions and thus the business case for the City’s green transport programme and other low-carbon technologies.

**Figure 3: Average monthly expenditure of the City’s 15 frequently procured SCM products**

Increasing urbanisation leads to infrastructure expansion and the provision of electricity contributing to high energy costs (electrical); it is the second biggest spending area, hence the current energy-efficient programmes to replace old lighting technologies and EEDSM initiatives to reduce energy demand and lower energy costs.

**e) PROCUREMENT PROCESS**

The procurement of key spending (capital and operational) is based on the contents of the integrated development plan, budgeting, as well as the SCM process. Regarding the procurement process itself, priority is given to economic and social impacts focused on the City of Tshwane strategy for the development of youths and HDI through LED, B-BBEE and cooperatives. The City's economic and social sustainability initiatives have seen tremendous growth and success due to policy support.

The environmental requirements, including technical specification, minimum criteria, evaluation and adjudication of the supplier’s environmental practices and contract performance in terms of environmental claims, are addressed in the procurement process when it is specified in the bid document.

The City recognises that the SCM Policy instrument like EMS is an SP drive for quality management. To improve on quality and processes in all functional areas, including procurement processes, the City has shown leadership by currently being the only municipality in South Africa including five of its service delivery departments being certified by the ISO 9001 system. The certification process was driven by the Research and Innovation Unit. The ISO 9001 quality assurance certification scheme shows
commitment to managing quality which can facilitate in the development and implementation of the basic components of the ISO 14001.

f) **LIFECYCLE COMPARATIVE COST BENEFIT ANALYSIS**

The HPS and LED luminaire comparative analysis as shown in figure 4 below was limited to the initial investment and operational costs over a ten-year period. The findings show that a more sustainable product such as LED may be expensive in terms of initial investment; however this does not reflect the true underlying costs when considering the future costs over lifespan.

![Figure 4: HPS and LED luminaire comparative cost benefit analysis](image)

The acquisition price of the LED costs almost 3 times more than the HPS, with an estimated 60% future saving on energy over lifespan. The LED is more efficient, with an estimated 30% saving over the HPS even when future savings are discounted using a present value (PV) comparative measure, and assuming an annual nominal discount rate of 10, 5%, as well as an annual inflation rate of 6%. The price premium paid for the LED may be largely offset through the future savings.

When future savings are discounted using the net present value (NPV) comparative measure, the HPS is almost 10% more costly than LED, although the difference is rather negligible. The acquisition price does not reflect the true cost over the lifecycle typically for products that use power or have complexities associated with disposal (containing hazardous materials). Lifecycle is an SP driver that considers design and planning where applicable, installing or commissioning it, training others to use it, ongoing operation and maintenance over its lifetime, and disposing of it at the end of its life. Refer to 2.1.2 of the strategy on how the PFMA and MFMA emphasis on price acquisition presents a challenge to SP.

Procurement decisions should demonstrate the best value for money across lifecycles which can only be assured by purchasing green and socially-preferable alternatives. The price premiums paid should be largely offset through efficiency gains, cost savings and lowered risks during the product/project
lifecycle, not only to the organisation, but also to society and the economy, whilst minimising damage to the environment. The lifecycle costs of a product/project should consider the environmental, social and economic consequences of design, non-renewable material use, manufacture and production methods, logistics, service delivery, use, operation, maintenance, reuse, recycling options, disposal, and supplier capabilities to address these consequences throughout the procurement value chain.

g) Market analysis of sustainable alternatives

LED and biofuels are the only two environmentally-friendly alternatives from the City’s 15 most procured SCM products. Biofuel as an alternative to fossil fuels is currently not an option in Tshwane or in South Africa in general because the market is still without a large-scale biofuels industry player. The challenge is because biofuel projects are not financially attractive at the current prevailing feedstock and crude oil/liquid fuel prices.

Recycling is however available for most of the products or their packaging7. It presents an opportunity to drive the circular economy, to promote more and better recycling which stays in use for as long as possible, extracts the maximum value whilst in use, then recovers and regenerates products and materials at the end of each service life.

2.1.5 Recommendations

Based on the status quo, the following are recommendations for continuous improvement on SP as an input into the City’s ambitions of a green economy.

(a) A clear and measurable environmental requirement to encourage behaviour of vendors to comply with all environmental legislation, to offer environmentally-friendly products and services, and to reuse and recycle.

(b) Incorporate environmental technical standards and requirements into all stages of the procurement process.

(c) Consider lifecycle costing as a method, governed by the ISO 14040 set of standards, to measure the impacts and benefits of products or services over their lifespan.

(d) Consider the base material of the products and select those that are biodegradable/recyclable.

(e) Close collaboration and capacity development with the private sector stakeholders to demonstrate social responsibility to the environment in which they operate.

7 For further information consult the Situational Analysis Report
3. Strategy
   (a) The City has a role to play in encouraging regulatory reform and demonstrating more responsible practices in the procurement and consumption of goods and services.
   (b) The principle of SPS is to consider a SCM policy reform by looking at the City of Tshwane expenditure practices and consumption trends to ensure the sustainability of resource use.

3.1. SP Policy Framework
   (a) The recommended SP framework is within the broader context of policy and regulations relating to procurement and environmental and socioeconomic priorities. Procurement laws and various sector policies, strategies on waste management, energy efficiency, and climate change mitigation and hazardous substances support the environmental principle of SP.
   (b) Section 2(4) of the NEMA (Act 107 of 1998) establishes the principles relevant for procurement decisions affecting the environment that specifically promote sustainable development and have a bearing on greening the procurement of goods and services.
   (c) Specific provision has been made in relation to environmental management and the green economy in the context of Tshwane.
      (i) The foundation policy for the City’s SP is the Tshwane Environmental Management Policy developed in 2005.
      (ii) The strategy has been developed in accordance with the City’s framework for a green economy transition. The framework provides for strategic mitigation and an adaptation guide for low-carbon, equitable economic development that can enhance Tshwane’s transition to a green economy and facilitate a sustainable development path.

3.2 SP Policy Principle
   (a) SP is an attempt to reduce environmental impacts by improving efficiency in the operations of the City, and ensuring that the production and consumption of goods and services over their lifecycle does not impact negatively on the environment.
   (b) SP promotes the principles of the efficient use of resources, waste hierarchy (reduce, reuse, recycle, energy recovery and disposal), maintenance and warranty, environmental levy, extended producer responsibility and lifecycle of products/services.
   (c) The outcome of the SP principle is to influence demand patterns to ensure that development in the City is sustainable. It must be noted that efficiency does not ensure that the outcome envisioned will be within the ecological footprint. SP should consider the principle of behaviour by determining the need for a product or service, considering and reducing negative environmental consequences of a product during all stages of its lifecycle, changing the behaviour of suppliers and consumers, and preventing or minimising the generation of waste and pollutions, use of raw materials, energy and water, and the use of generation of hazardous chemical substances.
(d) The actions of the City should lead the way for all stakeholders in the procurement value chain to begin reducing the negative environmental impact of their own supply chains, and stimulate the production of more environmentally-friendly products.
(e) The principle for greening the procurement process should be achieved without compromising BEE suppliers or the principles of the PPPFA.

3.3 INTEGRATING SP IN SCM SYSTEM

(a) SP (environmental requirements) must be integrated into all seven elements of the supply chain management system, namely demand management, acquisition management, logistics management, contract management, disposal management, risk management and performance management.
(b) SP must be entrenched in strategic planning, budgeting, project management, and operations and maintenance to ensure tight integration between these structures.

3.3.1 DEMAND MANAGEMENT

(a) SP demand management requires a more strategic approach towards addressing needs in order to capitalise on future efficiency gains to be achieved by implementing the best procurement strategies.
(b) SP in the context of demand management must be based on proper planning so as to acquire goods, services and projects in a cost-effective manner.
(c) SP demand management must be a pre-requisite for all departments to undertake the needs assessments required to fulfil strategic objectives. Needs assessments must involve the following activities:

   I. Understanding future needs
   II. Identifying critical delivery dates
   III. Identifying the frequency of the needs
   IV. Linking the requirements to the budget
   V. Conducting expenditure analyses based on past expenditure
   VI. Determining SP specifications.

1) The source of SP specifications includes technical performance standards and eco-labels, which must be used when available.
2) The National Treasury 2004 Supply Chain Management: A guide for accounting officers/authorities recognises standards such as the South African National Standard (SANS) issued by the South African Bureau of Standards (SABS), ISO
or any other authority recognised by the South African National Accreditation System (SANAS).

3) The City must apply the SANS 204 national standards for energy efficiency and environmental sustainability for buildings. SANS 204 has set the minimum requirements for achieving a green star rating in all types of new and refurbished buildings.

4) Eco-labels may be used in the development of SP specifications whenever a responsible label is available. An eco-label is a legally-protected label applied to a product or service, warranting that it complies with certain pre-determined environmental and social criteria. Public labels such as the Department of Energy (DoE) grading from A to G to indicate energy consumption and efficiency of an appliance must be used as a mandatory requirement, and in determining specifications. The green star rating must be used in setting specifications for building projects such as the Green Building Council of SA rating system of a sliding scale from six green stars which indicate “world leadership” to five stars for “excellence” and four stars for “best practice”. The system encourages developers and architects to minimise the environmental impacts of their developments and rewards projects for reducing waste to landfill. It is also used for designs that yield reduced energy and water consumption and lowers operating costs. Third party eco-labels, including (1) ISO14020 Types I labels with multiple environmental declaration, (2) SIO 14021 Type II (green claims) marks, (3) ISO Type III labels full lifecycle assessment and quantified environmental data, may be considered as priorities in defining green specifications but not mandatory.

(d) Commodity and industry analyses must be conducted in order to check for green alternatives.

(e) Comparative lifecycle costing analyses must be conducted to determine the total cost from purchase to disposal.

   I. Lifecycle costing analysis must consider the future costs (e.g. operations, maintenance costs, energy consumption, water consumption and disposal) of a product, service or work to determine the “value for money”. The best “value for money” allows for considerations of SP requirements to include other aspects such as quality and environmental impacts. Lifecycle costing must take into account the cost of environmental impacts by the product or service, especially the environmental cost of disposal.

(f) Conducting the environmental impact of goods and services may help prevent purchases that are unnecessary and harmful to the environment as defined in section 1 of the PFMA (Act 1 of 1999).

3.3.2 ACQUISITION MANAGEMENT

(a) The acquisition of goods and services must be conducted in a manner that ensures that the procurement objectives are met by making use of market competitiveness and minimising risks.
(b) Green procurement specifications and requirements for goods and suppliers must be built into the e-procurement database. E-procurement must be used by all departments when sending out invitations to bid.

(c) Green specifications and requirements must be built into all stages of the SCM and contracting procedures, namely bid documentation, public invitations to bid, tender evaluations and adjudication and contract performance. Figure 5 below shows stages in the SCM process to include green requirements.

![Figure 5: Green requirements and stages of the SCM process](image)

3.3.2.1 Bid documentation

(a) Specific green requirements must be addressed in bid specification documents or terms of reference. In the absence of specified environmental minimum criteria, generic criterion as contained in table 1 below must be used.

<table>
<thead>
<tr>
<th>Lifecycle step</th>
<th>Criterion</th>
</tr>
</thead>
</table>
| Materials                      | • Reduction in the use of virgin material or natural resources that cause ecological damage  
|                                | • Encouraging the use of environmentally-certified suppliers or service providers |
| Manufacturing (chemicals)      | • Non-use or limitation of the use of substances harmful to the environment and health |
| Manufacturing (processes and chemicals) | • Reduction of water pollution                                         |
| Manufacturing (processes and chemicals) | • Reduction of air pollution                                           |
| Manufacturing (processes and chemicals) | • Reduction of the impacts of solid waste                             |
| Manufacturing (processes and chemicals) | • Reduction of the use of energy                                      |
| Use                            | • Encourage reuse                                                     
|                                | • Promote energy efficiency                                           |
|                                | • Manage nature and volume of emissions                               |
|                                | • Low maintenance requirements                                        |
After use

- Promote recyclability
- Encourage environmentally-friendly disposal methods like biodegradability
- Ensure special disposal of hazardous waste

Table 1: Generic criteria for environmentally-responsible procurement

(b) Specifications must comply with requirements set by other control bodies, and must not be in conflict with any laws or statutory requirements.

(c) Green specifications must be included in bids as a **minimum criterion**.

In terms of best practice, green requirements as a minimum criterion is the preferred method in bid specification, ensuring that all bids taken into consideration live up to the requirements.

### 3.3.2.2 Public invitation to bid

(a) The invitation to bid must indicate whether or not bids will be evaluated based on functionality. The need to invite bids on the basis of functionality depends on the nature of the required goods or services. Functionality is defined by the National Treasury 2004 Supply Chain Management as "A guide for Accounting Officers/Authorities as **quality**". Green procurement expands this definition by incorporating human health and the environmental concerns in choosing **quality** products and services at competitive prices.

I. **Green procurement must be invited on the basis of functionality** due to their nature, quality and associated risks.

II. Bids invited on the basis of functionality must specify the evaluation criteria, their respective weights, the minimum qualifying score for functionality and the values that will be applied for evaluation and final award.

(b) Bidders must submit their bids based on green specifications as a minimum requirement. The minimum requirement is to encourage the use of environmentally-certified suppliers.

(c) Environmentally-certified suppliers must submit certificates of compliance to ISO14001 2015 EMS by an accredited third party.

(d) Certification to the following sector-specific standards may apply to specific goods and services.


II. Energy Management Systems (EnMS) ISO 50001 specific to the energy sector.

(e) SMMEs that cannot justify the cost of third-party registration and certification of ISO 14001 must submit information on voluntary EMS initiatives which do not require third-party registration and certification.

I. A voluntary responsible care (RC) activity, an initiative of the International Council of Chemical Associations (ICCA) similar to the quality approach in the ISO 9001 and ISO
1400 series, aimed at not only preserving the environment, but also ensuring human health and labour safety when handling chemicals at all stages during the product lifecycle.8

II. Voluntary cleaner production activity, the basis for ISO 14001 EMS certification designed to look beyond legal compliance, but is a flight from bad environmental practices.9

(f) Bid documents must specify that certification and self-declaration EMS will be subject to verification at any stage in the execution of the contract, and suppliers will be penalised for submitting false claims.

(g) Verification of EMS claims must ensure continuous management and improvement to minimising waste such as separation and use of recyclable material, recovering materials for other uses, as well as handling hazardous substance and waste. Table 2 provides an overview of the EMS verification type and continuous management requirements.

<table>
<thead>
<tr>
<th>EMS</th>
<th>Verification type</th>
<th>Continuous management</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 14001</td>
<td>Third party certification by accredited verification body</td>
<td>Renewal annual audits, and verification of renewal status</td>
</tr>
<tr>
<td>ISO 9001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISO 5001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsible care</td>
<td>Self-declaration by supplier including –</td>
<td>SCM must verify activity status as needed through supplier assessment checklist based on the risks associated with the product or service. Or use an accredited institution to conduct verification. Request implementing improvements or other measures.</td>
</tr>
<tr>
<td>Cleaner productions</td>
<td>• environmental aspects;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• external communication on chemical substances such as material data sheets (MDSs); and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• non-conformities and corrective and preventive measures.</td>
<td></td>
</tr>
</tbody>
</table>

Table: 2 EMS verification requirements and continuous management

8 Chemical Safety and Standards by Mrs Nonaka, Administrator, JCIA (Japan Chemical Industry Association): ISO www.iso.org

9 The Role of Green Manufacturing/Cleaner Production in Obtaining ISO 14001 Certification
(h) Environmentally-certified suppliers must be based on segmentation model as shown in figure 6 below; ensuring suppliers meet the minimum requirements to reduce their environmental footprint.

<table>
<thead>
<tr>
<th>Environmental management certification Supplier segmentation</th>
<th>Mandatory - original equipment manufacturer (OEM) suppliers and contractors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mandatory - intermediary suppliers (based on contract size or volumes)</td>
</tr>
<tr>
<td></td>
<td>Voluntary EMS activities - SMMEs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmentally-certified product/service segmentation</th>
<th>Regular, off-the-shelf - price and delivery should be the only variables once they have been specified.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mandatory - STANDARD goods and services (critical) - well-defined and specified Re-ordering is based on the City’s stock level.</td>
</tr>
<tr>
<td></td>
<td>Mandatory - Onsite contracts - large capital plants (water, sewage, civil work, building, power).</td>
</tr>
<tr>
<td></td>
<td>Mandatory</td>
</tr>
</tbody>
</table>

**Figure 6: Environmental certification requirements for supplier and product segments**

(i) OEM and large-scale suppliers must complete the establishment and certification of EMS within six months.

(j) Intermediary suppliers must complete the establishment and certification of EMS within one year.

(k) In the case of SMMEs who choose to implement/develop EMS voluntary activities, they must submit a declaration concerning environmental management activity within two years.

### 3.3.2.3 Tender evaluation and adjudication

(a) Bids must be disqualified if they fail to meet the minimum environmental requirements as specified in the bid document.

(b) Qualifying bids must be evaluated in terms of price, BEE and other preferential procurement criteria. Bids may be evaluated on functionality if it was included in the “invitation to bid” stage.

(c) **The assessment of bids on the basis of functionality must be done in terms of the evaluation criteria, as well as the minimum qualifying score for functionality as**
A stipulated in the invitation to bid documents. A bid must be disqualified if it fails to meet the minimum threshold for functionality as stipulated in the invitation to bid.

(d) Only qualifying bids must be evaluated in terms of the 80/20 or 90/10 preferential point system in accordance with the Preferential Procurement Regulations.

(e) Suppliers meeting the green minimum requirements and claims must be verified during the assessment process.

(f) Bidders complying with the minimum green requirements must be included in a comparative analysis for submission to the bid adjudication committee.

(g) **Functionality points must be awarded to green requirements on specific green purchases and specification, and should be mandatory for green procurement.** In the absence of green scoring criteria, generic criterion may be used as set out in **Annexure A** of this document.

(h) Where there is no green product on the market, the City must award reconstruction and development programme points in line with the PPPFA to enterprises located in the city. The PPPFA stipulates that when government assesses contracts, it must take into account a preference point system which prescribes functionality, price and the reconstruction development programme (RDP) goals.

In terms of best practice, the green requirements are generally weighted relatively low in the award of bids, compared to costs. Bids rarely win a contract based on their environmental features, even though these might be significant.

3.3.2.4 Logistics Management

(a) SP in terms of logistics management must be based on materials planning and management activities (inventory category management, setting inventory levels, re-ordering, receiving and distribution, warehouse management, stock take, maintenance, service and repairs, expediting items, transport management and vendor performance) designed to balance inventory. A balanced inventory will eliminate wasteful expenditure and reduce the amount of working capital tied up in inventory which will contribute to savings critical to the success of the City.

(b) SP logistics management must be built into e-procurement and integrated into other procurement management databases to provide a mechanism for the control of inventory
levels, management of suppliers and the streamlining of procurement processes. Building SP into e-procurement will facilitate and support the automation of the replenishment of stores, warehouse management and supplier management. This will support real time calculation of optimal inventory holding levels and improve service levels by reducing inventory holding levels and inventory costs.

3.3.2.5 CONTRACT MANAGEMENT
(a) Once the contract has been awarded, the environmental requirements must be included in the service level agreement. Supply, service and works contracts will generally entail slightly different sets of environmental requirements.

(b) Suppliers with an existing contract or agreement must be encouraged to move towards supplying environmentally-friendly products or services within their existing contractual parameters. New suppliers must include the SP requirements into their activities.

3.3.2.6 DISPOSAL MANAGEMENT
(a) SP must be entrenched in the disposal management system in line with the national regulations in ensuring assets are only disposed of when they remain unserviceable, redundant and obsolete.

(b) The cost of disposal in an environmentally-friendly manner must be addressed and accounted for in the lifecycle costing analysis.

(c) Suppliers may be incentivised to promote environmentally-friendly disposal by returning a product or its packaging to suppliers to reduce the cost of disposal to the City.

3.3.2.7 RISK MANAGEMENT
(a) Pollution and degradation of the environment must be avoided after the use of a product. The NEMA Waste Act 59 of 2008 aligns with the SP principles and stipulates that the adoption of the internationally-recognised waste management hierarchy recommends that waste must first be avoided; if not it must be reduced, reused, recycled or recovered, and only disposed of on land if there is nothing else to be done.

(b) The five waste hierarchy categories are waste prevention (reduction), reuse, recycling, energy recovery and disposal. These must be applied to SP to reduce the waste ultimately disposed to landfill sites, and reduce the environmental impacts of waste.

(c) Suppliers must be encouraged to reduce pollution of the environment by capturing products and their packaging before they become waste for reuse or recycled as raw materials.

(d) The City must adopt measures, in close cooperation with the private sector, aimed at facilitating and coordinating widespread implementation of existing successful waste minimisation and recycling initiatives.
(e) Suppliers who generate waste must be accountable for the management and disposal of this waste and must be penalised appropriately for any and every transgression committed.

(f) Voluntary agreements can be used to achieve performance in excess of compliance with minimum requirements and can include setting pollution reduction targets and penalties for non-compliance.

(g) Build capacitation through training in integrated pollution and waste management.

3.3.2.8 PERFORMANCE MANAGEMENT

(a) SP performance criteria must relate to the product, service or infrastructure project in the contract and not the supplier, in order to determine level of performance and whether it meets the specification and criteria.

(b) The City must encourage the adoption of action plans by internal and external stakeholders to improve and support the SP practices in line with this strategy.

(c) SCM and CSU, together with all department stakeholders, must develop performance management systems and identify key performance criteria.

(d) CSU must be responsible for promoting awareness within the City and amongst suppliers, and develop capacity within the City, maintaining an information-sharing network and providing support regarding implementation of the policy to all departments.

3.3.2.9 SCM for infrastructure delivery

(a) SP in the context of infrastructure delivery must be based on a tight integration of the SCM system, planning and budgeting, project management and operations maintenance systems. This is a requirement by the National Treasury MFMA Circular No. 77 standard for infrastructure procurement and delivery management.

(b) The model for an SCM system for infrastructure delivery shown in figure 7 shows the linkages, and must be designed to realise value for money and good quality service delivery. The requirement is a move towards performance-based contracts for infrastructure delivery designed to manage the lifecycle of capital assets (from acquisition through to disposal) while enabling support for preventive maintenance activities, including resources.

(c) This system must be a tool to isolate and analyse problem areas quickly and implement corrective action.

Figure 8 shows an integrated SCM system and the linkages with planning and budgeting, project management and operations and maintenance.
3.2 **Monitoring and Evaluation System**

(a) The City must adopt a holistic approach for this SPS implementation that includes monitoring and evaluation of progress. The National Treasury regulations require that the monitoring of supply chain management processes occurs regularly, while an evaluation of the impact of policies and achievement of goals occurs annually.

(b) Monitoring and evaluating progress towards targets requires an effective monitoring system ensuring access to and validation of data critical to the performance metrics. Monitoring of SP must be built into existing institutional measures such as the City’s e-procurement. It can also provide a central information platform for enforcing SP requirements, preferred suppliers and product purchases, and maintaining visibility and control.

(c) Continuous monitoring and evaluation of the SPS implementation must track progress to demonstrate to stakeholders the value and benefits of SP being achieved.
(d) Performance-measuring indicators and targets, such as the percentage of procurement orders meeting SP requirements and where possible mapped to cost and savings, should continue to be tracked over time\(^{10}\), and to report on progress to senior management.

I. Departments must be guided by the national procurement policy charters and targets to set their own SP policy targets at the appropriate contract level. (The Policy Strategy to Guide Uniformity in Procurement Reform Processes in Government sets the broad parameters for a consistent approach to the supply chain management function). Refer to Annexure B for indicators that are merely indicative.

(e) CSU must be responsible for collating and reporting on Citywide SP statistics.

(f) The City must incorporate SP statistics into its management reporting systems.

3.3 **STAKEHOLDER COLLABORATION**

The development of this strategy and the action plan identify environmental management systems, standards and generic specifications as best practice for the City's 15 most procured products as "low hanging fruit"; the implementation of which will affect various stakeholders.

The strategy relies on reducing environmental impact through suppliers, hence the City must seek close collaboration and maintain a continuous dialogue with its suppliers involved in or impacted by SP decisions and processes. Greater collaboration will result in efficient, improved and a broader impact for SP.

3.3.1 **SUPPLIER COLLABORATION**

The collaborative approach towards suppliers must be based on public and private initiatives, where the City enters into a dialogue to identify and initiate new solutions that will result in positive outcomes for both partners. The City and its suppliers must work jointly towards reducing the environmental footprint, and it will offer opportunities for both parties to learn from each other and improve operations together.

Such collaboration must result in mutual capacity-building and improvements. Throughout the process, the City and its suppliers must compare experiences and develop suggestions for continuous improvements.

The SPS requires suppliers to assess their current carbon footprint through lifecycle assessments of their products, in order to be able to target reductions in their environmental footprint. The lifecycle method for assessing the environmental impact will determine the areas for improvement. The identification of impact and areas of improvement will influence the requirements for different supplier.

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\(^{10}\) Sustainable public procurement: A Global Review | Full Report
segments, and is a basis for establishing collaboration and capacity-building with suppliers. Potential areas for improvement will be production facilities and supporting processes, supply chain, products, and consumer information. The environmental footprint left by these four areas will also give suppliers and the City insight into how to successfully implement the SPS within each area. Refer to Annexure C for the various stakeholders and their role in the City’s SP.

3.3.1.1 Production facility and processes

A production facility’s raw material, energy consumption, water consumption and disposal, and waste production often have a negative impact on the environment. The City must encourage suppliers and manufacturers to identify the potential for and reducing of the environmental impact of their facilities, how the facilities are operated and how production is organised. Suppliers and manufacturers must reduce their environmental footprint by optimising their own facilities and supporting production plants and processes.

3.3.1.2. Supply chain

The primary suppliers will not be fully compliant with the SPS requirements without also involving their own suppliers in the process. The City must encourage the primary suppliers to place similar requirements on their respective subcontractors. In this way, the City would be able to influence first and second-tier suppliers and beyond.

3.3.1.3 Products

The most negative environmental impact comes from the type and quantity of material used in production processes and how product/material resources are treated before they become waste. Waste management business models should ensure that resources are valued rather than becoming waste products. Products must be designed and produced in a circular value chain to ensure the reuse and recycling of resources. The City suppliers should be encouraged to look into reducing the quantity of raw materials used in their products and packaging, substituting raw materials used in their products, recycling waste and reusing materials.

3.3.1.4 Consumer information

How consumers decide to dispose of a product often has an impact on the environment. The manufacturer should inform the consumer of how to responsibly dispose of products by providing this information on the product or its packaging. If the manufacturer has arrangements in place to take back the used product, it is important that this fact is communicated to the consumer to increase the likelihood of it occurring. Sustainable consumption information can result from new product design, new business methods and new ways of both handling and disposing of products.\footnote{Stakeholders engagement}
3.4 BARRIERS TO SP
Engagement meetings held with City key stakeholders highlighted barriers to the implementation of SP. These barriers relate to policy support, organisational, financial and, to some an extent, market-related matters. To facilitate the implementation of its practices, the City must focus on managing these barriers as they are of concern to its stakeholders.

3.4.1 POLICY SUPPORT
The lack of a national policy hinders the effective implementation of SP. The reliance on interpreting specific provisions in the different policy instruments creates uncertainty and stifles creativity and innovation that would support SP practices.

National commitments and priorities as set in the NDP are focused on achieving economic and social issues. This result in low-level policy support on environmental sustainability according to key stakeholders interviewed.

Low-level support of environmental priorities also relates to the short-term of office for political leadership whose priorities in a term are usually focused on the provision of basic services.

The link between environmental, social and other political or economic priorities needs to be made explicit in order to make environmental issues gain policy support amongst all stakeholders.

3.4.2 ORGANISATIONAL SUPPORT
Stakeholders highlighted that organisational barriers are due to a lack of coordination, inadequate capacity or resources, and poor monitoring and evaluation. Lack of coordination across the various departments is due to the decentralised nature of each department, resulting in a lack of harmonised practices on issues of sustainable procurement. Stakeholders expressed concern that experience with implementation at operational level in the City has not been practical due to organisation barriers.

3.4.3 PROCUREMENT RELATED
Inadequate human resources practically affect the implementation of SP at an operational level. Even though it is designed to stimulate innovation, SP presents challenges for procurement staff as it requires them to have knowledge on integrating sustainability and evaluating different verification systems in order to make an assessment. This is over and above the National Treasury requirements to move towards performance-based contracts for infrastructure delivery which can also be complex. Even with sustainability performance criteria as part of the contracts, understanding and rating the responses requires specialist sustainability expertise. The range of standards and environmental product information demand a broad set of competence and environmental expertise to evaluate. Without trusted information on the environmental specification of different products and determining supplier environmental footprints, it can be difficult to know if the market can offer products that meet expected requirements.
3.4.4 **RISK OF RESISTANCE TO CHANGE**

The lack of capacity or resources may strain internal stakeholders’ commitment to include environmental specification considerations outside their usual norms and procedures during the early phase of implementation. This may result in resistance to change.

3.4.5 **MONITORING AND REPORTING**

Part of the deliverables for this strategy was to illustrate four capital projects SP has an impact on as case studies to demonstrate the benefits of SP. However there were challenges and constraints in terms of data collection and selection of the case studies. Questionnaires were submitted for data and information provided for the evaluation of completed SP projects. Some of the difficulties that arose during this phase include the following:

(a) Difficulty in identifying contact persons with relevant information and data

(b) Lack of availability of quantitative and qualitative data due to the weakness of monitoring and evaluation mechanisms.

This lack of availability of quantitative and qualitative data made it difficult to evaluate and demonstrate tangible and measurable impacts of the SP of the selected projects and its support towards the achievement of economic, social and environmental goals.

During engagement meetings, stakeholders expressed concerns and challenges of access to data critical for monitoring and reporting. Monitoring and reporting is very limited and continues to be problematic in the City due to the following:

(a) Systems and information silos resulting in poor visibility and control

(b) No clear indicators and targets that are reported against

(a) E-procurement platform currently not working smoothly and poses a challenge in tracking procurement data and activity

(b) Lack of an established methodology on how to best monitor and evaluate SP and even more difficulty in tracking benefits back to procurers’ interventions.

3.4.6 **FINANCIAL BARRIERS**

The market analysis of the City’s most procured SCM products shows that in some instances supply of environmentally-friendly options may be more expensive upfront and will impact on internal expenditure. Although the long-term benefit of environmentally-friendly procurement justifies the initial cost, environmentally-friendly procurement will compete with urgent priorities such as the provision of basic services for finite resources.

Stakeholders highlighted cost-effectiveness and fiscal sustainability as a crucial barrier to the uptake of environmental sustainability, especially in the context of budget constraints.
3.4.7 Market-related barriers

Based on the market analysis of the City’s 15 most procured SCM products, the supply of environmentally-friendly options can be a barrier because of cost or supply not being enough to service the demand, e.g. biofuels as a substitute for fossil fuels.

3.5 Drivers

Figure 8 indicates the specific drivers necessary for the uptake and improvement of SP.

![Figure 8: Top drivers of sustainable procurement](image)

A United Nations Environmental Programme (UNEP) report found that the three largest drivers for the successful implementation of sustainable public procurement are national legislation, strong organisational leadership and policy commitments.

The top three drivers are significant to how the City approaches the implementation of its SP. Stakeholders highlighted capacity-building, industry collaboration and the use of mandatory environmental systems and standards as the top driver for SP in the City.

3.6 Enabling conditions

The specific barriers and drivers cited in the previous sections are important enabling conditions to successfully implement the SPS. The top enablers that are specific to the City are policy support, training and capacity-building in environmental procurement in general and to link it to economic and political priorities, private partnerships, financial sustainability, multidisciplinary coordination and integration, and key performance indicators.

3.6.1 Policy support

Policy support can be achieved by establishing a clear SP policy and procedures manual as well as changing values and perceptions amongst all stakeholders towards its economic viability.
Policy instruments such as EMS, SANS technical standards, eco-labels and LCC are important and promoted as helpful in the setting of technical specifications.

The City must develop and implement the basic components of an EMS. This must be achieved through adapting national legislation and sector-specific environmental guides as tools for streamlining environmental management programmes and practices with the requirements of ISO 14001 EMS. This should facilitate a gradual and systemic approach to obtaining ISO 14001 registration and certification.

3.6.2 TRAINING AND OUTREACH PROGRAMMES

To enable proper implementation of the SPS, training and outreach programmes must be provided in several stages of the process for stakeholders involved in and impacted by the requirements of this strategy. It is important to educate staff about the principles and benefits of SPS and to build capacity to deliver it through good procurement practices. The objectives of the training should be the following:

(a) To promote awareness on the benefits of the strategy
(b) To obtain political and entire administration support and willingness for implementation
(c) Training of procurement and contracting staff prior to the implementation of the SPS
(d) Continuous improvement on SP.

Training and outreach programmes will help in generating awareness of applicable laws that may spur evolutionary changes in behaviour. In addition, providing information on outcomes to stakeholders is useful to encourage procurement officials to take on the challenge of implementing environmental requirements.

Awareness-raising and training must be provided from the start of implementation of this strategy in order to foster internal support and general interest. More specific training can be provided on an ongoing basis throughout the implementation phase.

The stakeholder engagement plan used in the development of this strategy must form the basis for the training content, and include awareness-raising (definition and principles), the strategy approach and its implementation.

3.6.3 PRIVATE PARTNERSHIPS

Market-related barriers suggest the need for the City to engage the private sector through capacity-building to give industry confidence to invest resources in meeting SP-led markets. Public and private initiatives are an enabling condition for creating innovative solutions for more sustainable products and for demonstrating using procurement as a vehicle for accelerating "green" growth.

3.6.4 FINANCIAL INSTRUMENTS

Financial instruments such as green taxes and incentives are key drivers for green policy in South Africa in response to global problems such as energy security, water and resource scarcity, pollution and
climate change. The government has identified carbon tax and the energy efficiency tax incentive as some of the revenue-raising instruments, particularly environmentally-related taxes and charges and their role in wider fiscal sustainability.

The proposed carbon (green) tax environment could have an intrinsic effect on investment decisions for businesses, and could make SP or development projects by cutting costs, increasing efficiency, driving innovation and enabling transformation.\textsuperscript{13}

Subsidy-related incentives in the form of tax expenditures do enhance the SP in terms of fiscal sustainability. The South African National Energy Development Institute’s (SANEDI’s) 12\$ incentive offers an energy efficiency tax incentive of 95c for every kWh saved. It makes financial sense for businesses or tax paying entities to take advantage of this tax for projects over a certain threshold for KWh’s saved annually.\textsuperscript{14} This incentive is a forgone tax by government and is aimed at ensuring that capital expenditure is recovered in the short term, ensuring that energy projects which reduce cost base are funded by the savings, thereby increasing the total cost savings available to fund further projects.

The government through the Department of Environmental Affairs has set up a Green Fund aimed at providing catalytic finance to facilitate investment in green initiatives that support poverty reduction and job creation. This fund is additional and complimentary to existing fiscal allocations supporting the transitioning of the South African economy to a low-carbon, resource-efficient and climate-resilient growth path. The green fund is focused on coverage of a funding or financing gap on innovative projects in response to market weaknesses hampering the transition to a green economy.\textsuperscript{15}

### 3.6.5 INTEGRATION

Maintaining visibility and control over procurement activities requires integration into standard procurement procedures across departments as routine practice through the e-procurement platform as a hub. Also, all other information management systems (SAP, asset management, waste management etc.) must be integrated through an enterprise application integration in order to create a seamless environment whereby all related business systems collaborate and share information in real time, critical for measuring the SPS progress.

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\textsuperscript{12} National Treasury Draft Policy Paper, A Framework for Considering Market based Instruments to Support Environmental Fiscal Reform in South Africa April 2006

\textsuperscript{13} Carbon Tax Policy Paper May 2013

\textsuperscript{14} Government 12\$ Energy Efficiency Incentive [http://gree-power.co.za/incentives/](http://gree-power.co.za/incentives/)

\textsuperscript{15} Green Fund [http://www.environment.gov.za/projectsprogrames/greedfund](http://www.environment.gov.za/projectsprogrames/greedfund)
3.7 Indicative Action Plan for SPS Implementation

The drivers and barriers are also specific actions to successfully improve on SP. The SPS must address these actions over a three-year period by establishing a working committee that would provide support and oversight during implementation. Refer to Annexure D which contains action plan.
ANNEXURES
A – Indicators
B – Generic green procurement selection criteria checklist
C– Stakeholders
D – Indication implementation action plan
E – Situational analysis report
F– Stakeholder engagement presentation
G – Questionnaires
H – Record of meetings
I – Attendance registers
### Annexure A: Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Commitment</th>
<th>Target</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP Implementation</td>
<td>% of procurement budget set aside for green purchasing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South African Accord 2011</td>
<td>Up to 75% of local content in procurement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buildings Projects</td>
<td>New buildings to be certified to a minimum of a 4 Star Green Star rating.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Annexure B: Green procurement generic selection criteria checklist:

#### Production

<table>
<thead>
<tr>
<th>Question</th>
<th>Y/N</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have virgin materials been used?</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>Have recycled materials been used in the product?</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>If yes what is the percentage of the recycled content?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has the manufacturer taken steps to reduce the generation of waste in the production?</td>
<td>List actions</td>
<td></td>
</tr>
<tr>
<td>Has the manufacturer taken steps to reduce the use of energy in the production the goods?</td>
<td>List actions</td>
<td></td>
</tr>
<tr>
<td>Has the manufacturer taken steps to reduce emissions of air pollution in the production of the goods?</td>
<td>List actions</td>
<td></td>
</tr>
<tr>
<td>Has the manufacturer used any hazardous substances in the product?</td>
<td>Y/N</td>
<td>If yes, list hazardous substance</td>
</tr>
<tr>
<td>Does the supplier have any form of environmental certification, e.g. ISO14001?</td>
<td>Y/N</td>
<td>If yes, list</td>
</tr>
</tbody>
</table>

#### Use

<table>
<thead>
<tr>
<th>Question</th>
<th>Y/N</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can the product be reused?</td>
<td>Y/N</td>
<td>Detail how it could be reused</td>
</tr>
<tr>
<td>Does the product have an energy star rating?</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>Is the product energy efficient?</td>
<td>Y/N</td>
<td>Supplier to compare EE with other products</td>
</tr>
<tr>
<td>Does the product come with the supplier's guarantee of quality?</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>Does the product come with a maintenance plan?</td>
<td>Y/N</td>
<td></td>
</tr>
</tbody>
</table>

#### Disposal phase

<table>
<thead>
<tr>
<th>Question</th>
<th>Y/N</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can the product be recycled?</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>Has the supplier provided information on plans to dispose of the product?</td>
<td>Y/N</td>
<td>List disposal options</td>
</tr>
<tr>
<td>Has the supplier considered environmentally-friendly options?</td>
<td>Y/N</td>
<td>List options</td>
</tr>
<tr>
<td>Where hazardous substance are used, has the supplier detailed plans to dispose of the product?</td>
<td>Y/N</td>
<td>List disposal options</td>
</tr>
<tr>
<td>Action No.</td>
<td>Action item</td>
<td>Responsibility</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------------------------------------------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>SPS01</td>
<td>Awareness-raising amongst policymakers and managers on strategic value and direction of the strategy</td>
<td>CSU</td>
</tr>
<tr>
<td>SPS02</td>
<td>Awareness-raising and outreach programmes on sustainable public procurement</td>
<td>CSU/Environmental Management Services</td>
</tr>
<tr>
<td>SPS03</td>
<td>Strategy approval</td>
<td>Top management</td>
</tr>
<tr>
<td>SPS04</td>
<td>Legal review</td>
<td>Legal</td>
</tr>
<tr>
<td>SPS05</td>
<td>Update SCM Policy and systems in line with the SPS</td>
<td>SCM</td>
</tr>
<tr>
<td>SPS06</td>
<td>Update SCM procedures manual according to SPS</td>
<td>SCM</td>
</tr>
<tr>
<td>SPS07</td>
<td>Update existing supplier agreements in line with the strategy – include a commitment to supply environmentally-friendly products or services</td>
<td>SCM/Legal</td>
</tr>
<tr>
<td>SPS08</td>
<td>Training for procurers (line departments) on updated SCM Policy in line with SPS</td>
<td>SCM</td>
</tr>
<tr>
<td>SPS09</td>
<td>Supplier engagement on updated SCM Policy in line with SPS</td>
<td>SCM</td>
</tr>
<tr>
<td>SPS10</td>
<td>SPS elements to be integrated into training programmes</td>
<td>CSS</td>
</tr>
<tr>
<td>SPS11</td>
<td>Training of procurement staff on SPS</td>
<td>SCM</td>
</tr>
<tr>
<td>SPS13</td>
<td>Enhance monitoring and evaluation through enterprise application integration of all business information management systems</td>
<td>Group ICT</td>
</tr>
<tr>
<td>SPS14</td>
<td>City of Tshwane Group Development, implementation and certification of ISO 14001 EMS</td>
<td>Research and Innovation</td>
</tr>
<tr>
<td>SPS15</td>
<td>Development, implementation and certification of mandatory EMS</td>
<td>OEM suppliers</td>
</tr>
<tr>
<td>SPS16</td>
<td>Development, implementation and certification of mandatory EMS</td>
<td>Intermediary suppliers</td>
</tr>
<tr>
<td>SPS17</td>
<td>Development and implementation of voluntary EMS</td>
<td>SMME suppliers</td>
</tr>
<tr>
<td>SPS18</td>
<td>Execute the strategy implementation through incorporating sustainable public procurement environmental criteria and</td>
<td>SCM/procurers</td>
</tr>
</tbody>
</table>
requirements in the procurement process and contracting cycle

<table>
<thead>
<tr>
<th>SPS19</th>
<th>Refresher training for procurers</th>
<th>SCM</th>
<th>Quarterly</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPS20</td>
<td>Assessment of supplier performance to identify areas for improvement</td>
<td>SCM</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SPS21</td>
<td>Supplier development and support for improvement</td>
<td>SCM</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SPS22</td>
<td>Monitor, collate and report the SPS outcomes to senior management</td>
<td>CSU</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SPS23</td>
<td>Identify implementation challenges and refine approach</td>
<td>CSU</td>
<td>Quarterly</td>
</tr>
</tbody>
</table>
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Tshwane- An innovator City committed to addressing climate change.