

## **The case for a separate supply chain for the delivery and maintenance of infrastructure**

Ron Watermeyer (Infrastructure Options)  
Kevin Wall (CSIR)  
Graham Pirie (Consulting Engineers South Africa)

### **Introduction**

The inability of many South African municipalities and provincial governments to spend all of their capital budgets each year has for several years been a sore point with National Treasury.

This under expenditure is especially disappointing in the face of estimated municipal investment requirement of the order of R 500 billion. The need is there, the money is available, and yet it is not spent.

National Treasury stated that: "The reasons for municipal under spending on infrastructure are:

- unrealistic budget targets resulting in funding shortfalls, particularly due to low levels of funding from internally generated funds;
- inefficient supply-chain management;
- lack of capacity to plan<sup>1</sup> and fulfil grant conditions." (National Treasury 2011, page 15)

The first and third of these reasons given by National Treasury are well-known enough.

The authors of the present paper investigated the second reason, "supply-chain management" (SCM). The investigation showed considerable variation from municipality to municipality in their ability to spend their capital budgets. Some departments managed in each recent financial year to spend of the order of 95%-plus of their budget. Others, each year, struggle to reach 50%. (Wall *et al*, 2012).

This variation occurred in spite of the fact that all of the municipalities operate in terms of the same SCM regulations (National Treasury, 2005), issued in terms of the Municipal Finance Management Act. All have their share of contractors who fail to perform, and delay completion (and expenditure), and/or have to be replaced. Likewise, all have their share of projects that are reprioritised and budgets that are reallocated.

---

<sup>1</sup> Including, particularly pertinent to spending of the capital budget, to (budget and delivery requirements permitting) carry out the planning, design and tender process in the financial years prior to commencement of construction.

The investigation revealed however that significant differences lie in the ways in which the SCM process is driven by the top managements of each municipality. A municipality's programme for the expenditure of its capital budget can be significantly delayed if the SCM process is allowed to become too protracted. In the opinion of the authors, this, where it occurs, needs to be reined in. A strong case can be argued for the separation of the supply chain for the delivery and maintenance of infrastructure from the supply chain for all other kinds of goods and services.

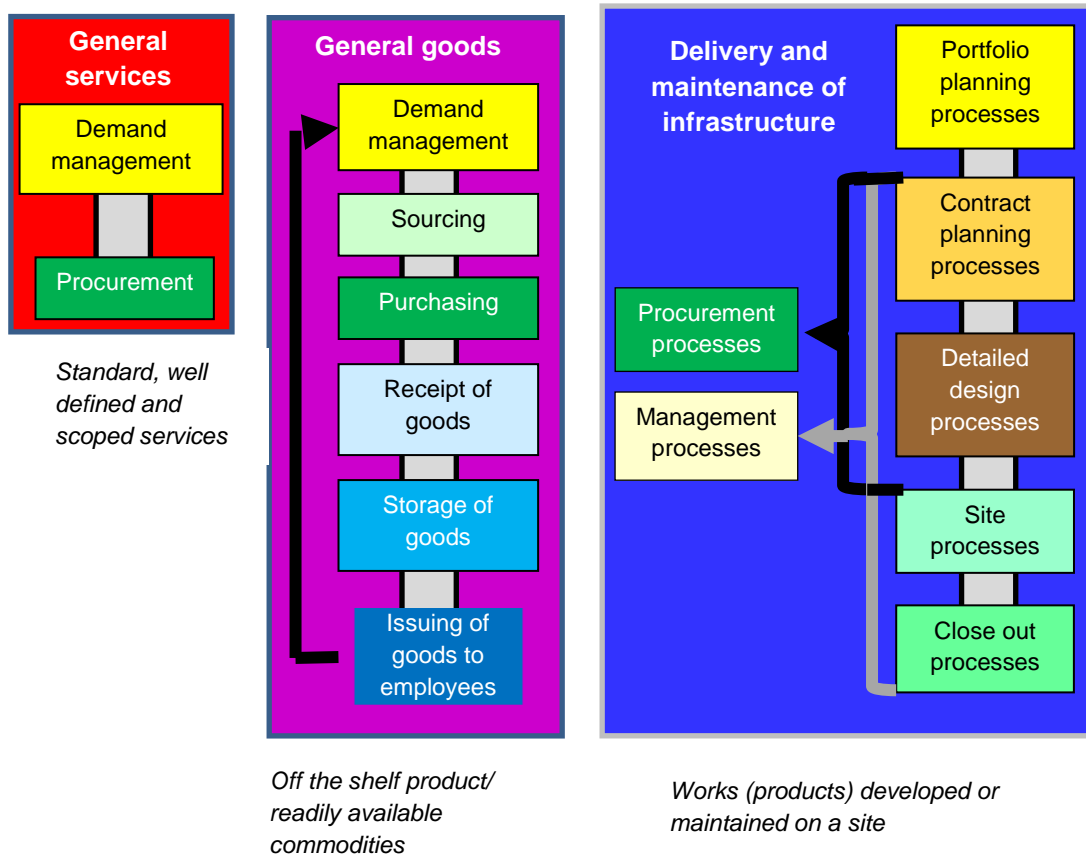
### **A separate supply chain for infrastructure**

Procurement is "*the process which creates, manages and fulfils contracts*" (ISO 10845, 2010). Procurement deals with activities surrounding contracts, i.e. the development of a procurement strategy and a procurement document, the solicitation of tender offers, the evaluation of submissions, the award of a contract, and the administration of a contract. On the other hand, supply chain management (SCM) in the public sector may be regarded as "*the design, planning, execution, control and monitoring of supply chain activities in the delivery of goods, services or works, with the objective of creating net value and providing oversight and co-ordination of information and finances within the supply chain*" (Western Cape Provincial Government, 2012). SCM is the management of all activities at a portfolio level which relate to a supply chain i.e. the management of all the interconnected activities from the point of origin to the point of consumption. SCM is accordingly far broader than procurement.

Government procurement that is unrelated to the delivery and maintenance of infrastructure typically relates to goods and services that are standard, well-defined and scoped. Once purchased, goods invariably need to be taken into storage prior to being issued to employees. Services most often involve routine, repetitive services with well understood interim and final deliverables which do not require officials to provide strategic inputs, or require decisions to be made regarding the fitness for purpose of the service outputs.

Accordingly, the supply chain for procurement that is unrelated to the delivery of infrastructure involves one of two basic types which relate to consumption and operational needs (see Figure 1). They are:

- procurement of general goods (i.e. manufactured products or materials) which involves demand management, sourcing, purchasing, receipt, storage and issuing of goods to employees (end users); and
- procurement of general services which involves demand management, procurement, verification and payment for the services provided.



**Figure 1: Commonly public sector encountered supply chains (Wall *et al*, 2012)**

In contrast, procurement relating to the delivery and maintenance of infrastructure covers a wide and diverse range of goods and services which are required to develop or maintain fixed assets on a site. Accordingly, the supply chain for the delivery and maintenance of infrastructure involves the initial and subsequent recurring updating of planning processes at a portfolio level flowing out of service delivery and accommodation needs assessment. Thereafter it involves planning at a contract level and the procurement and management of a network of suppliers, including subcontractors to produce a product on a site (i.e. works) (see Figure 1). There is no need for an organ of state to store and issue materials or equipment unless these are issued to officials responsible for maintenance, or are issued free of charge to contractors for incorporation into construction works.

There are also differences in the approach to the procurement of construction related goods and services and general goods and services. Non-construction procurement deals with direct acquisitions which involve standard, well defined and scoped services, off-the-shelf items and readily available commodities. The business need is commonly achieved through the production of a specification, which then forms a requisition for the procurement of goods or services. An immediate choice can generally be made in terms of the cost of goods or services satisfying specified requirements.

Construction contracts differ in that each contract is unique, and there cannot be direct acquisition of infrastructure. Each contract has a supply chain which needs to be managed and programmed to ensure that the project is completed within budget, to the required quality, and in the time available. Many risks relate to the "unforeseen" which may occur during the performance of the contract. This could for example include unusual weather conditions, changes in owner/end user requirements, ground conditions being different to what was expected, market failure to provide materials or accidental damage to existing infrastructure.

Unlike non-construction procurement, there can be significant changes in the contract price from the time awarded to the time of completion. Key persons responsible for managing a contract, particularly in complex services or works, have a major impact on the outcome of these changes. The procurement of supplies and equipment within the construction industry is also different as requirements are frequently established in terms of desired performance. As a result, a range of goods and services (or combinations thereof), with different characteristics, costs, time for delivery, etc., may satisfy such requirements.

The following practices which are commonly encountered in non-construction procurement do not sit well with construction procurement:

- Award tenders on the basis of the lowest price for meeting a minimum standard.
- Apply generic conditions of contracts which only describe the rights and obligations of the parties and lack agreed procedures for the administration or management of the contract.
- Negotiation of terms of contract after the evaluation of tenders.
- No standardised structuring of component procurement documents.
- Reliance on completing standard schedules which are applied indiscriminately to procurement transactions.
- Standard, inflexible allocation of risks in contracts which require the drafting of extensive special conditions of contract to amend.

In construction procurement, a procurement strategy (selected packaging, contracting, pricing and targeting strategy, and procurement procedure for a particular procurement) needs to be developed for each transaction and an appropriate form of contract needs to be selected to support that strategy. There are far more permutations and options available for construction-related procurement than there are for non-construction procurement.

The risks that need to be managed, the skills sets that are required and the performance metrics for a supply chain involving the delivery and maintenance of infrastructure are very different to those relating to general goods and services. There is an urgent need to have a separate supply chain for the delivery and maintenance of infrastructure.

## **The National Planning Commission's proposals for a new procurement system**

The National Planning Commission's Diagnostic Overview (2011) made the observation that *"It is vital that public servants have the skills and motivation they need to do their jobs. Yet, there is a shortage of staff and specialist skills in many aspects of the public service."* This report makes specific mention of the shortage of skilled professionals, especially in health, policing, infrastructure planning, engineering, finance and information technology. This report furthermore makes the observation that there *"has been a reduction in the number of professionals available to the state, and a looming crisis in the generational reproduction of professional expertise as the ageing cohorts continue to leave the system."*

The NPC's diagnostic overview also points out that *"Many short-term responses to skills shortages do little to address long-term capacity constraints. Consultants can be brought in to design and build infrastructure, but without in-house technical expertise provincial and local governments lack the capacity to ensure the work is done to an adequate standard or to maintain the infrastructure once the work has been completed."*

The National Development Plan 2030 requires amongst other things (NPC, 2012):

- the state to purchase what it needs on time at the right quality and for the right price;
- an improvement in the quality of spending through better planning, sound procurement systems and greater competition in the economy;
- greater efficiency in all areas of government expenditure as the overall envelope is likely to grow relatively slowly over the medium term.
- the employment of more effective procurement processes which result in robust contracts and move away from an overly bureaucratized process with the emphasis on compliance by box-ticking; and
- the engagement of supply-chain management staff to support technical and other specialists in a manner which does not displace the involvement of the later in procurement processes.

The plan proposes that the following five areas be focused on in designing a procurement system that is better able to deliver value for money, while minimising the scope for corruption:

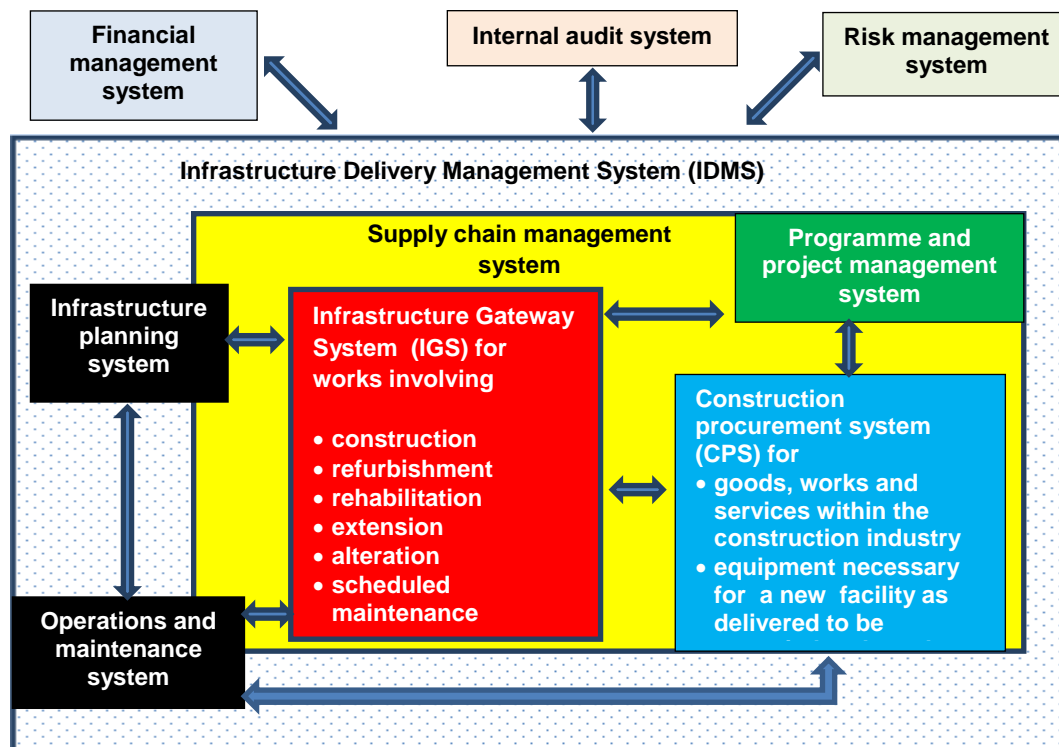
- differentiate between the different types of procurement which pose different challenges and require different skills sets;
- adopt a strategic approach to procurement above the project level to balance competing objectives and priorities rather than viewing each project in isolation;
- build relationships of trust and understanding with the private sector;
- develop professional supply chain management capacity through training and accreditation; and
- incorporate oversight functions to assess value for money.

The plan when considering different forms of procurement recognises that *"infrastructure procurement involves conceptual design, structuring contracts and ensuring sustainability. As these decisions involve long-term lock-ins, the quality of decision-making is vital."* The plan also makes specific reference to the work being

done between National Treasury and the Construction Industry Development Board to establish an infrastructure delivery management system that better accommodates the particular challenges of infrastructure procurement.

### Government's Infrastructure Delivery Management System

The Infrastructure Delivery Management System (IDMS) is a government management system for planning, budgeting, procurement, delivery, maintenance, operation, monitoring and evaluation of infrastructure. It comprises a set of interrelating or interacting elements that establish processes which transform inputs into outputs (see Figures 2 and 3).



**Figure 2: The linkages between systems and subsystems within an institution (Watermeyer *et al*, 2012)**

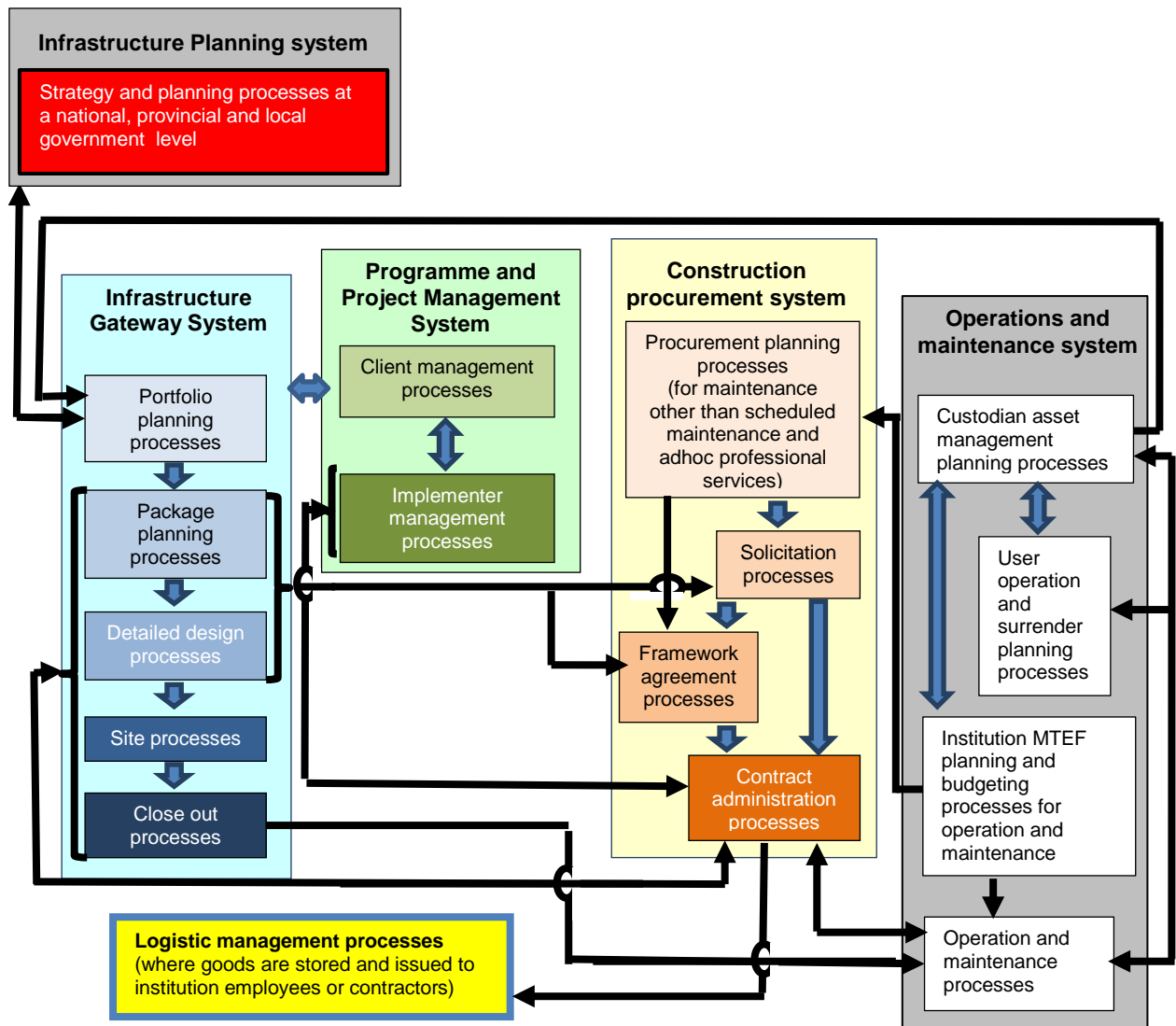
The IDMS comprises the following systems (Watermeyer *et al*, 2012):

- a) an infrastructure planning system;
- b) an infrastructure gateway systems (IGS);
- c) a construction procurement system (CPS);
- d) a programme and project management system;
- e) an operations and maintenance system

Risks are managed within each of these systems.

The IDMS is designed to be linked to the Medium Term Expenditure Framework (MTEF). It has a strong focus on outcomes, value for money and the effective and

efficient functioning of the procurement and delivery management system in compliance with relevant legislation. It includes a supply chain management (SCM) system which can be readily integrated into the various systems that accounting officers and accounting authorities are required to implement.



**Figure 3: Interacting systems and processes embedded within the IDMS**

The IDMS contains a number of systems each comprising a set of processes which need to be managed. These systems are interrelated and contain interacting elements as shown in Figure 3. The planning of an institution’s infrastructure projects at a portfolio level is not only influenced by the strategy and planning processes conducted at a national, provincial and local level but also by the asset management plans developed by custodians (caretakers of infrastructure throughout its lifecycle) and users (those who operate allocated infrastructure) in the operation and maintenance of infrastructure. The infrastructure gateway system which provides the work flow for the delivery of projects involving the construction, refurbishment, rehabilitation, extension, alteration or scheduled maintenance of

infrastructure cannot be implemented in isolation from the construction procurement system and programme and project management system. Likewise, the operations and maintenance system cannot be implemented in isolation from the procurement system and certain outputs (e.g. record information and user manuals) of the infrastructure gateway system.

The construction procurement system included in the IDMS comprises not only procurement processes but also:

- a) rules and guidelines governing procedures and methods as embodied in the CIDB Standard for Uniformity in Construction Procurement and the ISO 10845 Standards for Construction Procurement;
- b) procurement documents which include terms and conditions, procedures and requirements embodied in the CIDB, FIDIC, JBCC and NEC3 families of contracts and SAICE’s GCC standard form of contract;
- c) risk / quality oversight (governance and performance) controls; and
- d) organisational policies which deal with issues such as:
  - i) the usage and application of particular procurement procedures;
  - ii) requirements for recording, reporting and risk management;
  - iii) procedures for dealing with specific procurement issues;
  - iv) the usage of procurement to promote social and developmental objectives; and
  - v) the assignment of responsibilities for the performance of activities.

**Recent developments in the SCM regulatory environment**

Draft Public Finance Management Act (PFMA) Regulations issued for public comment in November 2012 (National Treasury 2012) separate the supply chain management system for the delivery and maintenance of infrastructure from that for general goods and services. Reference is made in these draft regulations to a National Treasury Standard for an Infrastructure Delivery Management System and a National Treasury Standard for a Construction Procurement System which draw extensively on the work of the Construction industry Development Board. The scope of these standards is indicated in Table 1.

**Table 1: Scope of the draft National Treasury Standards for the delivery and maintenance of infrastructure**

<b>National Treasury Standard</b>	<b>Scope</b>
Infrastructure Delivery Management System	This standard establishes an infrastructure delivery management system comprising processes, procedures and methods within an institution for the delivery or maintenance of infrastructure in a staged, systematic, disciplined, uniform integrated and auditable manner. It covers the manner in which projects involving the construction, refurbishment, rehabilitation, extension, alteration or day-to-day, routine, scheduled and emergency maintenance of infrastructure are conceived, budgeted for and delivered.
Construction	This standard establishes a construction procurement system within



Procurement System	<p>an institution for the procurement of:  goods, services and engineering and construction works and disposals relating to the construction industry;  goods or services necessary for a new facility as delivered to be occupied and used as a functional entity; and  temporary facilities.</p> <p>The standard does not apply to:  the storage of goods and equipment following their delivery to an institution which are stored and issued to contractors or to officials ;  the procurement of non-construction industry related goods and services or land, except as specifically provided;  the sale, exchange, donation or letting of land;  public private partnerships contemplated in Regulation 16 of the Treasury Regulations for Departments, Trading Entities, Constitutional Institutions and Public Entities issued in terms of the Public Finance Management Act, 1999;  the conclusion of any form of land availability agreement; and  leasing and rental of assets.</p>
--------------------	---

Government’s Infrastructure Delivery Management System which is embedded in the two standards referenced in Chapter 30 of the draft PFMA regulations addresses four of the five focus area identified in the National Development Plan around which future procurement systems needs to be designed. The NPC envisaged that the focus area “*build enabling support structures*” would result in a professional supply-chain management capacity which would be developed through training and accreditation and supported by a database of registered supply-chain managers and a central list of those who have been barred from working in supply chain management roles in the public sector. This has yet to be established.

**Extending the IDMS to municipalities**

The principles for the procurement and delivery of infrastructure expressed in the National Development Plan 2030 need to be extended to municipalities. There is no reason why the National Treasury Standards for an IDMS and a construction procurement system cannot be implemented within municipalities. There are many benefits in doing so, particularly if accreditation is linked to standards. It makes no sense in having separate standards for different spheres of government involved in the delivery and maintenance of infrastructure. Any specifics e.g. that relating to portfolio planning processes, can be accommodated by making minor variations to some of the activities within these standards.

The draft PFMA regulations embed the standards in the regulations and in so doing link the standards to the PFMA. These standards also need to be linked to the Local Government: Municipal Finance Management Act (MFMA) of 2003. Section 111 of the MFMA requires that “*each municipality and each municipal entity must have and implement a supply chain management policy which gives effect to the provisions of this Part.*” Section 112 requires that the supply chain management policy of a

municipality or municipal entity comply with a regulatory framework for municipal supply chain management, which, as a minimum, must cover a number of areas identified in the MFMA. Regulation 3 of the Supply Chain Management Regulations issued in terms of this Act requires that the accounting officer prepare and submit a draft supply chain management policy to the council for adoption, review the policy annually and, where necessary, submit proposals to the council for adoption.

The accounting officer may make use of any National Treasury guidelines determining standards for such policy and submit such policy or any modified version as a draft for adoption. Where the policy deviates from the guideline standard issued by the National Treasury, the accounting officer is required to develop such a policy so that it complies with the Constitution, the MFMA, the Regulatory Framework contained in the Regulations and other legislation and does not undermine the objective for uniformity in supply chain management systems between organs of state in all spheres. The accounting officer is also required to report any deviations from the guideline standard to National Treasury and the relevant provincial treasury.

National Treasury in 2005 issued a Municipal Supply Chain Management Model Policy in terms of the MFMA. National Treasury needs to issue a Municipal Supply Chain Management Model Policy for the Delivery and Maintenance of Infrastructure to enable the National Treasury Standards to facilitate the adoption of the standards within municipalities. Consideration may also have to be given to making some minor amendments to the MFMA SCM regulations.

## **Conclusions**

The National Development Plan sets a clear agenda for the redesigning of the current procurement and SCM systems to deliver value for money, while minimising the scope for corruption so that the needs of South Africans are better met. National Treasury has aligned the revised Public Finance Management Act regulations for the delivery and maintenance of infrastructure with this agenda but still needs to extend this to municipalities through the Municipal Finance Management Act. In order to effectively implement the agenda set by the NPC, statutory councils for built environment professionals need to focus on providing government with the right skills set to effectively implement the new system.

## **References**

ISO 10845-1:2010. "Construction procurement – Part 1: Processes, methods and procedures." International Organisation for Standardisation, Geneva.

National Treasury. 2011. "Local Government Budgets and Expenditure Review 2011: 2006/07 - 2012/13".

National Planning Commission (2011). Diagnostic overview. The Presidency of the Republic of South Africa. [www.info.gov.za/view/DownloadFileAction?id=147192](http://www.info.gov.za/view/DownloadFileAction?id=147192).

National Planning Commission (2012). National Development Plan 2030: Our future - make it work. Department: The Presidency of the Republic of South Africa. [www.npconline.co.za/pebble.asp?relid=758](http://www.npconline.co.za/pebble.asp?relid=758)

National Treasury. 2005. "Supply Chain Management Regulations".

National Treasury. 2011. "Local Government Budgets and Expenditure Review 2011: 2006/07 - 2012/13".

National Treasury. 2012. "Draft Public Finance Management Act (PFMA) Regulations". "Government Gazette 35939" of 30 November 2012

Wall, K; Watermeyer, R and Pirie, G. Wagging the dog': How service delivery can lose its way in the procurement maze -- and could find it again. 76<sup>th</sup> Conference of the Institute of Municipal Engineering of Southern Africa, George, October 2011.

Watermeyer, Ron; Nevin, Graham; Langenhoven, Klaas. 2012. "The supply chain management system for the delivery and maintenance of infrastructure by organs of state". "Civil engineering", South African Institution of Civil Engineering, July 2012.

Western Cape Provincial Treasury 2012. Provincial Treasury Instructions: Supply Chain Management ([www.westerncape.gov.za/eng/publications/regulations/prov/2012/246420](http://www.westerncape.gov.za/eng/publications/regulations/prov/2012/246420)).