Occupationally Directed Skills Development for Green Public Supply Chain Management

September 2016
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*The vision is one of a South African public sector SCM system staffed by people who have the skills, knowledge and enthusiasm to ensure that every decision is well-informed and appropriate; and who have the technical and organisational support that they need in order to carry out this important work in line with the country’s Constitution, laws and regulations.*

*(National Treasury 2015)*
# Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AO</td>
<td>Accounting Officer</td>
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<tr>
<td>B-BBEE</td>
<td>Broad-based Black Economic Empowerment</td>
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<td>BSC</td>
<td>Bid Specification Committee</td>
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<tr>
<td>CFO</td>
<td>Chief Financial Officer</td>
</tr>
<tr>
<td>CIPS</td>
<td>Chartered Institute of Purchasing and Supply</td>
</tr>
<tr>
<td>COO</td>
<td>Chief Operations Officer</td>
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<tr>
<td>DDG</td>
<td>Deputy Director General</td>
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<tr>
<td>DEA</td>
<td>Department of Environmental Affairs</td>
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<tr>
<td>DG</td>
<td>Director General</td>
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<tr>
<td>EDTEA</td>
<td>Economic Development, Tourism and Environmental Affairs</td>
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<tr>
<td>ELRC</td>
<td>Environmental Learning Research Centre</td>
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<td>GPP</td>
<td>Green public procurement</td>
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<td>HR</td>
<td>Human Resources</td>
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<td>GSETA</td>
<td>Local Government Sector Education &amp; Training Authority</td>
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<td>MEC</td>
<td>Members of the Executive Council</td>
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<td>MOOC</td>
<td>Massive Open Online Course</td>
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<td>NDC</td>
<td>Nationally Determined Contribution</td>
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<tr>
<td>NDP</td>
<td>National Development Plan</td>
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<tr>
<td>NT</td>
<td>National Treasury</td>
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<tr>
<td>OCPO</td>
<td>Office of Chief Procurement Officer</td>
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<td>OFO</td>
<td>Organising Framework for Occupations</td>
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<tr>
<td>PFMA</td>
<td>Public Finance Management Act</td>
</tr>
<tr>
<td>PSETA</td>
<td>Public Sector Education &amp; Training Authority</td>
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<tr>
<td>QCTO</td>
<td>Quality Council for Trades and Occupations</td>
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<tr>
<td>REAL</td>
<td>Centre for Researching Education and Labour</td>
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<tr>
<td>SCM</td>
<td>Supply Chain Management</td>
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<tr>
<td>SDG</td>
<td>Sustainable Development Goal</td>
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<td>SPP</td>
<td>Sustainable public procurement</td>
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<td>SRoI</td>
<td>Social Return on Investment</td>
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<td>SSP</td>
<td>Skills Sector Plan</td>
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Executive Summary

Globally and nationally there is a growing recognition that in order for the economy to grow and our societies to develop, it is imperative that we manage our environment in a way that enables both current and future generations to benefit from the wide variety of resources and services that it provides. This sustainable development requires that at the global, national and local level, economies transition to operating in ways that reduce greenhouse gas emissions, become more resource efficient and distribute the economic benefits more equitably. The Paris Climate Agreement and the Sustainable Development Goals are only two high profile global initiatives that support this transition.

South Africa has signed these and many other global commitments and has been proactive in incorporating the principles of sustainable development into its Constitution, policies and strategies. In particular, South Africa has recognised that the transition to a more sustainable or green economy has the potential to create hundreds of thousands of new jobs. It is in this context that National Treasury’s commitment to use the R500 billion annual expenditure on goods and services by the public sector to support government’s strategic priorities could make a significant contribution to sustainable development.

However, in order to drive the green economy, government, business, labour and civil society will need to create and support new ways of doing business. This will require new policies, new strategies and new skills. In a proactive initiative aimed at identifying and developing the requisite occupations and related skills to support green Supply Chain Management (SCM) in the public sector, the Public Sector Education and Training Authority (PSETA) commissioned this study to explore three interrelated questions. These are:

1. What skills are required to implement green supply chain management effectively in the public sector?
2. Which occupations are involved and how should they be reflected in the Organising Framework for Occupations (OFO)?
3. What attendant organisational development and policy guidelines may be necessary?

The literature reviews conducted as part of this study provide a number of insights into the drivers and constraints for implementing green supply chain management in the public sector. The two case studies conducted at the Department of Environmental Affairs, National Treasury and KwaZulu-Natal provincial level provided detailed and grounded insights into the current practices related to green SCM in the public sector in South Africa. More specifically, these case studies provided details on the roles played by different professionals within the supply chain and the kinds of skills that these professionals will need to transition to more sustainable SCM in the public sector.

From the literature reviews and the case studies, four strategic leverage points were identified that appear to be key to supporting the transition to green supply chain management in the public sector. These are:

- The **strategic alignment** between global and national policies and commitments related to environmental sustainability; provincial and departmental strategies; and provincial and departmental SCM strategies;
- The alignment between the provincial and departmental strategies, particularly the environmental and sustainability components, and the **specifications** for goods and services;
- An understanding of **strategic sourcing** and how this can be leveraged to support provincial and departmental environmental and sustainable development strategy; and

- Enhancing SCM **information** generation and use to support the **monitoring and evaluation** of environmental performance of green SCM.

For each of these strategic intervention areas, relevant occupations were identified based on the Organising Framework for Occupations. The associated tasks for these occupations, contained in the OFO codes, and the competencies listed in the SCM Technical Competency Dictionary developed by National Treasury, were reviewed. Those tasks and competencies most closely related to green SCM were identified and are presented towards the end of the report. Using the international literature review and the SCM Technical Competency Dictionary, specific skills related to green public SCM were identified and are presented in some detail.

In order to support the development of these skills, a number of recommendations are made regarding both organisational collaboration and course development. At an organisational level, it is recommended that:

- PSETA and National Treasury work together to align the Technical Competency Dictionaries with the Organising Framework for Occupations given the central role that the Department of Higher Education and Training are proposing occupations play in shaping skills development in South Africa.

- The Department of Environmental Affairs work together with National Treasury to incorporate a strategic sustainability/environmental focus into the current work being done on strategic sourcing.

- PSETA, DEA and National Treasury create a ‘working group’ to align the capacity development, green SCM and strategic sourcing work that is currently taking place within these three institutions.

- PSETA engage with LGSETA on green SCM capacity development across all levels within the public sector.

Closely linked to the strategic leverage points identified in this review are four recommendations on skills development interventions. It is envisaged that some of these could start immediately while others would benefit from the organisational cooperation described above. The four recommended interventions are:

- A series of high level seminars and support focused on departmental policies and particularly SCM strategies for senior government officials, accounting officers, chief financial officers and supply and distribution managers.

- A short course for Bid Specification Committee members that focuses on the development of environmental criteria, specifications and functionality.

- A continuation of the existing National Treasury courses and work currently being done with the Chartered Institute of Procurement and Supply to develop professional programmes for both junior and senior staff involved in SCM. This should contribute to the professionalisation of supply chain management while simultaneously building green SCM skills in South Africa.

- The development of a massive open online course (MOOC) that takes the work currently being done within the Office of the Chief Procurement Officer on strategic sourcing and make it accessible to the many different professionals involved in public SCM. The organisational collaboration mentioned above will be vital to ensure that this course contributes to the strategic intent of sustainable development including providing the methods, techniques and tools to support green SCM in the public sector. This would include a strong focus on gathering information that supports the selection of products and services, implementation, monitoring, evaluation and continual improvement of green SCM.
**Strategic Leverage Points for Green SCM**

- **Global and National Drivers & Policy**
  (e.g. climate change, water issues, Paris Agreement, Environmental Policy)

- **Departmental & Provincial Policies**
  (Should be aligned to national sustainability & environmental policies)

1. **SCM Policies and Strategies**
   (Aligned to departmental/provincial policies – inclusive of env. component)

2. **Bid Specification**
   (Environmental and sustainability considerations built into specifications)

3. **Strategic Sourcing**
   (Methods, techniques and tools for strategic SCM – incl. env. component)

4. **Monitoring & Evaluation**
   (Frameworks and information to track impact of green/sustainable SCM)

**Organisational Cooperation**

- **PSETA and NT**
  (poss. DHET and QCTO)
  Alignment of OFO and Technical Competency Dictionary
- **DEA and NT**
  Secondment of sustainable development specialist from DEA to OCPO
- **PSETA, DEA and NT**
  Working group to link capacity development, green SCM and strategic sourcing
- **PSETA and LGSETA**
  PSETA engage with LGSETA on green SCM capacity development into local government

**Relevant Occupations**

- Senior Government Officials (111202/4/7)
- Accounting Officer (242209)
- Chief Financial Officer (121101)
- Supply and Distribution Manager (132401)

**Skills Development Interventions**

- **DEA and PSETA**
  High level seminars and support focused on departmental policies and particularly SCM strategy

- **PSETA**
  Short course for Bid Specification Committee members (also relevant to Bid Evaluation Committee)

- **National Treasury**
  Continue development of professional programmes (CIPS) and lobby for professionalisation of SCM

- **PSETA & National Treasury**
  Develop MOOC on Strategic Sourcing incl. Information, Monitoring and Evaluation

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*Note: The diagram illustrates the strategic approach to green supply chain management, highlighting key policy areas and the roles and responsibilities of various stakeholders. The text provides a detailed overview of how these areas are interconnected and the specific actions to be taken at each stage.*
Rationale

The South African government spends over R500 billion on goods, services and construction annually (National Treasury, 2015). This represents a significant opportunity for the State to assume a more strategic and developmental role. In particular, ‘greening’ supply chain management (SCM) of public entities by motivating and capacitating employees across government to preferentially source locally manufactured goods that are less harmful to people and the environment, has the potential to meet a wide range of international and national priorities. These include commitments to economic growth, social development and environmental sustainability.

In the context of global climate change, degradation of natural resources and persistent unemployment, supporting the emergence of an enhanced green economy sector has received substantial attention, globally and within South Africa. A number of studies, policies and strategic plans in South Africa point to the potential to create several hundred thousand new green jobs. The New Growth Path estimates that up to 300 000 new jobs could be created in green industries by 2020 (and more than 400 000 by 2030). A study by the Industrial Development Corporation, the Development Bank of South Africa and the Trade and Industry Policy Strategies (2011) estimated that the formal sector of the green economy has the potential to provide 255 000 employment opportunities between 2013 and 2017 and 462 000 employment opportunities in the long term (2018-2025). The Green Economy Accord (South African Government, 2011), a joint commitment by business, government and labour, committed to creating 300 000 new green jobs within the next 10 years i.e. 2011 to 2020. The One Million Climate Jobs Campaign (Alternative Information & Development Centre [AIDC], 2011) representing over 40 labour and social movements, estimates that up to one million new jobs can be a reality in South Africa in the near future if appropriate policies are put in place.

Closely linked to the potential to create employment are a number of complementary benefits from growing the green economy. These include supporting innovation that builds global competitiveness, enhancing the reputation of both the public and private sector in South Africa through responsible leadership, and building our resilience as a country as we reduce our dependence on fossil fuel and improve our management of energy, water and natural resources. These benefits are clearly articulated in the King IV report (still to be released) and in a recent international publication on integrated reporting by the Chartered Institute of Public Finance and Accountancy and the World Bank (2016) entitled Focusing on Value Creation in the Public Sector.

By carefully considering the social and environmental costs and benefits of public spend across the entire life cycle of products, services and construction, the South African government has the potential make a significant contribution to the growth of the green economy. This is recognised in the National Development Plan (National Planning Commission [NPC], 2012: 150) that states that “shifting to a green economy, including to a low-carbon economy, is shifting to a more sustainable economic growth and development path in the long term, and therefore has implications for choices about the structure of the economy”. It is in this context that the NDP proposes “ensuring that environmental impacts of public sector investment and spending are fully costed to promote the principle of full-cost accounting as a corporate governance standard” (NPC, 2012: 213).

However the National Planning Commission acknowledges that “a plan is only as credible as its delivery mechanism is viable” and that there “is a real risk that South Africa’s development agenda could fail because the state is incapable of implementing it” (NPC, 2012: 54). In response, Chapter 13 of the National Development Plan calls for a “capable state” underpinned by “effectively coordinated state
institutions with skilled public servants who are committed to good and capable of delivering consistently high-quality services, while prioritising the national developmental objectives” (NPC, 2012: 409). The NDP goes on to list eight areas where targeted action is particularly important for the building of a capable state. These are:

1) Stabilise the political-administrative interface.
2) Make the public service and local government administration careers of choice.
3) Develop technical and specialist professional skills.
4) Strengthen delegation, accountability and oversight.
5) Improve interdepartmental coordination.
6) Take a proactive approach to improving relationships between national, provincial and local government.
7) Strengthen local government.
8) Clarify the governance of SOEs. (NPC, 2012: 410)

In support of these objectives, the Public Sector Education and Training Authority (PSETA) has identified a number of priority focus areas for capacity development within the public sector. These include: developing operationally focused managers; strengthening competencies in supply chain management; enhancing basic administration capacity; and building human resource management and development capacity (PSETA, 2014: 14).

The size and strategic importance of public SCM and the potential that greening this supply chain offers for delivering social, environmental and economic returns on government’s investment provides the rationale for developing green SCM capacity within the public sector. In the process of greening the public supply chain, the State would be educating staff, clients and suppliers; protecting ecosystems and health; and stimulating the local economy, green growth and employment. This study thus seeks to provide insights into the skills required for effectively implementing green SCM in the public sector and how best the development of these skills can be supported within an occupationally directed skills development framework.
Methodology

Focus

This study was conceptualised as an occupationally directed study into the skills required to implement green supply chain management in the South African public sector. Within this broad conceptualization, three research questions were highlighted. These were:

1. What skills are required to implement green supply chain management effectively in the public sector?
2. Which occupations are involved and how should they be reflected in the Organising Framework for Occupations (OFO)?
3. What attendant organisational development and policy guidelines may be necessary?

This focus is directly aligned with the overall focus of the Green Skills Project which is to strengthen system capacity for green skills planning, analysis and employment in South Africa. Within this focus, the Project’s objectives include clarifying descriptions of green occupations for OFO development and supporting employers, SETAs, DHET and other parties to better determine skills needs, at a firm and sector level. The project is doing this through a series of occupationally directed studies in a range of sectors. Given the systemic focus of the project, the sector studies also pilot and refine methods for conducting occupationally directed green skills demand studies to be utilised by SETAs and others. The studies also inform improved green skills research methods and enhanced green skills analysis and planning capacity development. The Green Skills Project is funded by the Department of Environmental Affairs through the Green Fund and is a project of the National Environmental Skills Planning Forum.

Definitions

In order to clarify the scope and focus of this study, it is necessary to explain the origin, meaning and importance of some key terms.

Occupationally Directed - The development of skills within and for the workplace is a priority concern in post-school education and training in South Africa. Occupationally directed refers to using occupations, their related occupational tasks and occupational contexts as central elements for identifying and planning educational and training needs. The Quality Council for Trades and Occupations (QCTO) oversees the Occupational Qualifications Sub-framework within the South African qualifications framework.

Skills - The meaning of ‘skills’ is contested and the term is used differently in different fields of practice such as business, education and the sociology of work. In this report we have used skills to refer to a capable individual or workforce, that has the practical know-how as well as the knowledge and values to undertake effective and meaningful work.

Green public procurement (GPP): “a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured” (European Commission, 2011; Jonk et al., 2006; Public Procurement Analysis, 2015).
**Sustainable public procurement (SPP):** “a process whereby public organisations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life cycle basis in terms of generating benefits not only to the organisation, but also to society and the economy, whilst generating the lowest environmental impact possible and producing the most positive social impacts.” (Casier, Huizenga, Perera, Ruete, & Turley, 2015; Ministry of Finance, 2015; UNEP, 2015b).

**Procurement vs Supply Chain Management:** In South Africa, although the Constitution (section 217) refers to procurement, most of the legislation and associated guidelines post-2003 refer to supply chain management. See for example the Supply Chain Management Policy (2003), the Regulatory Framework for Supply Chain Management (2003) and the Supply Chain Management Guide for Accounting Officers/ Authorities (2004). As noted in the recent review on supply chain management in South Africa (National Treasury, 2015), procurement is used to describe the process of implementing a decision to buy flowing from the pre-tendering process of supply chain management whereas supply chain management refers to all processes leading up to procurement and post-procurement. The use of the term SCM thus extends the focus beyond acquisition and into the key processes of demand, acquisition, logistics, use and disposal.

**Green public supply chain management:** The extended view of SCM used in South African policy and guideline documents aligns well with the extended life cycle focus of green and sustainable public procurement. For this reason, this report uses the term ‘green public supply chain management’ or ‘green SCM’ in the public sector. In doing so, we acknowledge that green public SCM is an important component of sustainable public SCM. It is also acknowledged that social and economic activity occur within and depend on the broader environmental context. Green public SCM is therefore seen as a way of ensuring environmental, social and economic sustainability. However, in order to manage the scope of this study, the focus is limited to the environmental impact of supply chain management. As will become evident, however, the insights gained from this focus on green public SCM and the implications for occupationally directed skills development have many important parallels with and impacts on the social dimensions of sustainable public SCM.

**Scope**

The scope of this study was defined by three parameters. The first was the use of one of more commodities to focus the study. The commodities were to be determined based on the potential positive impact that green public procurement of the commodities would have economically, socially and environmentally. The second parameter related to the role players and processes involved in supply chain management in State entities. These role players and processes were to be identified and reviewed through studying existing research and through two case studies. This information was to be complemented by the OFO codes. The third parameter related to the engagement with entities that were strategically placed to support the uptake of the findings. These organisations included National Treasury, the Department of Cooperative Governance and Traditional Affairs, Trade and Industries, Economic Development and Environment Affairs, provincial and local government forums and trade unions.

In line with this original scope, the review focused on an in-depth analysis of two commodities and the role players identified in the international and national literature reviews and the two case studies. Also in line with the original scope, the review did not give a comprehensive analysis of all skills needed for public procurement but focused on the key strategic areas identified through the literature reviews and
case studies. Finally, in line with the original scope, the review did not produce an in-depth analysis of the supply of skills, or the associated training providers.

It is acknowledged that while the researchers and project coordination team have sought to engage with a wide variety of key stakeholders, the time, scope, purpose of engagement and focus of the case studies limited the breadth and depth of this engagement. There remains both a need and a desire to support the impact of the study through further engagement.

**Approach**

As will become evident in the section on contextual drivers below, there are a number of international and national initiatives associated with the greening of public SCM. In order to contextualise this study, two separate reviews were conducted with one focusing on the international context and the other on the South African context. These reviews provide an initial outline of the drivers, role players, processes and skills associated with green SCM.

Previous studies in relation to green skills (Rosenberg, 2015 and Jenkin et al., 2016) have shown that it is useful to conduct in-depth case studies on particular commodities and/or sites of activity in order to develop more detailed and grounded findings. These findings provide information that reflects the actual processes, tasks and skills as they play out in specific contexts. These insights are then reviewed in the light of the more general high level international and national reviews for trends, discrepancies, contradictions or silences.

In this study, two commodities – vehicles and cleaning products – were chosen to focus the discussions within the two case studies. The case studies sought to provide insights at the national and provincial levels in line with the mandate of PSETA with the recognition that similar work needs to be done at the local level with LGSETA. This focus also aligns broadly with the different jurisdiction of the Public Finance Management Act and the Municipal Finance Management Act.

The intention in selecting two commodities was to focus and ground the discussion in tangible examples. It was therefore not required that the commodities be representative of all goods, services and construction, but rather that they be significant, relevant and easily understood by interviewees at the case study sites. The criteria used for selecting the two commodities were developed by the review team and are described in greater detail in a separate deliverable. For ease of reference, a summary is provided below. Essentially, a number of factors related to the significance in terms of government spend at the national and provincial levels were considered: the importance to the economy and job creation; and the potential to green the supply chain. These factors were identified through reference to national statistics and international literature on green public procurement as well as frameworks such as the Global Reporting Initiative. This resulted in the following 12 criteria being identified as significant for the commodities used in the case study.

**Economic**

- Total Spend by Economic Category (quantity of spend)
- Local Procurement (potential to source locally)
- Demand and Supply (the potential for government to influence the sector by its spend and the potential of the sector to increase supply based on government spend)
**Environment**
- Opportunity to reduce negative environmental impact across the life cycle of the commodity
- Environmental impact of the commodity over its life cycle
- The existence of eco labels (e.g. ISO, FSC) that could inform procurement decisions

**Social**
- Job creation (potential to create new jobs)
- Opportunities for improving green skills (this tended to focus on short term considerations and the ability to develop skills in the near to middle future)

**Political and Legal**
- Existing legislation that creates enabling or compliance framework
- Level of risk that corruption (e.g. people in powerful positions with vested interests) or violence (e.g. introduction of public transport in the context of a high investment in the taxi industry) would undermine the greening component

**Technological**
- The realistic potential for innovation and competitive advantage in South Africa
- Feasibility (particularly in terms of bringing about change in a reasonable time frame)

Due to issues of complexity and the time available for this study, it was agreed to focus on goods rather than services and construction. It was also considered useful to identify two commodities, one of which was a high value item requiring a relatively high level of authorisation and the other, a low value item that is bought on an almost daily basis requiring a very low level of authorisation.

A matrix (see Figure 1) was developed that mapped the potential commodities on one axis and the criteria on the other. With all these criteria and considerations in mind, cleaning products (highest score in matrix) and cars (highest score in the high value items) were selected.

**Figure 1: Matrix mapping potential commodities**

Further research was then done into these two items to guide the development of infographics (see Appendix 1) that were used to inform and focus the case study interviews and to support stakeholder engagement and advocacy through presentations and discussions.
The case study sites were selected to provide insights into how supply chain management is managed at the national and provincial levels. It was also considered important to select the case study sites so they would provide insights into the relationship between national and provincial departments with regard to supply chain strategies and processes. Given this latter point, it was considered useful to have the case study sites fall within the same department.

It was also considered important to select departments that had some interest/affinity for the subject matter of the study. At the procurement level, all departments within government procure goods and services. However, in terms of green procurement, it was considered useful to work with a department that had some understanding of the issues and had started a green procurement process. It was hoped that this would go some way to deepening the discussion in terms of the kinds of skills required for green SCM. Based on this reasoning, the National Department of Environmental Affairs was chosen as the focus for the national department and the Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) in KwaZulu-Natal was chosen as the site of the provincial study. In order to inform both of these case studies, interviews were also conducted with key staff within National Treasury.

The following table provides a summary of the interactions that informed the two case studies.

Table 1: Summary of interactions that informed case studies

<table>
<thead>
<tr>
<th>Position * Person’s name has been removed for confidentiality</th>
<th>Nature of engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>COO: PSETA</td>
<td>Discussion and advice</td>
</tr>
<tr>
<td>Skills Planning Researcher: PSETA</td>
<td>Discussion and advice</td>
</tr>
<tr>
<td>Chief Directorate - Supply Chain Management, Department of Environmental Affairs</td>
<td>Interview</td>
</tr>
<tr>
<td>Chief Directorate - Natural Resource Management, Department of Environmental Affairs</td>
<td>Interview</td>
</tr>
<tr>
<td>Chief Directorate - Facilities Management, Department of Environmental Affairs</td>
<td>Interview</td>
</tr>
<tr>
<td>Director: Human Resource Management</td>
<td>Interview</td>
</tr>
<tr>
<td>Deputy Manager SCM: Office of the Premier (KZN)</td>
<td>Interview</td>
</tr>
<tr>
<td>Senior Manager SCM: DEDTEA (KZN)</td>
<td>Written responses to questions</td>
</tr>
<tr>
<td>Managing Director: Chartered Institute of Purchasing and Supply Africa</td>
<td>Interview</td>
</tr>
<tr>
<td>KZN Branch of CIPS and Group Procurement and Supply Executive: Astrapak</td>
<td>Interview</td>
</tr>
<tr>
<td>Chief Director: Capacity Building in Office of the Accountant General</td>
<td>Interview</td>
</tr>
<tr>
<td>Chief Director: Strategic Procurement in Office of the Chief Procurement Officer</td>
<td>Interview</td>
</tr>
</tbody>
</table>
Drivers, Barriers and Enablers (Global Level)

Global Initiatives and Drivers

At a global level there are a number of initiatives that have been introduced since the turn of the century that provide a platform, guidance, drivers and targets for implementing sustainable procurement. In many instances, South Africa helped to shape, and has committed to implementing, these initiatives at a national level. A UNEP (2013) study suggests that sustainable public procurement has been introduced by at least 56 national governments and many more local governments. A number of examples from around the world are contained in Appendix 2 of this report.

Two early initiatives with direct relevance to this review are:
- The World Trade Organisation’s (WTO) Government Procurement Agreement (2011), and

While there have been numerous regional and country initiatives subsequent to these two, the three most current activities in the public procurement space acting as catalysts for sustainable public SCM are:
- The United Nation’s Sustainable Development Goals,
- The Marrakech Task Force on Sustainable Public Procurement and the 10YFP Sustainability Programme, and
- The Paris Climate Agreement.

Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) set out goals and targets for governments, businesses and people to map out and implement a vision for a ‘better world’ (Nelson, Jenkins, & Gilbert, 2015). In particular, Goal 12 to “Ensure sustainable consumption and production patterns”, Target 12.7 “Promote public procurement practices that are sustainable, in accordance with national policies and priorities” (Dion et al., 2015) is of relevance to sustainable procurement. Leaders of government are identified as one of the main agents, amongst business and civil society leaders, for change and are responsible for the development of new ways of operating and co-operating (Nelson et al., 2015).

Within the implementation of the SDGs, compliance for meeting targets, regulations or legislation is imperative in the successful implementation of sustainable procurement. However, it is noted that government is often the weak partner in implementing such initiatives, and this is frequently due to lack of capacity (Nelson et al., 2015).

In response to the SDGs, a declaration specifically focusing on sustainable procurement was launched in December 2015 – the Seoul Declaration on the role of sustainable procurement in the fight against climate change (UNEP, 2015b). The declaration calls for:
• Consideration of climate impacts of goods and services in the procurement process, notably through the demand for low carbon solutions and the estimation of carbon costs in the evaluation of tenders.
• The need for an active engagement of suppliers and other supply chain actors to shift towards carbon friendly products, solutions and production processes.
• Increased collaboration between national, regional, state, and local governments, and the private sector, to support and help markets for low carbon goods and services grow.

The Marrakech Task Force on Sustainable Public Procurement and the 10YFP Sustainability Programme

This is an initiative set up by UNEP to develop a set of global principles based on a systematic approach to introduce and further development SPP (UNEP, 2015c). This set of principles are accompanied by guidelines set out in the ‘Sustainable Public Procurement Implementation Guidelines’, which provide advice on how to apply the principles in practice (UNEP, 2015c). The principles outlined are:

1. Good public procurement is sustainable public procurement.
2. SPP implementation needs leadership.
3. SPP contributes to broad policy goals.
4. SPP engages all stakeholders.
5. SPP implementation is based on sound organisational management principles.
6. SPP monitors its outcomes and results.

The principles highlighted above are very similar to those promoted by the United Nations Development Programme (UNDP, n.d.).

Part of the 10YFP Sustainability Programme’s remit is to also enable a shift to a more circular economy, of which SPP is seen as a catalyst for this change, particularly through the setting of criteria that acknowledge circular economy aspects. The European Commission is said to be leading the way in adopting these principles in its own procurement activities (Yaker, 2016).

The Paris Climate Agreement

The Paris Climate Agreement reached in December 2015 and likely to be ratified by the end of 2016 or early 2017 is a significant global commitment to address global climate change. The agreement requires substantial global, national and sub-national action to hold the “increase in global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels” and to “achieve a balance between anthropocentric emission by sources and removals by sinks of greenhouse gases in the second half of this century” (United Nations [UN], 2015). The 2°C and 1.5°C targets mentioned in the Paris Agreement will be achieved through Nationally Determined Contributions (NDCs) which although nationally determined, will be subject to strong international review at the individual and collective level. There is an expectation that the NDCs will become more precise over time and that given that the current commitments are insufficient to achieve the 2°C target there is likely to be substantial pressure to make the NDCs more ambitious. This in turn will require that the NDCs be considered in national strategies, policies and regulation. Public Procurement is no exception and unless adjustments are made in the way that the public sector procures goods and services, governments are likely to continue investing in carbon-intensive products and services. This will compromise their ability to meet the NDCs at a country level while also missing opportunities to support innovation within their national economies and thus enhance exports into global markets increasingly focused on low-carbon products and services.
Global Financial Crisis and Green Economy

The 2008 global financial crisis threatened economic growth, job creation and development aspirations in both developed and developing countries. At the same time, global climate change and ongoing destruction of ecosystems made it clear that energy, industrial production and consumption patterns required substantial reorientation while simultaneously addressing the global financial and developmental challenges. It was in this context that global leaders sought to reinvigorate economic growth while simultaneously addressing energy issues, climate change and broader environmental challenges. The United Nations Environment Programme at the time called for a Global Green New Deal (GGND) that encouraged governments to support economic transformations that created green jobs and promoted sustainable and inclusive growth (Kaggwa et al., 2013). These aspirations were captured in the term ‘Green Economy’ and many countries around the world, including South Africa, developed green economic policies or agreements that supported “systems of economic activity related to the production, distribution and consumption of goods and services that result in improved human well-being over the long term, while not exposing future generations to significant environmental risks or ecological scarcities” (DEA website).

Consolidation of Global Drivers

It is evident from the above that there are a number of drivers at the global level supporting a move towards green supply chain management in the public sector. In the context of environmental drivers such as climate change, inefficient and polluting use of resources and the resultant degradation of ecological life-support systems, a range of economic, social, political and technological drivers for green SCM have emerged in both the business and public sectors. Economic drivers include the need to support innovation and emerging businesses to compete in increasingly environmentally aware and constrained global and local markets. Socially, there is the need to develop new job opportunities that are decoupled from inefficient resource use. This in turn will require support for new forms of technology that enable sustainable production and consumption through innovations such as the circular economy and renewable energy. All of this is made more urgent by political drivers at the global level (e.g. the SDGs and the Paris Agreement) which will require new policies at the national and sub-national levels. Green public SCM is seen as a key response to stimulate and support innovation and change towards a green economy, economic resilience and sustainable job creation in a competitive global economy.

Barriers

In the face of these many and powerful international drivers, it is useful to recognise some of the barriers governments have faced in implementing sustainable supply chain management. The reason is that for those involved in the procurement of sustainable goods, skills development strategies will need to acknowledge these barriers and identify solutions during the supply chain management processes.

The most commonly cited barriers and difficulties for implementation identified globally, included:

- Financial constraints – this barrier is multifaceted and may be the perception that ‘greener’ products are more expensive; or may on occasion be that the ‘greener’ product is more expensive; or it may be that the way in which the costing is done will determine whether the ‘greener’ product is more or less expensive than alternatives (Brammer & Walker, 2007; Casier et al., 2015; Jonk et al., 2006; Steurer et al., 2007). ‘Lowest cost’ is often the deciding factor in procurement but it is far from clear how this cost should be calculated (De Groene Zaak, 2015; Ministry of Finance, 2015).
Managerial and structural – such as lack of support from senior managers or explicit mandates to procure ‘green’ products (Brammer & Walker, 2007; UNEP, 2015a); lack of capacity to monitor and regulate compliance (Nelson et al., 2015); absence of leadership (Ministry of Finance, 2015); ineffective management (Ko, 2015) and corruption (Ministry of Finance, 2015).

Lack of transparency – this is highlighted as an issue in Latin America, where the setting of legislation to support transparent selection is recommended as a solution (Casier et al., 2015).

Requirements and specifications – these are often not met for some products, or standards are below average or outdated e.g. as noted by the Dutch government (De Groene Zaak, 2015).

Shortage of green products (Ko, 2015).

Lack of specialised procurement functions – and the capacity associated with this role (see below) (Ministry of Finance, 2015).

Information, knowledge and training – such as a lack of information on suitable products or opportunities (Steurer et al., 2007); unfounded perceptions of poor quality associated with ‘green’ products (Brammer & Walker, 2007); poor understanding of regulations and laws (Zhu et al., 2013); or lack of knowledge of risk, climate change and environmental and social impact associated with products and services (UNEP, 2015c; Zhu et al., 2013).

Financial Implications of Green SCM

The financial implications of green public SCM are complex and multifaceted. Essentially, value for money considers both the costs and benefits associated with a particular good or service. In a cost-benefit analysis, the costs and benefits of a procurement decision are weighted against those of alternative courses of action within the same period. Considering the costs and benefits over the same period is extremely important since purchase, use and end of life costs may vary substantially from one product to another. This has led to the use of life cycle costing rather than a simple consideration of purchase cost. Many green products have reduced operational and disposal costs relative to non-green products due to their lower energy and resource use and end of life recyclability. Most studies on cost-benefit analysis related to green SCM have focused on quantifiable monetary amounts and increasingly on CO₂ emissions. The following examples from European studies give an indication of the potential benefits to be gained from green public SCM processes (European Commission, n.d.).

- The City of Vienna saved €44.4 million and over 100,000 tonnes of CO₂ between 2004 and 2007 through its EcoBuy programme.
- Three million tonnes of CO₂ would be saved in the Netherlands alone if all Dutch public authorities applied the national Sustainable Public Procurement criteria, which include green criteria. Public sector energy consumption would be reduced by 10%.
- If all IT purchases in Europe followed the example of Copenhagen City Council and the Swedish Administrative Development Agency, energy consumption would be cut by around 30 terawatt hours – roughly the equivalent of four nuclear reactors.

Some similar examples from South Africa include (see Appendix 3 for further information):

- The retrofitting of traffic lights with LED lights in Cape Town required an initial investment of R29 million and has resulted in a saving of R11 million per year. The project thus paid itself off in three years in addition to reducing CO₂ emissions by 7,384 tons of carbon per annum.
- The centralised purchase of alternative fuel vehicles by DEA and Johannesburg Metrobus has cut the life cycle vehicle costs by 10-20% with alternative fuel buses now being offered at costs that
are equal to or below diesel buses after five years in operation. In addition, alternative fuel buses can reduce greenhouse gas emissions by over 70% and this emerging industry has the potential to create new manufacturing jobs in the country.

More recently, researchers and practitioners in the public, non-governmental and private sectors have suggested that, in addition to the direct quantifiable costs and benefits, a wide range of social and environmental costs and benefits also need to be considered when assessing value creation. These include job creation, health, food security, resilience, support for emerging businesses, etc. In order to account for these very important costs and benefits or value creation new metrics such as Social Return on Investment are being developed and used. Appendix 4 provides a brief description of this important metric and provides some examples of the social, environmental and financial benefits of green public SCM initiatives in South Africa.

**Enabling Mechanisms and Processes (Global Examples)**

A number of countries have put in place governance structures or frameworks to oversee, develop policies and principles and maintain and monitor a country’s green supply chain management within the public sector. This section summarises some leading examples within this field and provides extensive references for those readers wishing to delve more deeply into global best practice. For this study, it is important to note that the insights derived from the global examples inform and affirm many of the insights developed through the South African case studies conducted as part of this review and reported on below.

Many countries have put in place specific policies and strategies to support green SCM in the Public Sector. Some countries have also set up and reported on relatively large and focused structures to support green supply chain management in the public sector. For example, the UK set up a Sustainable Procurement Taskforce (Department of Environment Affairs, Forestry & Rural Affairs [DEFRA], 2007), and Canada established an Office of Greening Government Operations (Brammer & Walker, 2007). A number of examples exist where policies and initiatives are accompanied by guidance or toolkits to facilitate adoption, set targets, provide guidance on setting up policies, and put processes in place to plan for sustainable procurement (e.g. working groups). These include Canada’s decision making toolkit and checklist (Public Works & Government Services, 2014), the European Commission’s handbook on green public procurement (European Commission, 2011) or the US Sustainable Purchasing Leadership Council’s ‘ Guidance for Leadership in Sustainable Purchasing’ (SPLC, 2014). Technical guidance, for example UNEP’s ‘Using Product-Service Systems to Enhance Public Procurement’ (UNEP, 2015c) aims to shift the common business model for purchasing from the ‘selling of products’ to ‘the selling of services’, thereby capturing the notion of a circular economy. This model sees product costs in their life cycle entirety and as ‘utilities’ and not as owned products (Yaker, 2016).

The Sustainable Procurement Leadership Council provides an excellent overview and guidance to support the mechanisms and processes for setting up a comprehensive green SCM programme in the public sector. It recognises that organisations and public bodies will start from different points on the journey, with the process illustrated in Figure 2 below able to accommodate different levels of entry (SPLC, 2014).
In its guidance for setting up sustainable procurement programmes, the Sustainable Procurement Leadership Council (SPLC, 2014) provides comprehensive and best-practice guidance and criteria for the selection of a variety of goods and services commonly procured by public bodies. These are included in Appendix 3 and will be important for informing the development of specifications within procurement processes.
Insights into Key Role Players and Skills Requirements from Global Study

Given this study’s focus on occupationally directed skills development, it was considered important to identify within the global literature comment on the key occupations or job titles related to green SCM in the public sector. This proved challenging as many reports such as UNEP’s 10YFP principles and guidance for SPP (UNEP, 2015c) and the US Sustainable Procurement Leadership Programme (SPLC, 2014) suggest that there is no one set of occupations or job titles that oversee sustainable public procurement. However, certain job titles, responsibilities and occupations were listed in some cases in the literature as having a particular role to play in the planning, development and/or implementation of sustainable procurement. These are included below while the more specific skills identified in the international literature are included in the skills tables at the end of this report.

- **Policy makers and politicians:**
  - UNEP, in its commentary on the successful implementation of the SDGs, particularly highlights the role of prime ministers, presidents and government ministers as critical in ensuring 'good governance’ (aka sustainable procurement)(Nelson et al., 2015; UNEP, 2015c).
  - Senior leadership (SPLC, 2014) and managerial support is critical for setting and meeting SPP targets (Jonk et al., 2006), and needs to be strengthened (Defra, 2007).
  - The IISD, in their study on SPP in Latin America, recommend identifying an SPP champion within government, and suggest this role should sit within either the Ministries of Finance, Planning or Environment (Casier et al., 2015).

- **Public accountants:**
  - If not responsible for SPP, then this role should be a key stakeholder in implementation (Casier et al., 2015).

- **Procurement and purchasing officers**, such as:
  - Chief procurement officer (SPLC, 2014).
  - Purchasing or procurement officers (Casier et al., 2015; Jonk et al., 2006; SPLC, 2014; UNEP, 2015c).

- **Product specifiers or environmental consultants:**
  - These could sit within manufacturers, suppliers and contractors (SPLC, 2014; UNEP, 2015c) or as specialist environmental consultants who have specific product or service knowledge and technical skills (Tessema & Marsille, 2009), such as to undertake life cycle assessment and costings analyses (ESMAP, 2012).

- **Sustainable procurement trainers**
  - These are often either consultants or not-for-profit organisations (Tessema & Marsille, 2009).

The term ‘procurers’ was regularly cited in the literature as the key personnel in the procurement of sustainable goods, which suggests a role of importance. However, in contradiction to this assumption of importance, the IISD noted that these individuals often only hold ‘administrative’ positions and are seldom recognised as a profession (Casier et al., 2015). This shift from an administrative to a more strategic role is seen as a significant challenge for green public SCM (Schuster, 2013; Taipale, 2016). This finding is strongly supported in the South African case studies below.
The South African Context for Green Public SCM

National Initiatives and Drivers

The National Development Plan (NPC, 2012) sets out South Africa’s development aspirations over the medium term and in particular "aims to eliminate poverty and reduce inequality by 2030". In order to achieve these aims, the NDP outlines a plan to accelerate economic growth in ways that benefit all South Africans. Chapter 5 of the NDP, focusing on the environment in which this inclusive economic growth will take place, notes that the country needs to “protect the natural environment in all respects, leaving subsequent generations with at least an endowment of at least equal value” (NPC, 2012). The National Strategy for Sustainable Development and Action Plan (NSSD I) further highlights the importance of maintaining healthy ecosystems and natural resources as the preconditions for human well-being (see Figure 3). It goes on to state that “sustainable development implies the selection and implementation of a development option, which allows for appropriate and justifiable social and economic goals to be achieved, based on the meeting of basic needs and equity, without compromising the natural system on which it is based” (Department of Environmental Affairs [DEA], 2011a). The NDP, the New Growth Path, the Green Economy Accord and a number of other policies and guidelines within South Africa therefore conclude that “shifting to a green economy, including to a low-carbon economy, is shifting to a more sustainable economic growth and development path in the long term, and therefore has implications for choices about the structure of the economy” (NPC, 2012).

Social and environmental pressure groups have for many years argued that the cost of a particular item extends far beyond the purchase price. The indirect social and environmental costs linked to the production (e.g. minimum wage or pollution), use (e.g. inefficient energy use) and disposal (e.g. exposure to risk through toxic waste) of products are important costs to consider in the life cycle of a product. Similarly, the cost of purchase, often the overriding consideration in the procurement process, is not the only, or in many instances, the most significant, cost associated with a particular purchase. In seeking to modernise the public procurement system and align it with international best practice, the South African government introduced a number of reforms in early 2000. These included: the Supply Chain Management Policy (2003), the Regulatory Framework for Supply Chain Management (2003) and the Supply Chain Management Guide for Accounting Officers/Authorities (2004). In addition to decentralising procurement and seeking to address inefficiencies, the new legislation and guidelines extended the focus of public procurement beyond acquisition and into the key processes of demand, logistics, use and disposal.

Figure 4 outlines these key processes:
• Demand Management includes a consideration of the links between government plans and budgets on the one hand and the specifications of the goods and services on the other.
• Acquisition Management includes the approach to the market, the review of the bid documentation and the contracting with the preferred bidder.
• Logistics Management includes the use, storage, distribution and replenishment of goods/ inventory
Disposal Management includes a range of end-of-life considerations such as potential to re-use, refurbish or dispose.

Thus, the principle of cost-effectiveness that is so central to procurement systems, and is explicitly mentioned in our Constitution, is increasingly understood as cost-effectiveness or value for money across the life cycle of assets and not simply the cost of purchase.

The South African Constitution (Section 217 (1)) requires that when government contracts for goods and services, it must do so in a way which is fair, equitable, transparent, competitive and cost-effective. In addition, the Constitution makes provision for “categories of preference in the allocation of contracts” (Section 217(2a)). To date, the key focus of preferential procurement has been on “the protection or advancement of persons, or categories of persons, disadvantaged by unfair discrimination” (Section 217(2b)). Finally, subsection 3 goes on to require that national legislation prescribe a framework within which preferential procurement policy must be implemented. As has been noted, the Constitutional provision to explicitly use procurement as a policy tool is not common practice and creates a concrete legislative space for Green Public Supply Chain Management elsewhere (Turley & Perera, 2014).

The Public Finance Management Act (PFMA) of 1999 governs financial management practices in South Africa, and establishes a regulatory framework for supply chain management within national and provincial departments, as well as for state owned enterprises (SOEs). The PFMA also makes provision for the use of procurement as a policy tool and reiterates the defining features of an effective procurement system as “fair, equitable, transparent, competitive and cost-effective”.

The Municipal Finance Management Act (MFMA, 2003) establishes a regulatory framework for supply chain management, within municipalities and municipal entities. Significantly, the MFMA requires each municipality to have and implement its own SCM policy. Interestingly, in addition to the constitutional requirements of the SCM being fair, equitable, transparent, competitive and cost-effective, section 112(ii) of the MFMA requires supply chain management policy to assess bids based on best value for money.
A number of authors (see Turley & Perera, 2014) have drawn attention to the fact that the use of the terms “cost effective” as opposed to, for example, “lowest purchase price” appears to leave policy space for procuring goods and services that deliver life cycle value. Similarly, the explicit requirement in the MFMA to assess bids on “value for money” opens space for a dialogue on value for money at the time of purchase relative to value for money across a life cycle analysis. Taken along with the National Treasury policy and guidelines on Supply Chain Management mentioned earlier in this review, and their focus on the full chain of events from demand to disposal, there appears to be substantial policy space for both Green and Sustainable Public Supply Chain Management.

Further space for the inclusion of environmental considerations is created by the two-step process under which all bids are evaluated (PPPFA, 2011). The first step in the evaluation process is a functionality assessment and the second step is the consideration of price (80-90%) and B-BBEE points (20-10%). In most instances, failure to pass the functionality assessment will bar the bidder from proceeding to the price and B-BBEE assessment. The functionality assessment creates a space for procuring authorities to think through the requirements from demand to disposal (this could thus include criteria such as durability, ability to refurbish or recycle, or energy efficiency). It could also leave open spaces for innovation if the functionality requirements are open enough to allow for alternative ways of meeting the demand identified by the procuring authority. Thus, for example, it may be possible to meet a demand for mobility through a car share option rather than the purchase of individual vehicles. These kinds of innovation will require careful articulation in the request for proposals, the evaluation of proposals and the monitoring and evaluation of supplier performance. Given the complexity of supply chain management, particularly in a country where many of the state’s functions are outsourced, government has identified the need to reform and improve the procurement system. National Treasury and, in particular, the Office of the Chief Procurement Officer (OCPO) are currently in the process of reviewing the capacity of the state to modernise the public supply chain management processes. This includes the development of a new Public Procurement Bill which will have a number of implications for the roles, responsibilities, occupations and skills required for SCM and thus for green SCM in South Africa.

It must be noted that a number of national, provincial and local government structures have recognised that shifting to a green economy will contribute towards a more sustainable economic and social development path in the long term. Some of these government structures have introduced green SCM processes to support this shift to a green economy. Examples include: the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP); the DEA’s head office in Pretoria that achieved a high green building rating as a result of specifications in the procurement process; the DEA’s electric car initiative; the Western Cape and Gauteng provinces’ inclusion of environmental functionality requirements in their respective green strategic programmes; and the introduction of green procurement requirements in a number of metros including Tshwane, Nelson Mandela Bay and City of Cape Town. (See Appendix 4 for examples of Green Public SCM in South Africa.) These initiatives indicate that progressive government departments are recognising the importance of green SCM and developing innovative processes within the legislative frameworks in South Africa. These and other examples provide useful case studies for consideration and learning in the organisational collaboration and capacity building initiatives recommended at the end of this report.
National roles, responsibilities, occupations and skills

Within the broad ambit of the Constitution, it is the Public Finance Management Act (PFMA) that creates the key roles and responsibilities related to public SCM. The PFMA created the legislative framework for a very substantial decentralisation of public procurement in South Africa. In particular, the PFMA states that the Head of Department of any public department, trading entity or constitutional institution is also the Accounting Officer (AO). The duties of the Accounting Officer are outlined in sections 38 to 43 of the PFMA and include clauses that make the Accounting Officer fully responsible and accountable for any expenditures relating to SCM within their line of responsibility. In order to support the Accounting Officers and to ensure some uniformity National Treasury has developed the Supply Chain Management Policy (2003) and national policy guidelines. It is within the parameters provided by these policies, regulations and guidelines that each Accounting Officer is responsible for the efficient, effective, economical, transparent, competitive and cost-effective use of financial resources, including the setting up of appropriate systems of procurement, financial management, risk management and internal control.

The PFMA allows Accounting Officers to delegate any of the powers entrusted to them. However, the PFMA requires that the delegation must be in writing and does not divest the AO of the responsibility concerning the exercise of the delegated power. This may result in the procurement activities being delegated quite far down within a department e.g. the Head of Department delegating to a Head of Procurement who may delegate to individual procurement officers. One of the requirements within this delegation process is that the person to whom a particular responsibility is delegated, must have the necessary skills to perform the delegated tasks. This delegation is made extremely complex when one considers that National Treasury (2015) defines SCM as “the design, planning, execution, control, and monitoring of supply chain activities in the delivery of goods and services, with the objective of creating net value and providing oversight and co-ordination of information and finances within the supply chain”. This is an extremely broad area of activity and requires the collaboration of a number of functions both within and beyond a particular unit within an organisation. Despite the broad understanding of SCM contained in the legislation and guidelines, SCM is still often treated as a discrete function (managing the tender process) thus creating a disconnect between the act of acquisition (procurement) and the extended supply chain (PSETA, 2014: 111). The perception of which skills, jobs and occupations are required for SCM in the public sector will be strongly influenced by the range of activities that a particular manager or human resource department considers part of the supply chain.

The delegation of supply chain management functions within the public sector and the resultant decentralisation of the SCM processes has resulted in managers at many different levels performing one or more aspects of SCM. This is a substantial challenge in the context of there being a 15.6% vacancy rate in the senior manager sector and “high” vacancy rate for middle managers according to the Persal database (cited in the PSETA Sector Skills Plan [SSP], 2014). The SSP goes on to argue that not only is the vacancy rate high but the operational (as opposed to the managerial) competency and skill of many senior managers is also weak. The Chief Procurement Officer in the National Treasury is reported as noting that one of the reasons that skills in the area of public procurement have not been classified as “scarce” is because senior management in the public sector has not fully appreciated that public procurement is a highly complex and technically demanding task that requires specialist training. (Interview with the OCPO reported in PSETA SSP, 2014.)

At present, a relatively narrow band of occupations are identified as being directly linked to supply chain management. These include Contract Managers (OFO 121904), Procurement Officers (332302), Supply Chain Practitioner (333905), Cost and Management Accountants (241101), Physical Asset Manager (121903) and Physical Asset Practitioner (333911). Some of these, such as the Supply Chain Practitioner
and the Contract Manager, are considered both scarce and critical skills (PSETA, 2014). Given the extended view of Supply Chain Management supported by National Treasury as well as the need to develop demand specifications, functionality, use guidelines, end-of-life options and responsible disposal, if South Africa is to support its sustainable development aspirations through greener public SCM, it is evident that a number of other occupations will need to be identified as part of public SCM. Some of these occupations may not yet exist given the emergent nature of environmental and broader sustainability issues. A broader range of occupations and skills are identified and articulated at the end of this review based on the strategic areas of activity identified both within the literature reviews above and the case studies below.

In order to better understand current practices within the public sector supply chain management with regards green SCM, two case studies were conducted as part of this review. These case studies are reported on in detail below and provide a rich and detailed context for the subsequent insights, conclusions and recommendations.
Case Studies

Case Study 1: The Department of Environmental Affairs

This case study was based on a review of on-line information and documents supplied by the Department of Environmental Affairs (DEA). This literature was supplemented by interviews with three Chief Directors and the Head of Human Resources.

The Department of Environmental Affairs is a national government department, which is mandated to ensure an environment that is not harmful to South African citizens’ health or well-being, and to have the environment protected for the benefit of present and future generations. To this end, the department provides leadership in environmental management, conservation and protection towards sustainability for the benefit of South Africans and the global community. An objective of the Department is to radically transform their approach to environmental protection, while also balancing it with socio-economic development (DEA, 2016).

Employment and expenditure

The Department has its headquarters in Pretoria, with a satellite office in Cape Town. As of December 2015, a total of 3,336 people were employed by the Department (DEA, 2016).

The Department’s total expenditure for 2015/16 was just under R6,000 million (DEA, 2016). Table 2 shows the budget split by programme. At almost 60%, Environmental Programmes (e.g. Working for Water etc.) have the largest budget. This would include, for example, the purchase of vehicles for the programmes. The Department estimates its budget will increase to R6,700 million by 2018/19 (DEA, 2016), an increase of 14% on 2015/16.

Table 2: Summary of Department’s expenditure, by Programme

<table>
<thead>
<tr>
<th>Programme</th>
<th>Spend (R000s)</th>
<th>% of total spend*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Administration</td>
<td>870,184</td>
<td>15%</td>
</tr>
<tr>
<td>2. Legal, Authorisations and Compliance Enforcement</td>
<td>133,921</td>
<td>2%</td>
</tr>
<tr>
<td>3. Oceans and Coasts</td>
<td>399,529</td>
<td>8%</td>
</tr>
<tr>
<td>4. Climate Change and Air Quality Management</td>
<td>240,149</td>
<td>4%</td>
</tr>
<tr>
<td>5. Biodiversity and Conservation</td>
<td>730,600</td>
<td>12%</td>
</tr>
<tr>
<td>6. Environmental Programmes</td>
<td>3,489,633</td>
<td>59%</td>
</tr>
<tr>
<td>7. Chemicals and Waste Management</td>
<td>79,281</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>5,943,297</td>
<td></td>
</tr>
</tbody>
</table>

Source: DEA, 2016

Note: Percentages have been rounded.
From a procurement perspective the Department draws on the services of approximately 100,000 suppliers for products and services to the value of R1.4bn per annum. This can range from pot plants for offices, pens and pencils to scientific research ships.

**Supply Chain Management responsibilities within the department**

Prior to identifying the core occupations (actors) and occupational networks with SCM responsibilities, it is useful to provide an overarching context of the Department’s structure (see Figure 3).

The **Director General** is in effect the ‘Chief Executive Officer’. Within the procurement structure, this job title is also referred to as the **Accounting Officer**. A number of units, a Chief Directorate and seven branches report into the Director General. Each branch is managed by a **Deputy-Director General (DDG)**. A number of programmes and functions are run within these units, directorates and branches, with each managed by either **Chief Directors** or **Directors**.

![Figure 5: Department of Environmental Affairs organisational structure](Source: DEA, 2016)
Each function, unit or branch has a defined purpose and objectives. The following section contains a summary of the work related to SCM and green SCM within the DEA. (Appendix 6 provides more detail on the purposes and objectives of particular functions within DEA with particular reference to supply chain management.)

A key branch with regard to the broader functioning of the DEA is the office of the COO. This branch is mandated to “provide leadership, strategic centralised administration, executive support, corporate services and, facilitate effective cooperative governance, international relations and environmental education and awareness” (DEA, 2016). Within this broad mandate are a number of strategic objectives including human capacity management and enhancing the knowledge, science and policy interface. These objectives provide important openings for ensuring that internal policies are aligned to national and global strategies and drivers while also requiring that the office of the COO guide and support recruitment and training aligned to more strategic SCM. More specifically, the Chief Operating Officer unit is responsible for the procurement of goods for the Department and is therefore strategic for the implementation of SCM throughout the Department. Key responsibilities of this unit related to SCM include strategic business planning, the provision of sound corporate governance, oversight of projects implemented by third parties and the support for organisational performance management. As will become evident below, the Facilities Management unit within the office of the COO plays a very significant role in SCM within the DEA.

Another key unit in terms of SCM within the DEA is Financial Management Services. This unit has as a strategic objective the rendering of effective and efficient financial, budgeting and supply chain management services to the Accounting Officer (Director General). It is thus within this unit, that supply chain management (SCM) services for the Department are planned, implemented and monitored.

Many of the other units, branches and directorates within the DEA have strategic objectives that could inform and be achieved better by green public SCM. By way of example, the Climate Change and Air Quality Management branch’s purpose includes leading, supporting, informing monitoring and reporting on national and provincial responses to climate change. This purpose creates a mandate for this branch to support departmental colleagues in making informed decisions and bid specifications related to CO₂ emissions of products such as vehicles.

Similarly, the Chemicals and Waste Management branch has a mandate to ensure that chemicals and waste management policies and legislation are implemented and enforced in compliance with chemicals and waste management authorisations, directives and agreements. This enables the branch to inform the development of criteria that aim to facilitate the purchase of products used by the Department and its associated projects. Of particular relevance to SCM is one of their objectives:

*To lead the development of national policies, strategies, legislation, norms and standards and build capacity in government, industry and civil society to respond to the challenges of pollution resulting from poor general waste management while also contributing towards the provision of basic waste services to all citizens of South Africa.* (DEA, 2016)

This objective specifically highlights this branch’s role in developing standards. However, it was not clear from documentation, or the interviews, whether this mandate is being put into effect. Regardless, the Chemicals and Waste Management branch should be advising on SCM purchasing criteria for ‘green’ products e.g. cleaning products with no or reduced hazardous chemical ingredients. For example, the branch has developed a PCB phase-out plan for municipalities, which was finalised and implemented this year (DEA, 2016). This initiative clearly illustrates the role the Department has in using its expert
knowledge in a subject to develop selection criteria for other national, provincial and local governments when purchasing hazardous chemicals.

**Legislative and operational supply chain management procedures**

In order for the Department to function and execute its mandate, it is guided by a variety of legislative policies and regulations. Some of these are highlighted below, in particular those that effect SCM, and the greening thereof. This legislation in turn informs the Department’s values and *modus operandi*, and as such implementation of SCM processes adopted by the Department, which are discussed in more detail towards the latter half of this section.

**Drivers to operate**

In its *Annual Performance Review 2016/17* (DEA, 2016), the DEA reiterates its core business function and mandate is derived from the *Constitution of the Republic of South Africa*, which guarantees everyone the right to an environment that is not harmful to their health or well-being; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:

- Prevent pollution and ecological degradation,
- Promote conservation, and
- Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. (DEA, 2016)

Parliament has put in place various environmental legislation and regulations which, aside from the Constitution, guide the work of the Department. An extensive list of these legal drivers are provided in the *Annual Performance Plan 2016/17* (DEA, 2016, pp. 10-12). A selection of key policy and legislation related to green public procurement is provided in Appendix 7.

At a national level the Department also acknowledges its role as a ‘service provider’ to other government departments. This could include sustainable SCM guidance within this function, as the Department specifically states two of its inter-departmental services as:

- Promoting the incorporation of environmental objectives into strategic planning instruments at national, provincial and local government level, and
- Facilitating the development and implementation of the National Greening Programme.

Both these services are pertinent to the facilitation and encouragement of green SCM to be adopted throughout the South African government’s departments. The above two services provide opportunities for the DEA to support and promote green SCM at all levels of government, and to encourage the purchasing of sustainable products which feed into the *National Greening 2010 Framework* (DEA, 2010). While this document is six years old, it is currently the only framework dealing with greening for the Department. Given the emergence and significance of national activities, frameworks and plans in support of transitioning to a greener economy, it is recommended that a revision or replacement of this framework is undertaken that highlights the potential contribution of green SCM in the public sector.
Supply chain management procedures

The Department is involved in two types of procurement and/or supply chain management:

1. **Procurement of goods and services for use within and by the Department** e.g. the purchase of cleaning products for Department offices, or staff vehicles, and
2. **Procurement of external (or contracted) service providers to deliver or implement a service, programme or project** e.g. the appointment of service providers to support the Department with conducting executive coaching for senior managers (DEA, 2016).

The Department’s **Directorate of Supply Chain Management (SCM)** within the Financial Management Services Unit manages all procurement activities for products and services required by the Department. Available tender opportunities are published on the Department’s website. Received bids are rated on merit and follow strict evaluation procedures.

Scoring models and selection criteria are used to evaluate bids and select products and services. Scoring models apply the evaluation criteria identified in the procurement documents to competing bids (DEA, 2011b). It is within the scoring models and evaluation criteria that detailed information on the environmental and social impacts of a product or service can be acknowledged and considered.

According to a Chief Director within the DEA, the SCM criteria are developed by either a branch Deputy Director General (DDG) or a Bid Specification Committee which is appointed by the DDG. This Committee can include one to two individuals from the Branch requesting the procurement of a product or service, in addition to, if required by the DDG, an external specialist to provide advice on the selection criteria. This individual could be from within the Department (another Branch) or associated Government body, such as the CSIR.

It is therefore within the control of the DDG and the Bid Specification Committee to ensure that environmental and social criteria are included in the evaluation criteria. The Department’s SCM Policy is devoid of any instruction to include environmental or social criteria into the evaluation and selection process. A recommendation going forward would be to include this element in the ‘Planning’ and ‘Acquisition’ elements of the SCM (see Figure 2).

What did emerge clearly from the interviews is that there are differing interpretations of where the responsibility for defining procurement criteria, specifications and functionality lay when work was contracted to implementing agents or service providers. Some interviewees suggested that this responsibility remained with the DDG while others suggested that it lay with the implementing agents or service providers.

The process and key actors

An overview of the Department’s SCM process is provided in Figure 4, with key actors within the Department highlighted alongside each part of the process. This mapping and the further detail on the stages provided below the diagram are important for identifying the key actors, occupations and related skills.
A number of the components (or elements) of the stages illustrated above could directly impact on or inform the implementation of sustainable SCM. Specific elements identified in the Department’s SCM policy (DEA, 2011b) that could incorporate or inform sustainable SCM are highlighted below.

**Demand management**

In an interview it was noted that this was the first stage of the SCM process. At the beginning of the Department’s financial year, each departmental branch submits a **procurement plan**. This plan outlines...
the different programmes to be implemented during the coming year, and any procurement activities associated with these activities e.g. the purchase of vehicles for a programme. These plans are submitted to the Chief Directorate of SCM, and signed off by the Director General by the end April of each year.

During the year, when a Branch Deputy Director General (DDG) needs to procure a product or service, they submit their request to the Director General for approval. According to the departmental SCM policy, two specific elements that have implications for sustainability should be incorporated into the Department’s SCM processes. There are the requirements that:

- **Specifications are precisely determined.** This should include specifications which incorporate environmental and social considerations, and
- **The supplying industries have been analysed.** It is not clear how this element is applied by the Department. From a sustainability point of view, it should incorporate an investigation into a suppliers ethical and environmental practices.

**Acquisition management (procurement)**

Once the Director General has approved the request, the Branch DDG appoints a **Bid Specification and Evaluation Committee**. The Committee is responsible for deciding on the **tender specification and selection criteria**. Once the specification has been finalised it is sent to the DDG for approval. The tender is then advertised for 21 days. Proposals submitted against the tender are received by the SCM Unit and recorded.

Proposals are sent to the Bid Specification and Evaluation Committee for **evaluation and selection**. Proposal are evaluated against the selection criteria, scored and recommendations are made for selection of a **preferred bidder**, with accompanying recommendations. These recommendations are sent to an **Adjudication Committee**, appointed by the Director General, to approve (or not) the selection of the preferred bidder. This Committee can approve awards of up to R10 million, which are then signed off by the Director General. Anything above R3.5 million is reported to the Auditor General and the National Treasury. The Legal Team is then drafted in to draw up the **contractual arrangements** with the supplier. This contract contains clear deliverables and procurement requirements.

The SCM Unit’s role in this process is to check the process adopted by the selection committee meets the various National Treasury regulations, the Public Finance Management Act (PFMA), Practice Notes and internal departmental policies.

Within this phase, it is vital that:

- the Evaluation and Adjudication committees have the necessary capacity to understand both the requirements and importance of environmental specifications and to consider them alongside other criteria when making their decisions.

**Disposal management**

Within this stage of the process, three specific elements are identified that should pertain to ensuring sustainability is incorporated into the Department’s SCM:

- Inspecting material for re-use,
- Determining a disposal strategy, and
- Executing the physical disposal process.
All three of these elements are strongly influenced by the initial selection of products as consideration related to sustainability in the initial selection will have significant implications for end-of-life options, such as use of a product for its full lifespan, recycling or reuse of the full product or components, and disposal.

Motor vehicles:
During the course of this study, information on the process for disposing motor vehicles was obtained. When vehicles reach 200,000 kms they are assumed to no longer be economically viable. When this limit is reached, all vehicles are checked. A list of vehicles meeting this limit are supplied to an appointed Disposal Committee, which informs and make recommendations to the Director General regarding the disposal of the vehicle(s). The Director General signs off approval for disposal, which includes obtaining a valuation for the vehicle(s) from second-hand garage dealers. The vehicles are then sold at auction.

What is evident from the disposal process adopted for motor vehicles is that longevity and other sustainability considerations such as extended producer responsibility are not built into the initial procurement specifications and thus do not inform the disposal process. If sustainable decisions were to be incorporated, the ‘true’ longevity of a vehicle should be considered in the purchasing and use phases. In addition, other business models, such as leasing or even ‘ride on demand’ could be considered as more sustainable options.

Insights from the DEA Case Study
The national Department of Environmental Affairs has a mandate to ensure that the environment in South Africa is not harmful to the health and well-being of its citizens and is protected for the benefit of present and future generations. This mandate is closely linked to strategic objectives related to strengthening the interface between knowledge, science and policy as well as using the specialist environmental knowledge within its branches to develop standards that respond to environmental challenges and opportunities. These standards could include, and or be incorporated into, environmental criteria, functionality requirements and specifications within supply chain management. This combination of mandate, purpose, strategic objectives and expertise in the environmental sector positions DEA as a logical ‘champion’ for the incorporation of green specifications into public SCM in South Africa. The example of the electric vehicle in Appendix 8 provides an insight into the kind of leadership and champion role within SCM.

During the interview process, it became apparent that sustainability and more narrowly, environmental considerations were not being routinely incorporated into SCM processes even within the DEA. The SCM processes identified and mapped through the case study interviews make it clear that this omission could be addressed at a number of different levels. Given the Department’s role of promoting the incorporation of environmental objectives into strategic planning instruments at national, provincial and local government levels, including the Department of Environmental Affairs, it is imperative that the DG of the DEA play an active and strategic role in terms of aligning public SCM with international and national environmental commitments, policies and legislation. In addition, the COO, with a responsibility for facilitating national sustainable development and greening policy processes and initiatives needs to have the knowledge and skills to support the DG in policy and strategy alignment with regard to green SCM in the public sector. The fact that the current SCM policy within the DEA does not stress
environmental and social considerations in selection and evaluation criteria suggests that this area requires some attention.

At a slightly lower level, it is important that the DDGs and Chief Directors who plan for and implement procurement activities need to be supported to incorporate environmental considerations into the demand, acquisition, use and disposal processes of SCM within the Department. Central to this process appears to be the inclusion of green criteria or functionality in the definition of bid specifications. As mentioned above, the DDGs are responsible for the appointment of the Bid Specification Committees and the composition of these committees would have a significant impact on the kinds and quality of specifications. Based on this insight it will also be important for the DDGs and Chief Directors to ensure that the bid specification committees have the necessary skills to build green criteria or functionality into the bid specifications. More specifically, skills need to be developed that ensure that detailed information on the environmental and social impacts of a product or service are considered within the scoring models and evaluation criteria. This is particularly important where services are being outsourced to service providers or implementing agents. It was unclear from the interviews where the responsibility for environmental criteria lay when services were outsourced and this will require some attention. As will become apparent in the second case study, this uncertainty on where the responsibility resides for the setting of specifications manifests at multiple levels within the public supply chain.

Case Study 2: National Treasury and Provincial Government

The second case study was based on a review of on-line information and documents supplied by PSETA and National Treasury. This literature was supplemented by interviews with two Chief Directors at National Treasury, two senior managers at the Chartered Institute of Purchasing and Supply (CIPS) in South Africa, a Deputy Manager of SCM in the Office of the Premier (KZN) and a Senior Manager of SCM in the provincial KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA).

This case study used the same two commodities (cleaning products and motor vehicles) to focus and deepen the insight into supply chain management at both the national treasury and provincial government levels. In each of the interviews, the supply chain processes associated with these commodities were discussed. The following extracts from the interviews provide a number of useful insights into some of the SCM processes, assumptions and challenges associated with these two commodities in terms of Green Public SCM and in strategic SCM more broadly.

Cleaning Products

The first transcript is from an interview with a Deputy Manager in the Department of SCM at KZN provincial level. This transcript relates to the procurement of cleaning chemicals within KZN provincial government at their head office in Pietermaritzburg.

“The government, particularly this office and most of the departments, is applying the same procedure. We do not buy the cleaning equipment ourselves. We hire a cleaning company through the tendering process. That company would hire the personnel and buy the cleaning equipment and chemicals. What we (SCM) are doing is that we only pay the company. What we are looking for at the end of the day is clean premises based on what we are paying. We are not involved in the purchase of the cleaning products.”
As the department, as supply chain management, we are at the receiving end. At the end of the day we implement. In the case of cleaning products Auxiliary Services puts in a request. They say that a contract is about to end and they forward us a requisition with the specifications. When the requisition gets to our department (SCM) we check that the specifications are not biased – that it is compliant with the Act – because public SCM is highly regulated, regulated by the Constitution Section 217. So I have to check that the specification is fair, equitable, transparent, competitive and cost-effective to avoid bias. Then SCM will prepare the documentation that will be compiled at the Bid Specification Committee (BSC). The BSC, which comprises six members, will meet to look at the request together with the specifications and ascertaining whether there is any bias and will compile the evaluation criteria. Part of evaluation criteria are looking at the Bargaining Council, good standing with taxes, then if you are fine with that, the BSC will approve. The committee will approve and will say that you can advertise and the Director General must sign off. Then you advertise to comply with 217 to comply with transparency. After 21 days, the PFMA or the Practice Notes prescribes for how long, you close the bid. Then when the documents come in, the supply chain management department do a preliminary evaluation and then pass on to another committee – the Bid Evaluation Committee. The BEC will evaluate based on the criteria that was sent by the BSC and they will do that and they will push their recommendations. Recommendations will be forwarded to the Bid Adjudication Committee (BAC) for their final approval. If they are not happy they will return with notes. But if happy then we need to advertise the intention to award. This creates an opportunity for appeal – if nobody appeals then go ahead and award."

“Our specifications are not going to that level. We ... I am seeing a gap now... our concern is around compliance. We are the body that regulates that. The company needs to be compliant with the Bargaining Council for Contract Cleaning Services Industry (BCCCI). I think the Council do educate the companies even to the level of chemicals that are harmful or environmentally unfriendly so we are banking on them to be compliant. So we hire the cleaning companies for three years. We are looking for clean premises.”

Further clarity was sought from a senior manager responsible for SCM in the KZN EDTEA and a Deputy Director within National Treasury.

At the departmental level (EDTEA), the senior manager in charge of procurement of goods and services who claimed to “control the entire process from demand to disposal” stated that “we outsource cleaning companies for our cleaning requirements. The terms of reference include that they provide cleaning materials. So our Department is not directly involved in purchasing cleaning materials.” The National Treasury respondent noted: “In cases like those the specification of that kind of outsourced service must include that the chemicals that they use must be environmentally friendly. Because most of our cleaning is outsourced the service providers decide on the cleaning materials. The only way to look at that is to include it into the specifications of the tender.”
Motor Vehicles

Again the first transcript is from a senior manager within the KZN provincial SCM department.

“Motor cars, even motor cars we do not buy them. It all emanates from one client – Auxiliary Services. With regards to cars we buy them through the national contract in fact as the provincial department we are participating through the national [transversal] contract. We [SCM] are not the custodians of this contract in the province. Because it is a national contract, it is sitting with the National Department of Transport. They cascade it to provincial transport so provincial transport is the custodian in the province. So if we want cars, or if another department wants cars, we do it through Auxiliary Services. They assess the need based on their client, that is us, and the number of people using cars. They put in a submission to the CFO and say we want to buy cars (how many and type) the CFO then looks at the budget and may prioritise based on the financial resources and then they forward that request to transport. Transport places an order on their behalf through the [transversal] contract. After they have delivered, transport will pay and then the department will reimburse the Provincial Department of Transport. But the maintenance is the responsibility of the individual departments. If it needs a service, then it is paid through the card and petrol is paid through the card.

[Interview question: At the beginning of that process who designs the specifications for the vehicles to be purchased?]
“Not SCM, SCM does not come in at all! Auxiliary Services draw up the specifications.

[Interview question: How do they decide?]“
“They do an exercise – they do not start from zero budget – usually it is circular we have condemned seven cars, two that was 4x4, two sedans and one truck – sometimes they just replace. If there is a dire need for another type of car, then it is possible ... for example, if they have condemned a Polo they replace with a Corolla and that is done at Auxiliary Services level and they submit based on transversal contract.

The KZN EDTEA senior manager noted that:
“Transport does not fall under my control but the CFO. As far as I’m aware there is a transport plan developed which is approved by the Accounting Officer. More detail can be obtained from the CFO. National Treasury determines the criteria for vehicles that are on the contract. Departmentally, the only criteria that would be discussed is what type of vehicles from the contract will be purchased and why.”

[Interview question: What environmental and social risks are considered, and how are these considered?]“
“Not aware”

[Interview question: Who do you use to develop selection criteria e.g. internal/ external experts?]“
“Need to consult National Treasury.”

[Interview question: Are there any incentives/ legislation/ policies for using environmental and social criteria?]“
“Need to consult National Treasury.”
The National Treasury respondent provided the following insights.

[Interview question: Who is drawing up the specifications for the vehicles that are being purchased at the provincial level?]

“I would like think that the bid committees sit down and put together specifications. I just don’t think that they are doing it. Nowhere near the level that private sector is doing.”

[Interview question: Who decides strategically on which and how many vehicles are purchased?]

“I think that the National Department of Transport has a policy on who and at what level and what kind of cars. I wouldn’t be able give you the details of that process. I think that that is about a R5-6 billion spend area each year. Although we do the contract centrally, the decision making is still decentralised. I don’t know on what basis they decide which cars are obtained by whom.

It could be that the more fuel efficient cars weren’t on the contract in the past and it should be considered to be on the transversal contract in the future. It is very valid what you are saying – nobody seems to be responsible for reviewing the environmental impact of the motor vehicles. It is more a focus on what was there in the past, what has reached end of life and therefore what is needed for the following year.”

Two brief further points related to the case studies are captured below.

One of the National Treasury respondents noted:

“The specifications for BBBEE compliance are quite good and the specifications related to local procurement are quite developed for some commodities. However, the specifications are not really drawn up centrally. Having said that, it is one of the objectives of my unit to look at those kinds of commodities [cleaning products and motor vehicles] and standardise the specifications. We have done it for about 44 medical equipment items. Now going into another round of medical equipment. But we are such a small unit that we will not get to everything in a short time. If we do go into other areas as we have in medical equipment, it may be accommodation and mobile communication.”

Another National Treasury respondent in a separate interview highlighted the complexity of drawing up national specifications:

“like cleaning products ... every single product is different and has different implications for how it is sourced, or manufactured and how it is used and disposed of so it is not easy to regulate through some kind of blanket standard or regulation. It almost has to be product specific. So that is a long road and it is complex.”

Insights from the National/Provincial Case Study

The second case study raises a number of issues that will be examined in more detail, along with the insights from the first case study, in the remainder of this review. Some important points include:

1) It is apparent that the supply chain management departments at the provincial level are playing a largely administrative role at least with regard to the two commodities chosen for the case studies.
2) There was no evidence in the interviews conducted that the departments (e.g. EDTEA), Auxiliary Services or the provincial SCM department were taking responsibility for environmental specifications related to the procurement of cleaning products or motor vehicles.

3) There was a lack of clarity as to where the responsibility for environmental specification development/requirements should rest. It was either being outsourced (cleaning products) or elevated to National Treasury (motor vehicles), with National Treasury being clear that these specifications were currently decentralised.

4) The Bid Specification Committee and the SCM departments seemed to be largely focused on eliminating bias and ensuring basic compliance such as tax clearance certificates.

5) Auxiliary Services play a substantial role in the SCM of many goods and services purchased by government with SCM playing a supportive/administrative support role to Auxiliary Services and the individual departments.

**From Administrative to Strategic Supply Chain Management**

In light of the insights provided from the case studies, the opening paragraph of the 2015 Public Sector Supply Chain Management Review (National Treasury, 2015) summarises both the opportunities and challenges presented by public SCM at present.

“Supply chain management (SCM) is one of the key mechanisms enabling government to implement policy. Traditionally, SCM has been misunderstood and undervalued. Its strategic importance has not been recognised, and it has been under-capacitated.”

There is strong recognition within government that the current approach to procurement is largely rules driven and administratively focused. The 2015 Review also acknowledges that “there is a need to identify more intelligent ways to procurement to realise value for money, create opportunities and promote beneficial change” (National Treasury, 2015: 35).

In order to respond to these opportunities and challenges there is a great deal of policy reform and structural change taking place within the National Treasury. The current development of a Public Procurement Bill is an example of policy reform while the establishment of the Office of the Chief Procurement Officer (OFCO) is seen as an important structural contribution to the modernisation of public SCM in South Africa. On a number of occasions during the research and interviews for this review, people both inside and outside of government commented on the importance of the OCPO and suggested that the current level of this post (Deputy Director General) was far too low given the significance and scope of work. As is evident from the extensive quotes below, a recurrent theme in the current reform is the shift of SCM from an administrative role to a more strategic role. This will have substantial implications for both the occupations associated with SCM and the skills required to fill these occupations.

National Treasury respondent: “One of the reforms that we are going through is this shift towards strategic procurement. The OCPO and more specifically a unit called Strategic Sourcing within the OCPO is responsible for the government’s strategic procurement framework. What that strategic procurement framework will do over time is that it will shift SCM from being administrative to being more tactical and strategic in the way they manage the procurement of select commodities. So that is where over time we want to move people, from administrative to more intelligent procurement and specialising. In this context, training 10 000 administrators to be more green is not going to work. But, if you look at, and these exercises are happening at present, if you look at our spend analysis and where government is spending money we have
identified the top 10 categories. You could thus start to say in those categories where
government is spending let’s say 70% of our money, how do we apply these principles and
practices of green procurement to those categories rather than to everything and how do we
begin to set standards for some of those commodities within these categories. If you want this
to work and have an impact you need to be very intentional about targeting specific areas of
procurement and the people working within those areas. Essentially it would be more the
people working in strategic procurement initiatives.”

National Treasury respondent: “The major focus for Strategic Sourcing within National Treasury
and the OCPO is to identify areas of improvement and major cost saving initiatives. In other
words, we have to look at commodities that are used across government that can be aggregated
so that we can use the bulk buying power, or leverage on economies of scale, to reduce costs.
We also have to drive some consistency in SCM by drafting policies with regard to certain
commodities … The intention is to drop the spending by making it more efficient – so we will be
looking at the whole value chain to identify areas of improvement.
The intention is for all departments to have strategic sourcing capability which is not the
administrative part. The administrative part is necessary but you need to have people in the
supply chain units who can strategically look at the spend of a government department … and
see if there are not better ways to procure those services. So there must be some strategic look
at the commodities.”

It must be noted that the focus of developing a more strategic sourcing approach within government is
currently focused on realising value for money through differentiated procurement. What this means is
that the Strategic Sourcing department in the OCPO has developed a sophisticated framework for
distinguishing between various categories of commodities and developing appropriate sourcing
approaches for each. Informing this work is a model (adapted from Kraljic “Purchasing must become
uses two criteria to create a matrix of four commodity groups with different characteristics and thus
different SCM strategies.

The two criteria are:

- the strategic importance of the goods or services being purchased, either in terms of value for
  money and service delivery or of the cost. The more expensive, the more important it is to think
  strategically about how to purchase.
- the complexity of the supply market, measured in terms of factors such as how scarce the supply
  is, how quickly the technology is changing and any barriers to supplier entry to the market.
From the interview with the Deputy Director of Strategic Sourcing and the documents reviewed, it is apparent that excellent and substantial work has gone into developing the strategic sourcing model and making explicit the implications that the different categories of commodities would have for SCM in South Africa. One of the challenges faced by the Strategic Sourcing unit and the OCPO is how to communicate this work in a way that is accessible and attractive to current SCM role players including both government officials and suppliers. This process and the challenges associated with its roll-out provide a significant opportunity for change and professionalisation within public SCM.

There is no doubt that the differentiation of commodities and the implications of this differentiation for SCM is a vital component of shifting SCM from a predominantly administrative function to a more strategic role. However, the current strategic resourcing work seems to be focused largely on eliminating complexity within the SCM system, reducing cost, increasing value and enhancing supplier interaction. What is not highlighted within this work is the higher strategic level that seeks to link SCM and government’s socio-economic and sustainability policies, strategies and commitments. If one looks at the generic elements of SCM contained in the illustration below, much of the current strategic sourcing work is focused on the green arrows down the middle of the diagram and possibly on the Infrastructure (systems) on the left of the diagram. These are obviously key areas of SCM; however, it is the achievement of government’s strategic intent that requires further attention (in the diagram represented by “Government’s Preferential Procurement Policy Objectives”) including such aspects as: addressing past and current discrimination against particular categories of persons; stimulating economic activity, protecting national industries from foreign competition; improving the competitiveness of certain industrial sectors; and, addressing environmental degradation that threatens social and economic development. As one of the National Treasury respondents noted: “I don’t know if we are achieving the PPP and B-BBEE objectives and I am not sure if anybody is looking at these policy objectives to see how well our public SCM is contributing to their achievement.” Another National Treasury respondent reinforced this point in a separate interview: “In terms of the PPPFA and the associated regulations I am not seeing how the regulations and SCM practices are enabling you to achieve the aspirations in terms of the Constitution and the Act [PPPFA]”. 

Figure 7: Strategic Sourcing Framework
Source: National Treasury, 2015
Given the focus of addressing the past and current discriminatory practices against black South Africans and the specific reference to preferential procurement relating to this category of persons contained in the Constitution and PPPFA, it is important to understand some of the challenges in terms of SCM. These challenges provide useful insights into how an environmental component of SCM may be integrated into a more strategic approach to SCM.

The following table has been compiled from the challenges listed in the 2015 SCM Review (2015, pp.13-14) related to using public procurement as a tool for development and transformation. The SCM Review only contains the contents of the column entitled ‘socio-economic’. The other column of the table below i.e. the column entitled ‘Environmental (Sustainability)’ has been generated to illustrate the point that very similar arguments can be made regarding the challenges related to using public procurement as a tool for achieving the strategic commitments to the environmental component of sustainable development.
Table 3: Challenges related to using public procurement as a tool for development and transformation

<table>
<thead>
<tr>
<th>Criticism of extent to which preferential procurement (as allowed for in Section 217 (2) of the Constitution) is contributing to Government’s policies, strategies and commitments</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-economic</strong></td>
<td><strong>Environmental (Sustainability)</strong></td>
</tr>
<tr>
<td>The point scoring system based on price and empowerment (80/20 and 90/10) does not take into account the cost structures of emerging businesses and thus favours predominantly white-owned established businesses.</td>
<td>There is currently no preference given to green goods and services. The issue of cost structures would also be important however as many environmental costs are externalised in current business practices.</td>
</tr>
<tr>
<td>Local economic and enterprise development is difficult to attain within the current procurement regime.</td>
<td>Green economic and enterprise development is difficult to attain within the current procurement regime.</td>
</tr>
<tr>
<td>‘Set-asides’ of procurement for designated previously disadvantaged groups are the only way in which economic transformation can be attained. However, the current system does not allow for these.</td>
<td>‘Set-asides’ of procurement for environmental goods and services is the only way in which sustainability can be attained. However, the current system does not allow for these.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Realising the benefits of preferential policies and achieving the objectives of socio-economic change and environmental sustainability requires systemic change. Reasons for this include:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-economic</strong></td>
<td><strong>Environmental (Sustainability)</strong></td>
</tr>
<tr>
<td>Public procurement is not sufficiently seen as a strategic function, with departments and state-owned enterprises tending to lack strategies which include socio-economic objectives.</td>
<td>Public procurement is not sufficiently seen as a strategic function, with departments and state-owned enterprises tending to lack strategies which include environmental objectives.</td>
</tr>
<tr>
<td>SCM capacity is generally weak with practitioners unable to conceptualise and implement tenders aligned with Government’s developmental objectives.</td>
<td>SCM capacity is generally weak with practitioners unable to conceptualise and implement tenders aligned with Government’s developmental and sustainability objectives.</td>
</tr>
<tr>
<td>The sustainability of empowered businesses and socio-economic development schemes remains a challenge. There is no strategy to ensure the organic growth of black and emerging businesses.</td>
<td>The sustainability of sustainable development schemes remains a challenge. There is no strategy to ensure the organic growth of environmentally sustainable business and the green economy.</td>
</tr>
<tr>
<td>The lack of a proper system to monitor the effects of empowerment strategies results in activities such as fronting.</td>
<td>The lack of a proper system to monitor the effects of sustainable development strategies results in activities such as green washing.</td>
</tr>
</tbody>
</table>
The following measures have been suggested as ways of supporting the objectives of Section 217 (2) of the Constitution and the commitments both internationally and locally that South Africa has made to sustainable development:

<table>
<thead>
<tr>
<th>Socio-economic</th>
<th>Environmental (Sustainability)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengthen the OCPO to ensure that public sector SCM makes maximum contribution to socio-economic transformation.</td>
<td>Strengthen the OCPO to ensure that public sector SCM makes maximum contribution to sustainable development.</td>
</tr>
<tr>
<td>Set national targets for achieving socio-economic objectives.</td>
<td>Set national targets for achieving environmental (sustainability) objectives including CO₂ emissions, waste to landfill, air quality, water quality and use.</td>
</tr>
<tr>
<td>Issue directives describing the socio-economic goals which provinces and municipalities should attain.</td>
<td>Issue directives describing the environmental goals which South Africa, provinces and municipalities should attain.</td>
</tr>
<tr>
<td>Monitor progress made in implementing preference as well as the manner in which preference targets are set and attained.</td>
<td>Monitor progress made in implementing sustainability measures, as well as the manner in which sustainability targets are set and attained.</td>
</tr>
<tr>
<td>Monitor cost premiums related to socio-economic preferential procurement.</td>
<td>Monitor cost premiums related to environmental sustainability preferential procurement.</td>
</tr>
</tbody>
</table>

**Measures to promote preference, socio-economic transformation and sustainability will be conditional:**

<table>
<thead>
<tr>
<th>Socio-economic</th>
<th>Environmental (Sustainability)</th>
</tr>
</thead>
<tbody>
<tr>
<td>They must be aligned to Section 217(1) of the Constitution.</td>
<td>They must be aligned to Section 217(1) of the Constitution.</td>
</tr>
<tr>
<td>Cost premiums must be kept to a minimum.</td>
<td>Cost premiums must be kept to a minimum.</td>
</tr>
<tr>
<td>There will be a Code of Conduct to be used by procuring institutions and the private sector to ensure sustainability, efficiency, cost effectiveness and good quality delivery.</td>
<td>There will be a Code of Conduct to be used by procuring institutions and the private sector to ensure sustainability, efficiency, cost effectiveness and good quality delivery.</td>
</tr>
</tbody>
</table>
What is not factored into the above table for either the socio-economic or the environmental sustainability sections is the cost of not building a socially inclusive, low carbon, resource efficient country. Or looked at from another perspective, what would the value be to South Africa of enhancing social inclusivity, reducing greenhouse gas emissions and using our natural resources more wisely? This distinction between cost and value is extremely important in terms of government strategy. While it may cost less in the short term to externalise social and environmental costs, these practices destroy value for the country as a whole. This issue was raised in most of the interviews and is of course raised in key national strategies such as the National Development Plan. Comments such as the following were common:

National Treasury respondent: “The thing about costing – that is a skill that you would need to develop because we are not focusing on it. Right now we are costing just according to the amount that you spend. We are not doing total cost of ownership and when you talk green even the total cost of ownership does not help. We need to look at the total impact. We need the skill to look at it – it may cost us a lot now but 10 years down the line, the impact is cost-effective. That is a big challenge ... I don’t even know who is doing that. But I think that in the private sector they are doing that. We need that skill otherwise we will also have budget issues because we are looking for the cheapest.”

The other important point to make regarding the table above is that the socio-economic and environmental sustainability considerations are of course closely linked. In many instances, the negative environmental impacts, such as a deterioration of water quality or the health risks associated with poorly managed mining practices or the loss of soil fertility, have very significant socio-economic impacts. These negative impacts also tend to affect the poor and marginalised in our society disproportionately.

What is striking about the above table is that the challenges and suggested solutions for achieving key government policies and strategies related to socio-economic improvements and environmental sustainability are remarkably similar. This suggests that there may be opportunities for developing common (or at least parallel and complementary) skill sets and occupations within SCM in South Africa to support the role that SCM can play in realising governments policies and strategies across socio-economic and environmental issues.
Insights into Occupations and Skills Development Needs from the Literature Reviews and Case Studies

**Identifying job titles, roles and skills required for effective supply chain management**

During this review, it became apparent that there are many actors who play key roles in a wide variety of supply chain management processes within the public sector. The international review highlighted senior policy makers and politicians; public accountants such as CFOs; procurement and purchasing officers; product specifiers which could include bid specification committees as well as individual experts who inform or contribute to the development of criteria and the evaluation of bids/ tenders relative to the specifications; and sustainable procurement trainers/ training providers.

The generic structure for the financial management functions within government are well defined by the PFMA, the MFMA and a number of practice notes by both National Treasury and the Department of Public Services and Administration. Although slight variations occur due to the size and complexity of different provinces and departments, the following diagram captures the main components of the financial management function. Only the Supply Chain Management section of the structure has been expanded. The highlighted boxes represent functions that have been identified within this review as being key to shifting SCM into a more strategic role. Although disposal of motor vehicles was raised in both of the case studies, it has not been highlighted here on the assumption that if the demand management and acquisition management are done strategically end-of-life considerations would have been built into the sourcing specifications. This would result in the roles associated with disposal management becoming less strategically important than they are at present. The red text is used to show specific areas of activity that will be important to focus on in terms of both occupational roles and related skills development.

The Departmental Heads at the national level are the Director-Generals and are responsible for assisting the national Minister in developing and implementing the policies and laws relevant to that particular portfolio and Department. At the provincial level, the Provincial Director-Generals support the Members of the Executive Council (MECs) with policy alignment and implementation. Under the PFMA, the Head of Department is also the Accounting Officer with very specific responsibilities and the power to delegate these responsibilities under certain conditions. This makes the Head of Department a key role player in the process of aligning national policy with provincial and departmental strategies. The Director-Generals are usually supported by a number of Deputy Director Generals responsible for various strategic areas within the department. These Deputy Director Generals will also be important role players in the development of a more strategic focus within SCM.

At the level of Chief Directors, the Chief Financial Officer is in place to support the Accounting Officer in discharging their responsibilities. In most instances, the Departmental Head will delegate many of the
responsibilities associated with the AO function to the CFO. The CFO thus forms a link between the Head of Department and the SCM function within the department. In order to ensure that departmental strategy is carried through into SCM, it is vital that the CFOs have an understanding of the strategic importance of SCM particularly as this relates to broader national and provincial commitments to environmental sustainability.

Supply Chain Management tends in most instances to be a Directorate under the CFO. The Director has the responsibility of ensuring that SCM is aligned to national and provincial policy and strategy, is managed efficiently and that performance reviews are in place and being acted up across the SCM processes. Under the Director: SCM will be a number of Managers and Deputy Managers that tend to manage the full ambit of SCM from Demand to Disposal. These managers are supported by SCM clerks.

Figure 9: Generic structure for the financial management functions within government
Cutting across or lying adjacent to these structures are a number of other committees or role players who play an active and important part in SCM and within the functions outlined above.

A key committee is the Bid Specification Committee. This committee, along with the Bid Evaluation Committee and the Bid Adjudication Committee, is appointed by the Accounting Officer. The Bid Specification Committee usually consists of 5-8 people and may be comprised of:

- Appropriately skilled officials of the department/entity;
- One Supply Chain Management practitioner;
- One or more suitably qualified specialists; and
- An external consultant under the direction of the official or component concerned.

The Bid Specification Committee is vital to ensuring that specifications are included that contribute to achieving government’s strategic intent and in the context of this review, the Government’s commitment to environmental sustainability. Given that the criteria specified in the bid documentation will form the basis for the evaluation and adjudication of bids, this committee plays an important role and must develop criteria that are both relevant and easily understood by the prospective bidders and the internal SCM functions including the other bid committees.

External specialists may be people from other departments within government or may be specialists working in other organisations such as universities, research institutions or businesses. These experts could be used to develop generic ‘eco-labels’ or standards for particular sector that could then be used by a wide range of stakeholders including government departments at all levels, businesses and even consumers in the general public. Alternatively, SCM functions from National Treasury to local municipalities could contract in this expertise to develop criteria and specifications for particular tenders. A key capacity to be built in this regard will be the ability to develop specifications that are compliant with the requirements of Section 217 of the Constitution.

The following table developed from the Annual Performance Plan 2016/17 (DEA, 2016) and interviews conducted as part of the DEA case study provides a useful summary of some of the key job titles and roles related to SCM. It must be noted that numerous occupations could have been identified, however for the purposes of this review, those that ‘filtered to the top’ during interviews and research as being of importance, or had a notable area of influence have been identified and captured in the table below.
<table>
<thead>
<tr>
<th>Job title</th>
<th>Role &amp; description in sustainable SCM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director General (Accounting Officer)</td>
<td>• Responsible for signing off tenders, selection criteria and contracts</td>
</tr>
<tr>
<td>Chief Financial Officer</td>
<td>• Oversees Supply Chain Management Unit’s operations</td>
</tr>
</tbody>
</table>
| Chief Director: Supply Chain Management | • Responsible for the implementation of the Department’s SCM policy  
  • Responsible for ensuring the procurement processes adheres to National Treasury’s procurement procedures                                                                                                                                                                                                                                                                                              |
| Chief Director: Facilities      | • Responsible for the procurement of products and services used by the Department e.g. motor vehicles and cleaning products  
  • Responsible for the procurement and implementation of special projects e.g. purchase and trial of electric vehicles for the Department.  
  • Responsible for overseeing various teams to investigate and research purchasing options of products and services e.g. Transport Team.                                                                                                                                                                                                                      |
| Chief Director: Human Capital Management | • Responsible for human resources within the department                                                                                                                                                                                                                                                                                                                                                           |
| Branch Deputy Director General (DDG) | • Responsible for appointing the Bid Specification and Evaluation Committee(s)  
  • Responsible for approving the specifications                                                                                                                                                                                                                                                                                                                                                           |
| Bid Specification & Evaluation Committee Member | • Responsible for deciding on the product or service specifications  
  • Selection and approval of the preferred bidder, using the evaluation criteria/specifications.                                                                                                                                                                                                                                                                                                       |
| External specialist             | • If required, the DDG may request an External Specialist to sit on the Specification and/or Evaluation Committee(s) to provide advice on appropriate specifications  
  • This individual may also come from another Branch within the Department e.g. Chemicals & Waste Management, and offer expert advice and insights                                                                                                                                                                                                                          |
| Officers (Facilities Unit Team Member) | • Responsible for undertaking e.g. research into products and services that are being considered for purchase by the Department. This can include:  
  o Market analysis  
  o Identification and research of suitable products  
  o Availability and feasibility of use by the Department  
  o Manufacturers and providers  
  • Engaging, where necessary, with external specialists to provide research advice and guidance.                                                                                                                                                                                                                                      |
| Implementing agent              | • As per the DDG and Chief Directors, implementing agents are responsible for the selection of products and services and therefore required the skills and knowledge to do so.  
  • Skills and knowledge to adopt the Department’s SCM policy.                                                                                                                                                                                                                                                                                 |
The people occupying these positions and fulfilling the roles listed above are involved in a complex web or network of interactions as they work together within the supply chain and across supply chain management processes. Appendix 9 provides an illustration of some of these interactions and the resulting networks. The ability to cooperate across occupational tasks and work roles is an important capacity that will require at least as much attention as the development of capacity within specific occupations.

Implications for Skills Development

Although it is not the intention of this review to provide a detailed picture on the current supply of education and training opportunities for public SCM, it is important to provide some background to capacity development in the public sector in order to provide a context for suggestions going forward.

It is also important to note that the National Treasury has undertaken substantial work on assessing the capacity development challenges and capacity building responses related to public finance management and more specifically public SCM. The most comprehensive documents include:

- Competency Framework for Financial Management (National Treasury, 2010);
- Draft Capacity Development Strategy for Public Financial Management (National Treasury, 2012);
- Technical Competency Dictionary (Explanatory Note): Supply Chain Management (National Treasury, 2015); and

These documents provide an extremely detailed mapping of:

- Competency clusters (including Legislative environment; Institutionalisation; Planning; Demand Management; Acquisition Management; Contract Management; Logistics Management; and Disposal Management);
- Competency Titles (this is a comprehensive list of competencies required within each competency cluster);
- Knowledge (and understanding) required for each competency title to carry out efficient and effective supply chain management; and
- Skills required for each competency title to carry out efficient and effective supply chain management.

Each of the above (competency clusters, competency titles, knowledge and skills) are mapped out relative to four role descriptors:

- Role 1 – Administrative (e.g. SCM Clerk) Post levels 1-6;
- Role 2 – Technical (e.g. SCM Practitioner) Post levels 7-8;
- Role 3 – Supervisory (e.g. Assistant SCM Manager, Deputy Director, SCM Manager) Post levels 9-12; and
- Role 4 – Managerial (e.g. Director, Chief Director, Deputy Director General) Post levels 13-16.
Given the scope and detail of competency requirements provided in the documents listed above, it was not considered useful to replicate the generic competencies (knowledge and skills) for SCM in the public sector in this review. Rather, the competencies and skills related to the strategic intervention areas identified below are informed by and linked to the insights from the international literature and the work contained in the SCM Technical Competency Dictionary developed by National Treasury. More useful at this point is a brief description of some of the skills development opportunities identified during the review processes and particularly the case studies.

In a number of the interviews conducted for this review, the point was made that in the past there was very little in the way of specific SCM education and training, either academic or professional. However, this has changed significantly with regard to academic qualifications over the past few years.

A private sector respondent noted: “If you go back 10-15 years, the public was robbed of proper qualifications in terms of SCM. Now you can do a B.Com specialising in supply chain management. The education institutions have seen that SCM is in demand. At ManCosa, for example, the intake of first-year SCM students on the B.Com side is bigger than all of the other B.Com streams including finance, HR, and general B.Com.”

The lack of specific SCM qualifications in the past is evident in the qualifications profile of many people currently working in SCM. By way of example, the provincial deputy manager interviewed had worked himself up through public administration both in terms of his posts and his qualifications (see also the example from the National DEA study contained in Appendix 10). This manager went on to state that many of his colleagues within the SCM units or programme managers with SCM responsibilities did not have SCM-focused qualifications. They came into their positions with qualifications in HR, business, accounting or public administration. This posed some challenges as the manager noted: “To tell you the truth there are no structured trainings for the SCM. I believe that the government is lacking particularly with SCM because there are a lot of finances involved. I think if one is employed in SCM you need to go on a structured course but there are no structured courses that are taking place. There was training that was provided by Treasury before – it was an induction or refresher course but it is no longer happening. Now you receive an employee who has no induction into how SCM is done.”

This challenge is recognised by National Treasury who appear to be doing a substantial amount to fill these gaps. The Chief Director: Supply Chain management who was interviewed in the DEA case study specifically mentioned the courses offered by National Treasury and the National School of Government (formally the Public Administration Leadership and Management Academy - PALAMA).

One of the respondents in National Treasury, responsible for capacity development in this sector, noted: “If you look at the education/training space historically for public procurement there is nothing. So we have worked with the private sector to develop a learnership at NQF level 5 on SCM for junior staff. We are also busy piloting professional development programmes with CIPS [the Chartered Institute for Procurement and Supply]. These are at two levels – the practitioner development programme for junior managers and the professional development programme is for middle managers. There is also a two-day executive SCM development programme crash course for Heads of Departments/Accounting Officers to highlight the importance of strategic
SCM. They just think SCM is administrative and do not see it as a strategic enabler for service delivery. But it is only two days.

And then there is a range of unit standards – some of them are part of the learnership and some of them are at a level 6 and 7. Three of them address strategic procurement namely: initiation, formulation and execution of procurement. These three unit standards are designed for managers to introduce them to strategic procurement. The CIPS professional programme also has a large focus on strategic sourcing so there is a range of solutions that either exist or are being piloted or are being developed. However, there is still a huge vacuum in terms of supply chain.”

The issue of professionalisation within the field of SCM received considerable attention from all the interviewees. At National Treasury, one of the respondents said that they thought that “if we can get our supply chain employees recognised in a profession like accounting that would be a good thing”. Similarly, the deputy manager at provincial level felt strongly about this: “If you have a basic qualification then you need to do the professional certificate. It will assist in curbing the flaws that are in SCM particularly the fraud and corruption. If you default we will tear your certificate so you never practice in SCM again.”

Many of the professional courses available through CIPS are based on European standards and therefore have significant content on green procurement. The challenge will be to adapt this content and make it relevant to South African legislation and standards. It appears that this adaptation of some of the CIPS courses is currently underway in a partnership between National Treasury and CIPS.

At a more local level the DEA, along with a number of partners represented in the National Environmental Skills Planning Forum, have sought to build the capacity of the environmental sector. This has included supporting SETAs to include environmental considerations and priorities into their sector skills plans. The Department’s Annual Performance Review 2016/17 noted that by the end of 2015/16 six SETAs had confirmed an environmental focus in their skills plans, with a target of increasing this by an additional three SETAs by the end of the reported year. The Department highlights the enablers for getting environmental issues into SETA skills plans were human and financial resources and co-operation from the SETAs. Whilst the Department recognises the value of the SETAs as strategic partners as reflected in its strategic objectives, it became evident during the interviews within DEA that the Department does not engage significantly with PSETA. Given the potential, and mandate, for DEA to champion green public SCM in South Africa and the obvious skills development needs associated with integrating a sustainability or green focus into public SCM, there is a strong case for the DEA, National Treasury and PSETA to work more closely on green SCM.

The above information suggests four key areas of focus for skills development. The first is to recognise that there are many people within the public sector who are playing key roles in SCM but who have little or no specific training in SCM. There is substantial demand, therefore, for a range of skills development opportunities at different levels to connect existing skill sets with SCM expertise. It would be very important to build the appropriate level of strategic SCM skills (as outlined in the SCM Technical Competency Dictionary) into these courses to realise Government’s intention to shift SCM from a largely
administrative function to a more strategic function including the achievement of environmental and sustainability policies and commitments through public SCM.

The second insight gained from the information is that it is possible to move into SCM from a broad range of other disciplines. This suggests that it may be possible to offer bridging courses for young unemployed graduates with, for example, an environmental science qualification, or an engineering qualification or a general finance qualification and through these bridging courses to open up employment opportunities in public SCM. The learnerships and current unit standards provide a platform on which to build in this regard. The existing initiatives of National Treasury and the private sector could be further supported.

The third insight is that increasingly young graduates will be entering the profession with SCM specific qualifications and will be looking to have their professional status recognised. The opportunities for professionalisation of the field through the CIPS could be supported through the adaptation of the professional qualifications. This could include an adaptation of existing green SCM content to the South African context.

The fourth insight is that a number of different institutions are increasingly realising the strategic importance of supply chain management in both the private and public sector. This is resulting in substantial research into skills requirements and provision of relevant skills development opportunities. In this context, a significant opportunity exists for DEA, National Treasury and PSETA to work together with providers such as CIPS and the National School of Government to support green SCM in both the public and private sectors.

One further point important to raise is the role of human resource managers in terms of identifying potential SCM professionals and developing professional development opportunities for existing staff. One would have expected this to be an important area of activity, given the increasingly strategic role of SCM professionals. However, in both case studies it became apparent that the human resource management department operated as an administrative function and had very little input into determining the types of skills that are required by the Department. In fact, the Senior Manager: HRM in the KZN EDTEA had recently left and there was nobody acting in this position. In both the DEA and EDTEA, it was the senior staff including the DGs, the DDGs, the Chief Directors and the Directors who were determining the skills and job requirements. This lack of strategic guidance from HR departments suggests firstly that it will be important to work with senior staff to help them to understand the types of roles and skills that will be needed to enable more strategic SCM and more specifically, green SCM. Secondly, it will be important to work with HR managers to shift their focus from an administrative function to a more strategic function. Within this process it will be vital to stress the importance of responding to international and national drivers such as sustainability and the implications for staffing and skills development.

In concluding this section on occupations and skills development related to green SCM in the public sector, it is apparent that a wide variety of occupations, jobs, and roles are involved in the supply chain management processes in the public sector. Similarly, the competencies and skills identified in the SCM
Technical Competency Dictionary indicate an extremely broad area for skills development. Despite focusing on those occupations and skills that emerged from the literature review and case studies as being key, it is evident that some further strategic prioritisation will be needed. The following section of this review thus seeks to identify those areas of activity within SCM that would have the greatest impact on greening SCM in the public sector.

**Key Leverage Points within the SCM System for Enhancing Strategic Green Public SCM**

Despite strong political, social, economic and environmental drivers related to sustainable and green public SCM at both the international and national levels it does not appear from the case studies that environmental considerations are significantly shaping SCM processes. By way of example, facilities departments, auxiliary services and even DDGs seem to be outsourcing the responsibility to include environmental criteria in procurement processes. Here, the lack of focus on the environmental impact of cleaning products in the context of outsourced cleaning services provides a useful example. Similarly, it appears that the supply chain management of high value items with high environmental impacts such as motor vehicles is falling between national and provincial/departmental functions. In addition, demand is driven more by the replacement of existing vehicles than careful strategic consideration of green alternatives with a notable exception and useful case study being the purchase of electric vehicles by DEA and some municipalities. Based on the international literature and the case studies, the following key leverage points within the SCM processes in the public sector have been identified.

The process of linking the international and national commitments and policies, particularly the environmental and sustainable development commitments and policies, to the strategies of national departments, provinces, provincial departments and to local government, is a key first step in more strategic SCM. This is very important for, as one of the National Treasury interviewees noted, the departmental strategies are key to greening procurement.

“It is important for the departments to make strategic decisions on how they want to enforce some of the national environmental and sustainable development policies. These decisions need to be included in the provincial and departmental strategies. Then everybody knows that that particular department has made a decision on, for example, carbon emissions if, for example, it is a transport department. This will get signed off by the Minister as part of their strategy so when they go out to tender it is less complicated. Departments are then clear – that is our strategy, everybody knows about it and when you procure, this is what you are looking for. This ensures formal buy-in from the CEOs and the Minister. And then departmental staff and SCM will have to comply with the strategy because they will have to report back on how they are doing with regard to the procurement of the environmentally friendly products in relation to the department’s strategic objectives.”

It is evident that in National Treasury, provincial treasuries and departmental SCM offices, this is not being done in a systematic way. Recent correspondence with the developers of the new Public Procurement Bill suggest that they have been unable to identify a relevant professional within National
Treasury with whom to consult on environmental or green public SCM. Having said this, there are some good examples of green public SCM strategies at the provincial level (Western Cape – including a recent funded project from UNEP) and metro level (Tshwane, Nelson Mandela Bay, Cape Town). These could be used as case studies in various processes of skills development linked to the integration of national policy and provincial and departmental strategies.

The process of linking the provincial and departmental strategies to procurement plans is the next important step that requires further attention in public SCM in South Africa. This will require a shift from the current focus on replacement and operational requirements as the basis for demand management to a conscious review of operational priorities and the resultant need for goods and services from a more strategic perspective. This would include a focus on the environmental sustainability of the entire supply chain of goods and services procured by the public sector. This requires greater levels of environmental awareness and clearer guidelines for senior managers and particularly the senior managers responsible for drawing up procurement plans for their departments.

It is also apparent from the interviews that some attention needs to be given to ensuring that the Bid Specification Committees are empowered to develop specifications for tenders and other procurement processes that include environmental considerations. These considerations must be aligned to the national policies and the provincial/departmental strategies and must be based on total cost accounting, life cycle analysis and robust assessments of metrics such as social return on investment.

Once the goods and services have been procured, it will be important that SCM staff have the ability to monitor and evaluate the implementation of services and the use of goods. Thus, for example, it will be important that in the case of outsourced cleaning services, checks are made on the cleaning chemicals used. In the case of motor vehicles, it will be important to also support the appropriate use, driving techniques, servicing and disposal (sale) of vehicles. This will require a substantial extension of the current work undertaken by SCM staff.

**Strategic Competency Development for Green SCM**

From the above analysis, four strategic areas of competency development have been identified. These areas of competence relate to:

- The strategic alignment between global and national policies and commitments related to environmental sustainability; provincial and departmental strategies; and provincial and departmental SCM strategies;
- The alignment between the provincial and departmental strategies, particularly the environmental and sustainability components, and the specifications for goods and services;
- An understanding of strategic sourcing (including tools such as life cycle analysis and social return on investment) and how this can be leveraged to support provincial and departmental environmental and sustainable development strategy; and
- Enhancing SCM information generation and use to support the monitoring and evaluation of environmental performance of green SCM.
Each of these areas is examined below with a particular emphasis on the competency clusters and associated skills.

**Strategic Alignment**

Strategic alignment is key to ensuring that public SCM supports Government’s policies and commitments. There are a number of levels at which this alignment needs to take place and this is recognised in the SCM Technical Competency Dictionary (National Treasury, 2015). The competencies are clustered under the title of ‘Legislative Environment’ and ‘Supply Chain Strategy’.

A key skill under the Legislative Environment competency cluster is articulated as the ability to “monitor (occupation role 3) or manage (occupational role 4) the performance of SCM activities in compliance with relevant legislation, policies, regulations, frameworks, standards and guidelines”. This would need to include a more thorough focus on environmental and sustainability related legislation, policies, commitments etc. At the provincial or departmental level this would require the ability to “manage (occupational role 4) the development and review (occupational role 3) of departmental policies and procedures applicable to [green] SCM”.

Closely linked to the competencies related to the legislative environment is the ability of senior managers (occupational roles 3 and 4) to ensure that the SCM strategy is aligned and responsive to the departmental strategy. This competency is clustered under “Supply Chain Strategy” and, as was noted in the interview with National Treasury, is key to integrating environmental considerations into provincial and departmental SCM. Skills required to achieve this competency include: “the ability to manage (occupational role 4) the development (occupational role 3) of SCM strategies aligned to the departmental strategies”. This would include both the inclusion of environmental considerations within the SCM strategies and the review of the alignment between departmental strategies and SCM strategies. Absolutely key to these processes is the ability of senior managers (occupational role 4) to “align SCM strategies with the departmental strategy and align SCM structures, relationships and change processes accordingly”.

Also included under the competency cluster of supply chain strategy is a skill related to “evaluating the impact of macro global treaties that may impact on supply chain strategy”. Here the Paris agreement on climate change is a good example of a macro global treaty that requires a response from public SCM. Finally, in the competency cluster related to institutionalisation, senior managers are also required to have skills that enable them to “manage (role level 4) the development and institutionalisation (occupational role level 3) SCM that is responsive to sustainability, social and environmental factors”. The inclusion of a green focus within SCM has the potential to support and realise a number of key competency clusters and skills identified as important in terms of public SCM in South Africa. Given the important role that provincial and departmental strategy should have, in terms of the alignment to global and national policies and commitments on the one hand and to setting the parameters for SCM on the other, this is seen as a key area of focus for skills development related to SCM. The introduction of an environmental focus that is, according to the interview data gathered for this review, largely lacking at present, would support the development of a number of key competencies and skills that National Treasury has identified as being important for occupational roles 3 and 4.
Development of Specifications

Within the SCM Technical Competency Dictionary, the “Review and compilation of specifications and/or terms of reference” is captured under the broad competency cluster of Demand Management. However, as was evident within the interview process, it is the specifications that should link the procurement of specific goods and services to the strategic intent of the department or province. It is also the specifications that provide the basis for the evaluation of bids, the monitoring of supplier or product performance and the life cycle cost/value of the goods and services procured. From a green SCM perspective, it is apparent from the interviews and literature that a substantial amount of work needs to be done in terms of the review and compilation of specifications that take environment and sustainability considerations into account.

One of the greatest challenges related to the development of specifications was identified by a National Treasury interviewee and relates to the fact that the specifications are often drawn up by programme staff or left to the discretion of outsourced providers. Due to the complexity associated with drawing up product specifications, there is a strong possibility that either the environmental information is not easily accessible and/or the programme staff or outsourced providers would not have the necessary knowledge to work with the information available. This means that it is unlikely that programme staff would be able to draw up detailed and coherent environmental specifications. The interviews at both the provincial and national levels suggest that environmental considerations are thus not receiving the kind of attention required to align procurement with global and national environmental strategies or to respond to environmental factors such as climate change, water scarcity or waste (mis)management. Given the levels of knowledge required and the huge number of variables associated with environmental impact and life cycle analysis, it is highly likely that internal and external experts will need to be involved in the development of specifications, the evaluation of bids and the ongoing monitoring of performance relative to the specifications. This suggests that closely linked to the review and compilation of specifications is a high level of competence related to sourcing information and working effectively with environmental/subject matter experts. This is currently happening at some levels as is evident in the DEA electric vehicle SCM initiative (see Appendix 8) and the example given below by a Chief Director at National Treasury:

“...We get external service providers or subject matter experts to assist us and we make use of provincial departments for example the provincial departments of health and clinical engineers. These experts provide us with specifications that they currently have and we get somebody to consolidate it at national and distribute it again so that everybody has a common understanding of the specification and everybody is in agreement. Then we put it out to tender. We also want to get a bank of specifications for a wide range of strategic products at some point.”

It must be noted that the development of specifications does not need to start from scratch for each set of goods and services. There are many eco-labels or generic sets of environmental specifications for entire product ranges (e.g. cleaning products or motor vehicles) that have already been developed in South Africa or internationally and that can be used as the basis for developing specifications. Given the need to access this information in a usable format, it will be important to find ways of supporting SCM professionals and environmental experts to develop and share environmental specifications.
be done through online collaboration and learning that contributes to a database of environmental specifications linked to strategic product groups.

From the perspective of occupational roles, it is evident that the review and compilation will require skills at a number of different levels. The SCM Technical Competency Dictionary (National Treasury, 2015) lists these different levels of skills ranging from (occupational role 1) the ability to “determine whether specifications for a commodity exist and gather information required to review specifications or terms of reference” to (occupational role 2) “overseeing the gathering of information to review and compile specifications or terms of reference”. At occupational role 4, incumbents should be able to “manage compliance with requirements for specification/terms of reference and communicate recommendations to relevant authorities”.

**Strategic Sourcing and Green SCM**

Closely linked to the alignment of national strategy with provincial and departmental SCM strategy is the development of market information to support the SCM strategy. As has been mentioned in this review, National Treasury and particularly the Strategic Sourcing unit within the OCPO, is currently doing a substantial amount of work to support strategic SCM through better market analysis. Key competency areas identified under the competency cluster of strategic sourcing include:

- Analysis of the supply environment [including the possibility of supporting the growth of the green economy];
- Calculating the total cost of ownership [and for green SCM the cost to society and the environment over the life cycle of the goods or services];
- Market analysis [including the range of companies offering green products];
- Analysis of products and services required [this may include different ways of meeting demand e.g. car share rather than the purchase of new vehicles];
- Analysis of spend per category or item to identify strategic focus areas;
- Analysis of the supply base [e.g. do environmental alternatives exist or could they provide new business opportunities if supported?];
- Segment the goods and services according to supplier, commodity, supply chain, organisational opportunities and potential for improvement through lean supply concept;
- Classification of suppliers based on commodity value and risk profiles [this could include issues such as environmental risk across the lifecycle of the commodity];
- Category and portfolio management [this could then be used to support more strategic management of the different categories of goods and services including green or green aspects of both commodities, suppliers and market conditions].

One of the key intentions of strategic sourcing is to streamline SCM. By identifying and classifying categories of commodities, it becomes possible to develop SCM strategies for different categories. Of particular relevance for this review would be the identification of ways of simplifying the specifications of environmental criteria for routine commodities through, for example, eco-labelling. Also important will be the recognition that in some instances, environmental consideration will increase market complexity and there is an opportunity to build relationships with businesses to create new products and services with an environmental focus. This partnership approach should lead to new business
opportunities and even global competitiveness as other countries also work towards green procurement in both the public and private sectors. As a National Treasury respondent noted however, “I do not think that Government is there yet in terms of supplier development. We are not strong on supplier development. We do not have supplier development programmes. This is still a big gap.” The National Treasury respondent in the Strategic Sourcing Unit noted that although a large amount of work has been done on the development of guidelines for strategic sourcing, these guidelines have not yet been published. One of the challenges is finding a way to make these guidelines accessible as they are currently contained in a very large and comprehensive document. Some suggestions on the way forward for this area are contained in the conclusions and recommendations section of this review.

Green SCM Performance Monitoring, Evaluation and Review

The importance of strategic alignment and the importance of then ensuring compliance with legislation, strategies and specifications has been highlighted before in this review. It is also well recognised within National Treasury that a key role of the OCPO is to “monitor the manner in which SCM policy is implemented with respect to development objectives, value for money and delivery methods”. Within the SCM Competence Dictionary, the competencies associated with monitoring, evaluation and review are captured in a number of places. Under the competency cluster of Contract Management, the ability to manage the contract throughout its life cycle, including supplier performance has significant relevance to outsourced services such as cleaning. These competencies are listed in more detail under the competency cluster entitled Performance Management. Here detailed skills requirements are listed including the following: “monitor (occupation role 4) the design, implementation and review of (occupational role 3) a SCM system for reviewing performance incorporating departmental strategic goals, value for money, programme delivery and government policy objectives”. This skill set is linked directly to managing the performance of the public SCM in terms of alignment to government policy objectives related to environmental and sustainability commitments, the review of environmental and sustainability strategy at provincial and departmental levels, the setting of criteria that include life cycle costs and broader conceptions of value, the contribution of strategic sourcing and the actual delivery of all of the above at multiple points within the public sector.
Insights regarding occupationally directed skills development for Green SCM in the public sector

The aspiration of National Treasury to realise the strategic potential of public SCM provides an important context for this review. More specifically, the stated intention of shifting the function of SCM within government from a largely administrative function to a more strategic function will have significant implications for job roles and skills. The focus on green public SCM in the face of the increasingly urgent environmental issues that we face and the global and national responses to these issues, provides important insights into the potential that public SCM has to support government strategies and commitments. The strong parallels between the challenges and opportunities of supporting preferential or strategic procurement related to socio-economic development and environmental sustainability suggest that the occupational and skills implications of this review will have wider relevance in terms of public SCM. In addition, the emergent nature of the environmental challenges that we face and the potential of these challenges to increase the cost of service delivery and lower the quality of life of many poor and marginalised communities, highlight the importance of a strategic shift towards green public SCM.

This review has identified four key leverage points within the public SCM system that will require attention to realise the aspiration of enhancing the strategic focus of public SCM and specifically, strengthening environmental sustainability through public SCM. These leverage points are:

- Strategic Alignment,
- Bid Specifications,
- Strategic Sourcing, and
- Monitoring and Evaluation.

Directly linked to these leverage points are a range of implications for capacity development both within and outside of government. This review has focused on the human capacity development and competencies that will be required to perform the functions related to green public SCM. By correlating the functions in public SCM with the key leverage points, it has been possible to make the links between the functions, competency clusters, related skills and the key levers for enhancing green public SCM in South Africa. A summary of these strategic areas and the related occupationally directed skills development implications are summarised in the tables below.
## Mapping Occupations, Tasks, Competencies and Skills

### Table 5: Mapping Occupations, Tasks, Competences and Skills

**Key Leverage Point:** The strategic alignment between global and national policies and commitments related to environmental sustainability; provincial and departmental strategies; and provincial and departmental SCM strategies.

|---------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| **General Manager Public Service (111202) Alt title Chief Director; Director** | **Legislative Environment**
Green SCM implications: The ability to understand and implement environmental and green economy policies and strategies and incorporate them into departmental policies and procedures. | • Advising on the preparation of government budgets, laws, regulations, including amendments (1112)
• Overseeing the interpretation and implementation of government policies and legislation by government departments and agencies (1112)
• Formulating or approving programmes and procedures for the implementation of government policies in conjunction or consultation with government (1112)
• Establishing objectives for government departments or agencies in accordance with government legislation and policy
• Researching social, economic and industrial trends, and client expectations of programmes and services provided (2422)
• Reviewing operations and programmes to ensure consistency with policies of the organisation (2422) | o Ability to develop a Green SCM policy and plan, with corresponding annual targets and goals (Casier et al., 2015; Jonk et al., 2006).
o Understanding of the market, solutions and all the different sustainability impacts of the procurement process. This is highlighted as a key factor of success for implementing the SDGs (Nelson et al., 2015; UNEP, 2015c; Yaker, 2016).
• “manage the performance of SCM activities in compliance with relevant legislation, policies, regulations, frameworks, standards and guidelines” [This would need a stronger focus on environmental and sustainable development legislation etc.]
• “manage the development and review of departmental policies and procedures applicable to [green] SCM”
• “the ability to manage the development of SCM strategies aligned to the departmental strategies” [This would include environmental dimensions of departmental policy] |
| **Senior Government Official (111204) incl. COO** | **Supply Chain Strategy**
Green SCM implications: The ability to ensure that the SCM strategy is aligned and responsive to departmental strategy. This would include considerations of sustainability and thus long-term demand forecasting and the impact of environmental issues on global and local supply chains. | • Advising on the preparation of government budgets, laws, regulations, including amendments (1112)
• Overseeing the interpretation and implementation of government policies and legislation by government departments and agencies (1112)
• Formulating or approving programmes and procedures for the implementation of government policies in conjunction or consultation with government (1112)
• Establishing objectives for government departments or agencies in accordance with government legislation and policy
• Researching social, economic and industrial trends, and client expectations of programmes and services provided (2422)
• Reviewing operations and programmes to ensure consistency with policies of the organisation (2422) | |
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<th>Role</th>
<th>Responsibilities</th>
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<tr>
<td>Chief Financial Officer (121101) Role level 4</td>
<td>• Same as above</td>
<td>• “align SCM strategies with the departmental strategy [including environmental aspects] and align SCM structures, relationships and change processes accordingly”&lt;br&gt;• “evaluating the impact of macro global treaties [e.g. climate change] that may impact on supply chain strategy”&lt;br&gt;• “manage the development and institutionalisation SCM that is responsive to sustainability, social and environmental factors”&lt;br&gt;• The role of the CFO is to support the Departmental Head and Accounting Officer in the execution of their duties. We can thus extrapolate that the same set of skills as those listed above would be required to realise green public SCM</td>
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<td>Supply and Distribution Manager (132401) incl. Supply Chain Executive; Procurement Manager; Supply Chain Manager Role level 4&amp;3</td>
<td>• Same as above</td>
<td>• “monitor the performance of SCM activities in compliance with relevant [environmental] legislation, policies, regulations, frameworks, standards and guidelines”&lt;br&gt;• “develop and review departmental policies and procedures applicable to [green] SCM”&lt;br&gt;• “develop SCM strategies aligned to the departmental strategies” [With the assumption that the departmental strategy would include environmental considerations]&lt;br&gt;• “develop and institutionalise SCM that is responsive to sustainability, social and environmental factors”&lt;br&gt;• Determining, implementing and monitoring purchasing, storage and distribution strategies, policies and plans (1324)</td>
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**Key Leverage Point:** The alignment between the provincial and departmental strategies, particularly the environmental and sustainability components, and the specifications for goods and services.

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<td><strong>Bid Specification Committee</strong>&lt;br&gt;Committee members may represent a range of occupations including:&lt;br&gt;• Senior Government Official (111202/4/7)&lt;br&gt;• Procurement Manager; Supply Chain Executive (132401)&lt;br&gt;• Environmental Consultant (213302)&lt;br&gt;• Programme or Project Manager (121905)</td>
<td><strong>Legislative Environment</strong>&lt;br&gt;Green SCM implications: The ability to understand and implement environmental and green economy policies and strategies and incorporate them into bid criteria, specifications or functionality requirements.</td>
<td>• Ensuring appropriate systems and procedures are developed and implemented to provide budgetary control (1112)&lt;br&gt;• Determining, implementing and monitoring purchasing, storage and distribution strategies, policies and plans (1324)&lt;br&gt;• Establishing and managing budgets, controlling expenditure and ensuring the efficient use of resources (1324 &amp; 1219)&lt;br&gt;• Providing advice and support to governments, organizations and businesses about ecological sustainable development of natural resources (2133)</td>
<td>• Ability to write a bid that incorporates green/sustainability considerations (UNDP, n.d.) and define technical specifications for contracts which take into account economic (fiscal) life cycle costings (Dion et al., 2015; Tessema &amp; Marsille, 2009), environmental and social impacts throughout the life cycle of the goods or services (European Commission, 2011), including an ability to challenge the function of a product (Yaker, 2016) and compare product attributes (SPLC, 2014). This is likely to include an understanding and use of methodologies and tools to e.g. life cycle costing analyses (Joshi &amp; Pamlin, 2013).</td>
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**Role level 3&4**

**Supply Chain Strategy**<br>Green SCM implications: The ability to ensure that the SCM strategy is aligned and responsive to departmental strategy. This would include incorporating considerations of sustainability and thus long-term demand forecasting and the impact of environmental issues on global and local supply chains into bid specifications.

**Demand Management**<br>Green SCM implications: The ability to review and compile specifications and/or terms of reference that incorporate environmental considerations.

• “manage compliance with requirements for [green] specification/ terms of reference and communicate recommendations to relevant authorities”
Key Leverage Point: An understanding of **strategic sourcing** and how this can be leveraged to support provincial and departmental environmental and sustainable development strategy.

|--------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| **Chief Financial Officer (121101)** | **Strategic Sourcing**  
There are a large number of competency titles under the broad competency cluster of strategic sourcing. The following is thus a list of the competency titles. Some Green SCM implications are contained in [].  
- Analysis of the supply environment [incl. environmental risk to supply]  
- Calculating the total cost of ownership [incl. lifecycle analysis]  
- Market analysis [incl. environmental innovation and new opportunities]  
- Analysis of products and services required [incl. env. alternatives]  
- Analysis of spend per category or item to identify strategic focus areas [incl. contribution to green econ.]  
- Analysis of the supply base [incl. potential to support innovation]  
- Segment the goods and services according to supplier, commodity, supply chain, organisational opportunities and potential for improvement through lean supply concept [incl. env considerations]  
- Controlling expenditure and ensuring the efficient use of resources (121)  
- Establishing and directing operational and administrative procedures (1211)  
- Planning, directing and coordinating the financial operations of an enterprise or organisation (1211)  
- Ensuring the efficient use of resources (1211)  
- An ability to assess risk, reassess and target areas of highest impact or priority (Casier et al., 2015; UNEP, 2015c).  
- “manage the implementation of the sourcing strategy, incorporating the total cost of ownership (TCO) model [TCO and Lifecycle analysis must include environmental costs, risks and benefits]  
- “manage the identification and categorisation of various commodities according to supplier, commodity, supply chain and organisational opportunities” [this would include environmental criteria as identified in SCM strategies]  
- Negotiating contracts with suppliers to meet quality, cost and delivery requirements  
- Determining, implementing and monitoring purchasing, storage and distribution strategies, policies and plans  
- Establishing and managing budgets, controlling expenditure and ensuring the efficient use of resources  
- Skills to understand design-for-the environment and eco-innovation and integrate this thinking into the supply chain management (Casier et al., 2015).  
- Setting of awards to encourage suppliers to go beyond basic GPP or SPP specifications (European Commission, 2011).  
- “manage the analysis of the supply environment” [incl. env. risk to supply and opportunities to support innovation]  
- “manage the TCO process from acquisition to disposal” [this would include environmental lifecycle analysis and responses that minimise negative impact] |
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<th>Role level 4</th>
<th>Classification of suppliers based on commodity value and risk profiles [incl. SRoI and environmental risk]</th>
<th>Category and portfolio management [incl. support for environmentally responsible suppliers]</th>
<th>“manage the development and execution of a product/or service analysis in terms of risk and spend in the organisation and related commodity maps based on additional [environmental] criteria related to the good and services under review”</th>
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<tr>
<td><strong>Senior Government Manager (111207) incl. Head of Department; Director General; Deputy Director General</strong></td>
<td>Ensuring appropriate systems and procedures are developed and implemented to provide budgetary control (1112)</td>
<td>“position SCM as a strategic function within the organisation” (from Institutionalisation Competency Cluster) [include environmental aspects within SCM]</td>
<td>“manage the institutionalisation of SCM education, training and development solutions of SCM officials” (from Institutionalisation Competency Cluster) [include green SCM in capacity development]</td>
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### Key Leverage Point:

Enhancing SCM information generation and use to support the monitoring and evaluation of environmental performance of green SCM.

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<td>Senior Government Manager (111207) incl. Head of Department; Director General; Deputy Director General  Role level 4</td>
<td>Performance management  Green SCM implications: The ability to review the environmental performance of the SCM system. This would include: designing and monitoring a SCM system for reviewing performance incorporating departmental strategic goals such as sustainability; value for money based on total cost of ownership; programme delivery in terms of social return on investment (SRoI); and, government policy objectives including sustainable development and environmental policy.</td>
<td>• Overseeing the interpretation and implementation of government policies and legislation by government departments and agencies  • Formulating or approving and evaluating programs and procedures for the implementation of government policies in conjunction or consultation with government  • Ensuring appropriate systems and procedures are developed and implemented to provide budgetary control</td>
<td>• “monitor the manner in which SCM policy is implemented with respect to development objectives, value for money and delivery methods” [include environmental aspects in monitoring criteria]</td>
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<tr>
<td>Chief Financial Officer (121101)  Role level 4</td>
<td></td>
<td>• Establishing and directing operational and administrative procedures  • Establishing and managing budgets, controlling expenditure and ensuring the efficient use of resources</td>
<td>• “monitor the design, implementation and review of a SCM system for reviewing performance incorporating departmental strategic goals, value for money, programme delivery and government policy objectives” [include environmental aspects in monitoring criteria]</td>
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<tr>
<td>Supply and Distribution Manager (132401) incl. Supply Chain Executive; Procurement Manager; Supply Chain Manager  Role level 4&amp;3</td>
<td></td>
<td>• Establishing and directing operational and administrative procedures  • Determining, implementing and monitoring purchasing, storage and distribution strategies, policies and plans  • Establishing and managing budgets, controlling expenditure and ensuring the efficient use of resources</td>
<td>• “design, implement and review a SCM system for reviewing performance incorporating departmental strategic goals, value for money, programme delivery and government policy objectives” [include environmental aspects in monitoring criteria]  • “manage supplier performance metrics” [include environmental metrics]</td>
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Recommendations

Recommendations for Organisational Collaboration

PSETA and National Treasury (possibly DHET & QCTO)

There is an urgent need to align the occupationally directed qualifications framework that DHET and the QCTO are using to inform skills development and the detailed work contained in the technical competency dictionaries that National Treasury has developed to inform capacity development in the public financial management sector. The tables above which focus only on the SCM Technical Competency Dictionary and within that, only on the implications for Green SCM, provide some indication of the scale of work required in this alignment. It is therefore recommended that PSETA and the Chief Director: Capacity Building within the Office of the Accountant-General work together to align the work in the Technical Competency Dictionaries and the Organising Framework for Occupations.

DEA and National Treasury

The DEA have both the mandate and specialist knowledge to support the strategic integration of global and national environmental policies into other areas of government activity. Given National Treasury’s stated intent to make SCM more strategic and the work being done on strategic procurement, it is recommended that a working group be established between DEA and National Treasury to ensure that SCM in the public service incorporates sustainability and environmental considerations. This could include the secondment or placement of a sustainable development/ environmental specialist from DEA to the OCPO to support the work of the Chief Director: Strategic Sourcing.

PSETA, DEA and National Treasury

It is recommended that based on the strategic areas of intervention identified in this review and the associated occupationally directed skills development foci that are identified in the tables above, a working group be established involving PSETA, DEA and National Treasury. This group, coordinated by PSETA, should focus on mapping the methods, techniques and tools for achieving the strategic levers identified in this review. This would include methods for supporting strategic alignment between global and national policies and strategies, departmental policies and strategies, and national and departmental SCM policies and strategies. It would also look specifically at the techniques and tools such as full cost accounting, life cycle analysis and social return on investment as well as many others that are contained in the work on strategic sourcing that has been compiled within the OCPO. These methods, techniques and tools could then be used to structure and inform individual capacity development initiatives, some of which are outlined below.

PSETA and LGSETA

This review has focused on the national and provincial levels of government. There is a need to work with the municipal and local levels of government to perform a similar review and identify the strategic areas of intervention at this level, as well as the occupations and skills that may require development. It is recommended that PSETA create a platform for sharing this review, its implications and the potential to build on this review within the LGSETA.
Specific Capacity Development Recommendations

DEA and PSETA

DEA champion Green Public SCM through high level seminars and inter-ministerial information sessions that highlight the global and national climate change and other environmental challenges, opportunities and commitments. These seminars and information sessions are supported by a face to face or internet based course that guides a review of departmental strategies with a particular focus on SCM strategies. The outcome of these seminars and course support would be strategic alignment of departmental SCM strategies with global and national environmental commitments.

PSETA

Develop a short course for existing and prospective Bid Specification Committee members. This course should enable committee members to fulfil their strategic tasks associated with aligning bid criteria, specifications and functionality with departmental strategies and particularly the SCM strategy. A key component of this course should address methodologies, techniques and tools (e.g. life cycle analysis and full cost accounting as well as the use of eco-labeling) available to support this strategic alignment and thus green SCM in the public sector.

National Treasury

It is recommended that National Treasury continue to work with CIPS to develop the professional programmes and to lobby for the professionalisation of supply chain management in both the public and private sectors. The current course includes the practitioner development programme for junior managers and the professional development programme is for middle managers. There is also a two-day executive SCM development programme ‘crash course’ for Heads of Departments/ Accounting Officers to highlight the importance of strategic SCM. The sustainability or green components of SCM currently contained in the European CIPS curricula need to be retained but adapted to the South African context as this will enable South African businesses to compete within the global market. Green SCM in the public sector needs to support innovation in the development of environmentally responsible goods, services and construction and thus grow the green economy in South Africa.

PSETA and National Treasury

It is recommended that PSETA and National Treasury, specifically Strategic Sourcing within the OCPO, work together to develop a massive open online course (MOOC) to roll out the strategic sourcing methods, techniques and tools that have been developed. Using an internet based programme will enable public employees across the country to work together to develop and refine these resources (including lists of specifications, environmental functionality, life cycle analysis and return on investment case studies) and to support each other to integrate strategic sourcing into their operations. The course should be designed with both knowledge components and skills based ‘change projects’ that have a strong focus on workplace integration. Linked to this MOOC, it is recommended that there be a strong focus on data collection, monitoring and evaluation. In this way the course can support monitoring and evaluation capacity focused on green SCM while at the same time gathering information on green SCM. If SCM is professionalised in South Africa, this course could contribute to continuing professional development points.
References


Appendix 2: Global examples of Green SCM

Africa
Aside from South Africa (which is covered in the national section of this report), little information was available on SPP practices by African countries. However, one country that did emerge as an exemplar is Ghana, which is noted as having been the first country in Africa to implement a ‘fully-fledged’ SPP/GPP policy (Ministry of Finance, 2015). Since 2012, the Public Procurement Authority of Ghana has been collaborating with the Swiss to improve the implementation of SSP in the Government of Ghana. Ghana is also a key player in the Marrakech Task Force (Public Procurement Authority, 2012).

Procurement, or more the training of government employees to implement sustainable development and consumption principles, is also a focus for Tanzania (NEMC, 2015), however little information on the implementation of their activities was identified.

Asia
An outstanding component of the Asian public procurement sector is its scale, with the People’s Republic of China spending approximately R3,836 trillion on procurement (11% of Government spend) (Dion et al., 2015; Zhu et al., 2013). Due to its significant spending power, the Chinese regime could have a significant impact on how it purchases products. As such, the Government has been implementing GPP since 2005, with public procurers mandated to select products that have low-energy footprints and are selected from an ‘Energy Conservation Products’ list; they are additionally advised to select products from an ‘Environmental Labelling Product’ list (Dion et al., 2015; Tessema & Marsille, 2009). In 2015, the IISD produced a useful document which provides recommendations for GPP for selected products – such as cars, in China, illustrating various scenarios for consideration (Dion et al., 2015).

Korea has been active in GPP since 2005, with the implementation of its ‘Act to Promote the Purchase of Eco-friendly Products’. As such, over 880 government departments and public institutions have adopted GPP programmes (Ko, 2015).

Legislation is a key driver for implementing GPP in both China and Korea, as it is also for Japan, who issued their ‘Green Purchasing’ law in 2011 which dictates that all government bodies must develop and implement a green purchasing policy (Brammer & Walker, 2007; Ministry of Finance, 2015).

From a training (i.e. skills) perspective, Korea recognises that in order to implement good GPP, staff need training and almost 80,000 public employees have been trained since 2005 (Ko, 2015). China has focused on training to learn about emergent innovative green practices from developed countries (Zhu et al., 2013).

India can be usefully compared with South Africa; however it was noted by Joshi and Pamlin (2013) that sustainable public procurement in the country does not exist, and that there is no department responsible for SPP.

Europe
Sustainable public procurement in Europe has very much been led and driven by the European Commission, who have been active since the early-2000s with reports, such as ‘Green Public Procurement in Europe: Conclusions and Recommendations’ (Jonk et al., 2006) providing progress
reviews since implementation. The Nordic states have been practising sustainable procurement in various forms since the 1990s (Bergman et al., 2012). It is therefore not surprising to note that Europe has the most countries implementing sustainable procurement.

The focus in Europe is on Green Produce Procurement (GPP), with many countries adopting and administering GPP as a result of direction from the European Commission, who are active in developing guidance, principles, GPP specifications for services and products, and eco-labels. However, the Commission notes that a number of countries in Europe also practise Sustainable Product Procurement (SPP). Both GPP and SPP are seen as voluntary and it is up to an individual country as to how it wishes to adopt the principles, with many setting annual targets for overall procurement or focusing on specific products e.g. United Kingdom on paper and wood (Brammer & Walker, 2007) or particular services (Brammer & Walker, 2007; European Commission, 2011). The European Commission notes that most EU member states have published GPP or SPP national action plans which provide a variety of actions and measures for green or sustainable public procurement (European Commission, 2011).

The Netherlands stands out as exemplar of SPP in Europe, having set a target for 100% sustainable acquisition for all government institutions, and 30-40% of the EU’s GPP criteria are applied in all procurement cases (Ministry of Finance, 2015). Other top performing countries identified in the EU are Belgium, Denmark and Sweden (Ministry of Finance, 2015).

From a training perspective, Cyprus is cited as an example of best practice, having implemented a programme to train over 600 public procurers on how to implement SPP (Steurer, Berger, Konrad, & Martinuzzi, 2007), and the United Kingdom – who have implemented a variety of training packages for government employees to implement SPP under their ‘Government Sustainable Procurement Action Plan’ (Defra, 2007; Tessema & Marsille, 2009). Contrary to these cases, within the Nordic countries, capacity building and training is seen as ‘challenge’ often carried out by law firms or consultants (Bergman et al., 2012).

Latin America & the Caribbean
As with China (Dion et al., 2015), the International Institute for Sustainable Development (IISD) has been a proactive entity in developing SPP guidance for government procurement officials in the region (Casier et al., 2015). Examples of good practice highlighted within this region include:

- Peru and Jamaica have produced legislation which sets’ value for money’ as a central objective for public procurement (Casier et al., 2015).
- Procurement from minority and vulnerable groups, or from woman was regularly cited in Latin American examples, such as SPP criteria for the Dominican Republic, Honduras and Chile (Casier et al., 2015).

A report by Casier et al. (2015) provides excellent guidance on the setting of criteria for certain products, which would be of relevance to South Africa.

The Middle East
In a document produced by Lebanon’s Ministry of Finance (2015), it was noted that Egypt, Jordan, Kuwait, Lebanon, Palestine, Tunisia, and the United Arab Emirates (Dubai) have integrated sustainable consumption and production into their national development plans, but until the point of report publication this had not been reflected in public procurement. However, Lebanon has
recognised the role it can play in SPP as a major purchaser of goods and services, and has set out on an SPP journey (Ministry of Finance, 2015).

**North America**

In alignment with the United States’ Constitution, sustainable procurement frameworks at a federal-level are more inclusive i.e. adopt social considerations, than those adopted in Europe, incorporating criteria such as avoiding discrimination and providing equal opportunities, particularly for women and minority-owned businesses. Interestingly these policies extended beyond the boundaries of the US, and were used to apply pressure on governments, such as South Africa to end apartheid (Brammer & Walker, 2007).

Similar social inclusion criteria are included in Canada’s framework, which also stipulates non-discrimination and ensuring opportunities for ‘Aboriginal’ businesses (Brammer & Walker, 2007). While European activities appear to be driven by dictates from the European Commission, in the United States there is no obvious organisational driver. Interestingly though, a charity – the Sustainable Procurement Leadership Council – appears to be spearheading activities in sustainable procurement by providing a voluntary programme which sets out to encourage and support leadership in sustainable procurement. The programme has a focus on guidance which helps select and understand sustainable products, prioritise opportunities and benchmark progress (SPLC, 2014). A diverse and large group of more than 100 procurement experts, private and public organisations contribute to the development of programme activities, such as technical guidance (SPLC, 2014).

It is recommended, should a more in-depth consolidated overview of global sustainable procurement practices be required, the report ‘Sustainable Public Procurement: A Global Review’ published by UNEP (O’Rourke et al., 2013) be consulted.
Appendix 3: Green skills in the South African public procurement sector: Return on investment

Introduction
Within the South African public procurement context, an appropriate method for assessing and evaluating the impact of activities – completed, current and future - is Social Return on Investment (SRoI). SRoI is a method for measuring and communicating a broad concept of value that incorporates social, environmental and economic impacts. It is a way of accounting for the value created by activities and the contributions that made that activity possible. It is also the story of the change affected by activities, told from the perspective of the stakeholders. SRoI was developed from social accounting and cost benefit analysis (CBA), and has a lot in common with other outcomes approaches, of which CBA’s are still commonly practised – as witnessed by the Department of Environmental Affairs, and their selection of electric vehicles.

SRoI is a relatively new concept, that has been most widely adopted in the UK, however, organisations such as the Bertha Institute are exploring whether a similar structure could be adopted in South Africa; using public funds to reduce the risk impact investing funds face by providing outcome payments linked to metrics that might include job creation, health and education for early stage investors (Trialogue, 2016). In addition, South Africa is working towards participating in the G20 Social Investment Task Force. This commitment to better understanding and starting to implement SRoI by South Africa clearly illustrates that this method is a useful approach to be adopted by the public sector to evaluate current projects, as well as inform future activities and investments. In addition, the Public Finance Management Act provides an institutional framework for sound financial management in the public sector. This means that a greater emphasis is now being placed on proper financial planning and governance, as well as the monitoring and evaluation of financial resources (Meyer & Opperman, 2007).

Return on investment in the public sector
In terms of return on investment in sustainable procurement in the South African public sector, a number of variables can be considered which support the transitioning to a greener economy – job creation, employment of youth and woman, application of circular economy principles and supporting local business. Some examples of national, provincial or parastatal initiatives of sustainable procurement are listed below, with associated benefits (returns) where data was applicable or attained.
<table>
<thead>
<tr>
<th>Initiative/activities</th>
<th>Public sector body</th>
<th>Benefits &amp; returns</th>
</tr>
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</table>
| Solar PV sites       | Eskom              | • **Financial:** All energy generated is for self-consumption in buildings (reduced energy costs).  
|                      |                    | • **Social:** New and improved project management and technical skills. |
| Centralised purchase of fuel (biogas, bioethanol, Compress Natural Gas (CNG)) and vehicles | Department of Environmental Affairs – Electric vehicles, Johannesburg Metrobus | • **Financial:** Reduce per unit costs of fuel and vehicles (up to 15-20%).  
|                      |                    | • **Financial:** Cutting life cycle fleet costs by 10-20%. Electric, Gas, and Ethanol buses are all being offered in South Africa today at costs below or equal to the 5-year life-cycle costs of diesel.  
|                      |                    | • **Environmental:** All alternative fuel types for buses can reduce GHGs by over 70%.  
|                      |                    | • **Social:** Green manufacturing jobs.  
|                      |                    | Source: Linkd, 2015 |
| Tshwane Rapid Transit system | City of Tshwane | • **Financial:** A CNG bus is 10% more expensive than a conventional bus.  
|                      |                    | • **Financial:** CNG costs R7.99/ℓ, compared with the current diesel price of between R10/ℓ and R11/ℓ.  
|                      |                    | • **Environmental:** CO₂ emission footprint is equal to that of a Euro V engine.  
|                      |                    | • **Social:** Local manufacture and assembly.  
|                      |                    | • **Social:** Accessible to children, people with disabilities and the elderly.  
|                      |                    | Source: Barradas, 2016 |
| Ocean View Social Housing | City of Cape Town | • **Financial:** Reduced costs for excavation and use of materials by reusing stone on the site.  
|                      |                    | • **Financial:** c. R6m reduction in transports costs of stockpiled material from the bulk earthworks.  
|                      |                    | • **Social:** Use of local labour and development of stone masonry, bricklaying, electrical and carpentry skills.  
|                      |                    | • **Environmental:** Reuse of stone. Heat and fire resistant stone construction.  
|                      |                    | Source: City of Cape Town, 2013 |
| Communal Ablution Blocks | eThekwini | • **Social:** Provision of safe and secure ablution facilities in informal settlements.  
|                      |                    | • **Social:** Significantly improved the lives of 82% of informal settlement households.  
|                      |                    | Source: Earthworks, 2016 |
| Retrofitting traffic lights with LEDs | City of Cape Town | • **Financial:** Initial investment of R29 million, with saving of R11 million per annum, with a payback period of three years.  
|                      |                    | • **Environmental:** Saving of 7 459 MWh of electricity and 7 384 tons of carbon.  
|                      |                    | Source: Western Cape Government, 2015 |
These few examples illustrate the importance of undertaking a cost benefit analysis, life cycle costing or social return on investment of a product or service accounts to assess the full cost of material, energy and money of a product or service, as well as the impacts of production and consumption on workers, communities, society and the environment along the entire value chain. This will ensure investment and selection of the most appropriate product or service is based on well-informed and holistic financial, social and environmental variables and criteria. While all elements will not be equal, a transparent understanding of the benefits and returns to the investor (e.g. the national, provincial or local government investing body) are well understood and met.

Bibliography


Appendix 4: Examples of Sustainable SCM Criteria

Environmental criteria:
- Suppliers committing to waste reduction targets (Brammer & Walker, 2007) and/or products that reduce solid waste impacts (SPLC, 2014).
- Greenhouse gas emissions and air pollution (SPLC, 2014).
- Land use and biodiversity (SPLC, 2014).
- Return of products, components and equipment to suppliers (De Groene Zaak, 2015).
- Design of products for disassembly (Brammer & Walker, 2007) or reuse (Yaker, 2016).

Social criteria:
- Supporting previously disadvantaged (as opposed to minorities) (Brammer & Walker, 2007) or vulnerable groups (Casier et al., 2015).
- Supporting women (Brammer & Walker, 2007; Casier et al., 2015).
- Supporting Small and Medium Enterprises (SMEs) (Brammer & Walker, 2007).
- Reducing human exposure and health risk (SPLC, 2014).

Economic criteria:
- Use and disposal or end-of-life costs (Ministry of Finance, 2015; SPLC, 2014).
- Operational and maintenance costs (Casier et al., 2015).
- Life-cycle and whole-value of a product/services cost (Casier et al., 2015; Ministry of Finance, 2015; UNDP, n.d.).
Appendix 5: South African examples of Green SCM

(Note this section draws heavily on the IISD review on implementing SPP in South Africa - Turley & Perera, 2014.)

National Case Examples: The Renewable Energy Independent Power Producer Procurement Programme (REIPPPP)
The REIPPPP is a government-led procurement programme that seeks to address climate change mitigation measures by increasing the share of renewable energy in the national grid. In addition to climate mitigation, this programme has an explicit focus on economic development and the building of South Africa’s capacity in the renewable energy sector thus creating jobs through local content, management and ownership of renewable energy installations. The public supply chain has been overtly used to achieve these objectives with renewable energy provision, long-term costing and contribution to defined economic development criterial all being factored into the functionality requirements and specifications. The REIPPPP is thus an important component of South Africa’s Integrated Resource Plan (2011) and the building of renewable energy capacity in the country.

National Department Case Example: Department of Environmental Affairs
The Department of Environment Affairs has shown leadership in the field of Green Supply Chain Management with some very large investments in recent years. Most noticeable is the DEA head office in Pretoria. This building has achieved extremely high ratings from the Green Building Council of South Africa. In the procurement process, the DEA included in the specifications that the building must achieve at least a four-star rating from GBCSA.
The DEA has also launched an initiative to reduce greenhouse gas emissions from their transport fleet through investment in electric vehicles. In 2013 the Minister launched the ‘Green Car Initiative’ as a pilot project with the intention of mobilising other government departments to support this green procurement initiative.

Provincial Case Examples: The Western Cape and Gauteng
In 2012 the Provincial Government of the Western Cape drafted a White Paper on Sustainable Public Procurement that sought to integrate Green Public Procurement into the provisions of the Preferential Public Procurement Framework Act’s ‘functionality’ assessment. National Treasury at the time recommended that the GPP considerations be incorporated under the technical specifications. Unfortunately, the policy was rejected at the time; however, the guidelines developed through this process have continued to inform GPP initiatives with a number of ‘specifications committee’ having been established to inform GPP in the province. This work has been picked up and taken into the municipal level by the City of Cape Town.

The Province of Gauteng set an ambitious Green Strategic Programme in 2011 to set goals for provincial and local government procurement in the province. More specifically, goals were set for government to only procure “products and services satisfactorily rated as green according to clear standards” (Economic Development Department, 2011, cited in ISSD). Clear targets for putting these standards in place to inform supply chain management in the province were developed at the time and it would be useful to follow up on the implementation of this initiative.
Local Municipality Case Example: Nelson Mandela Bay Municipality

Building on the use of eco-labels as a measure to certify environmental claims and to make green procurement easier, NMBM has introduced a ‘Green Certificate’ for suppliers to the municipality. Through the development of a Green Procurement Implementation Strategy (2011), NMBM committed to working with suppliers to evaluate and improve their environmental performance. For those suppliers that already held internationally recognised environmental performance certification such as ISO 14001 the Green Certificate was automatically awarded. For other suppliers, it was required that they complete a green procurement scorecard in order to receive the certificate. It appears that this Green Certificate could then form part of the documentation required for tenders. It is not clear what the required level of environmental compliance is for receiving the certificate nor how it was used in the actual adjudication of tenders. However, what is significant is that the NMBM worked with suppliers to develop an eco-label with the express intention of incorporating it into the SCM processes.
Appendix 6: Functions within DEA related to Green SCM

Each function, unit or branch has a defined purpose and objectives. Some of these objectives do or could directly or indirectly support the greening of skills or opportunities for the procurement of sustainable products - these are highlighted and discussed below.

Administration

*Purpose:*

Provide leadership, strategic, **centralised administration**, executive support, **corporate services** and, *facilitate effective cooperative governance, international relations and environmental education and awareness* (DEA, 2016).

*Strategic objectives:*

- Adequate, appropriately skilled, transformed and diverse workforce,
- Improved profile, support and capacity for the environment sector,
- Strengthened knowledge, science and policy interface,
- Effective knowledge and information management for the sector – this objective would suggest that the Department is in a position to spread good procurement practices throughout its regional, and departments and equivalents – through guidance, and potentially training.

Chief Operating Officer

Within the Administration unit, the most critical function for SCM is the Chief Operating Officer unit, as it is **responsible for the procurement of goods** for the Department. The purpose of the unit is to co-ordinate and manage the strategic functions and operations of the Department. Some of its key functions relevant to, and therefore strategic for the implementation of SCM throughout the Department are (DEA, 2016):

- Manage the provision of strategic and operational support services, including strategic and business planning, risk management and organisational performance management.
- Manage the development and implementation of an integrated state of the environment reporting system and facilitate national sustainable development and greening policy processes and initiatives.
- Provide effective and sound corporate and cooperative governance and effective management of projects implemented by third parties.
- Manage and coordinate special projects and transformation programmes.

Of particular importance to the greening of occupations, and occupations requiring the greening of skills in SCM, are two functions within the unit:

- Facilities Management – responsible for the procurement of e.g. vehicles and products, and
- Human Capital Management – responsible for human resources within the department.
Financial Management Services

**Purpose:**
To manage and monitor the provision of financial management services in the department (DEA, 2016).

**Strategic objectives:**
- To render effective and efficient financial, budgeting and supply chain management services to the Accounting Officer (Director General) in terms of the Public Finance Management Act, 1999 and the Treasury Regulations.
- To render financial planning, budgeting and control services to the department.
- Render effective and efficient procurement of goods and services to the department in order to ensure proper implementation of the department’s key focus areas and in particular transformation in SCM.
- To manage an efficient and effective bookkeeping system (DEA, 2016).

It is within this unit, that supply chain management (SCM) services for the Department are planned, implemented and monitored, and is therefore a critical nucleus for SCM activity and strategic occupations and skills within the Department. The unit operates out of both the Head Office in Pretoria, and Cape Town, with the **Chief Directorate of SCM** based in Pretoria.

For further discussion on the processes adopted by the Supply Chain Management Directorate see Section 1.3.2.

Climate Change and Air Quality Management

**Purpose:**
Improve air and atmospheric quality, lead and support, inform, monitor and report efficient and effective international, national and significant provincial and local responses to climate change (DEA, 2016).

**Strategic objectives:**
- Threats to environmental quality and integrity managed, and
- Negative impacts on health and wellbeing minimised.

Both these strategic objectives provide the opportunity for this branch to support Departmental colleagues in making informed decisions about the climate change impact associated with purchases e.g. CO\textsubscript{2} emissions associated with the purchase of vehicles.

Chemicals and Waste Management

**Purpose:**
Manage and ensure that chemicals and waste management policies and legislation are implemented and enforced in compliance with chemicals and waste management authorisations, directives and agreements.

**Strategic Objectives:**
- Threats to environmental quality and integrity managed
- Negative impacts on health and wellbeing minimised
- Growth in industries that depend on environmental services
As with the Climate Change and Air Quality Management branch, these objectives enable this unit to not only facilitate positive action within activities they support and facilitate, but to also inform the development of criteria that aim to facilitate the purchase of products used by the Department and its associated projects, that have a reduced environmental and health impact. Of particular relevance to SCM is one of their objectives:

*To lead the development of national policies, strategies, legislation, norms and standards and build capacity in government, industry and civil society to respond to the challenges of pollution resulting from poor general waste management while also contributing towards the provision of basic waste services to all citizens of South Africa.* (DEA, 2016)

This objective specifically highlights this branch’s role in developing standards, which should include SCM purchasing criteria for ‘green’ products e.g. cleaning products with no or reduced hazardous chemicals ingredients. For example, the branch has developed a PCB phase out plan for municipalities, which was finalised and implemented this year (DEA, 2016). This initiative clearly illustrates the role the Department has in using its expert knowledge in a subject to develop selection criteria for other national, provincial and local governments when purchasing hazardous chemicals.
Appendix 7: Selection of Policy, Legislation, Regulations and Strategies related to Green SCM in South Africa


National Treasury. Regulatory Framework for Supply Chain management. 2003

National Treasury. National Treasury Regulations. 2005


Department of Science and Technology. The ten-year plan for science and technology [document on the Internet]. c2008.

Republic of South Africa. Framework for South Africa’s response to the international economic crisis [document on the Internet]. c2009


Republic of South Africa. National climate change response white paper [document on the Internet]. c2011

Department of Environmental Affairs. National waste management strategy [document on the Internet]. c2011


Department of Science and Technology. The Bio-economy strategy [document on the Internet]. c2013


Appendix 8: Procurement case study: Electric vehicles

In 2013, the Department launched the use of its ‘green cars’ (electric vehicles) to illustrate how it can implement simple and practical measures to reduce its carbon emissions (DEA, 2014). It is the Department’s intention to phase out the use of its fossil fuel (petrol and diesel) powered fleet and eventually replace it with zero emission electric vehicles. As such, the launch of the first batch of vehicles in 2013 signalled this intention, with a three year trial (Maseda, 2016). The trial has illustrated the feasibility and success of introducing the use of these vehicles by the Department, who have expanded the programme and purchased more electric vehicles. In addition, infrastructure for charging stations has been installed in priority areas (e.g. Johannesburg, Pretoria and Cape Town) (DEA, 2014). Due to the success of the programme, the Department’s adoption of these vehicles has also influenced other public entities to adopt electric vehicles, such as Tshwane Municipality (Martins, 2014).

For the purposes of this study, the process adopted is useful to share, as it illustrates how SCM can aid in reducing the public sector’s environmental impact.

The procurement process

As a special project within the Chief Operation Officer’s Unit, and guided by the Chief Directorate of Facilities, the Transport Team (officers) within this Unit undertook research to explore different electric vehicle options, identify suitable suppliers and implement the purchasing procedure.

In the first instance, the Transport Team conducted research to identify what vehicles were available on the open market. The main criteria for selection was that the vehicles produced zero emissions, had a measurable benefit to the environment and were cost effective to operate. However, the latter was not a driving factor, but cost could not be neglected. Discussions with inter-Department specialists provided information on what levels of CO₂ reduction would be required to meet these criteria, and the officers undertook cost benefit analyses of the different options. Vehicles manufactured in Finland, Japan and Europe were identified as suitable, and they could be imported to South Africa.

Following identification of the preferred options, all seven electrical vehicle manufacturers were contacted to ascertain the feasibility of providing the vehicles to the Department. Of these manufacturers, Nissan were the most willing to enter into discussions. This was a risk they were willing to take, as South Africa was an unchartered market for them. Several meetings were held with Nissan, the Department’s Chief Director of Facilities and his Transport Team to clarify and agree e.g. specifications, contractual arrangements and branding.

Whilst it was not possible during the course of this study to better understand the skills and job roles involved in this process, what this case study does illustrate is that the SCM process can be used to
procure more sustainable products by the Department, using internal capacity, skills and knowledge. Not only can this process be mirrored within the Department itself, but act as an example of best practice to encourage other Government departments, entities and public sector bodies to adopt similar practices, such as Tshwane Municipality. It can also be ascertained that the success of this trial can be attributed to the role certain functions within the Department played – approval and support from the Director General and Chief Operating Officer, enthusiasm and appropriate environmental knowledge within the Facilities Unit, associated skills of the research officers in the Transport Team and other internal Departmental expertise to inform the research and decision making process.

[The process and associated commentary was provided during an interview with Maseda, 2016]
Appendix 9: Diagrammatic representation of networked structures contributing to Green SCM
Appendix 10: Example of occupational pathway from DEA Case Study

Occupational pathway case study: Chief Directorate: Supply Chain Management

The following occupational pathway (job roles held) illustrates the progression of job roles the current Chief Director of SCM has held since he started working in 1986. All positions have been held within the public sector, with most in the Department. According to the current holder of the position, staying within one organisation and following a procurement-focused career pathway is ‘fairly typical’ for this occupation within the public.

As mentioned, one of the useful reasons for understanding an occupational pathway of an individual is the key touch points where the ‘greening of skills’ can and could occur. The current incumbent provided some insight as to where these training and educational opportunities might lie, based on their training and educational pathway. It should be noted, that due to the Apartheid structure still being in place when the incumbent entered the ‘world of work’ it is likely that his path to his current position as Chief Director has taken longer than if he were to start his career now.

As a clerk, a matric is required to undertake ‘narrow-based’ procurement activities. However, as the individual moved up the occupational ladder, more training was required. This included undertaking a Diploma in Public Administration & Management at the then Technikon of South Africa. This was followed by a Diploma in Project Management at the University of Pretoria. In addition to this formal education, the incumbent has undertaken numerous training courses offered through the job, and courses offered by National Treasury. Further supply chain and project management training has also been undertaken through the Public Administration Leadership & Management Academy (PALAMA) – now the South African Management Institute.
This case study clearly illustrates that early on in the incumbent’s career, more formal education was the method for obtaining knowledge, whilst as they’ve progressed internal and sector-specific training has been the preferred option. This suggests that in order to include sustainable SCM into current SCM practices in the public sector, it is worthwhile considering including this in Association and public sector training bodies, particularly at a leadership level where leaders can influence the greening of SCM.