SUPPORTING THE ENABLING ENVIRONMENT FOR PUBLIC SECTOR UPTAKE OF WATER AND SANITATION INNOVATIONS – FINAL EVALUATION AND RECOMMENDATIONS

Rajiv Paladh, Jason Holder, Denim-Reece Southgate, Abri Vermeulen

WATER RESEARCH COMMISSION

TT 941/24

SUPPORTING THE ENABLING ENVIRONMENT FOR PUBLIC SECTOR UPTAKE OF WATER AND SANITATION INNOVATIONS – FINAL EVALUATION AND RECOMMENDATIONS

Report to the
Water Research Commission

by

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EXECUTIVE SUMMARY

Public water and sanitation institutions have been able to demonstrate emerging innovations. However, the larger scale uptake of these innovations has proven challenging. The public procurement framework is often attributed as one of the main challenges with the wider uptake of innovations. The Water Research Commission (WRC) commissioned a research study in November 2022 to explore the challenges with the existing public procurement and the impact that this has on the procurement of water and sanitation innovations. The study was undertaken in a phased manner as detailed in the diagram below.

Figure 1: Study Methodology

86 stakeholders were identified to complete an online survey after the initial desktop review. 23 participants completed the online survey and a further 15 participants were also identified for an in-depth interview. Several workshops were also held to discuss and share the findings of the study. This included three engagements with National Treasury.

The public procurement framework was found to be enabling and allowed for the procurement of innovations. However, the procurement of innovations is not directly incentivised. The governing principles of the public procurement framework are enshrined in Section 217 of the Constitution and are:

- Open and effective competition.
- Value-for-money.
- Ethics and fair dealings.
- Accountability and reporting.
- Equity.

The challenge with the procurement of water and sanitation innovations is the application of the public procurement framework rather than the framework itself. It would appear that practitioners focus on the acquisition phase of Supply Chain Management (SCM) and there is little focus on the demand phase which is the planning for procurement and is aimed at identifying an appropriate procurement strategy that is aligned to the objectives of the business.

There were several misconceptions of the public procurement framework that were identified during the research. It is recommended that practitioners review the various notes issued by National Treasury or the institutions SCM policy prior to stating that certain decisions need to be made as allowed by the PFMA or MFMA.

The Strategic Sourcing Process developed by National Treasury is a collaborative structured approach that could be used for the procurement of water and sanitation innovations and is outlined in the diagram below.

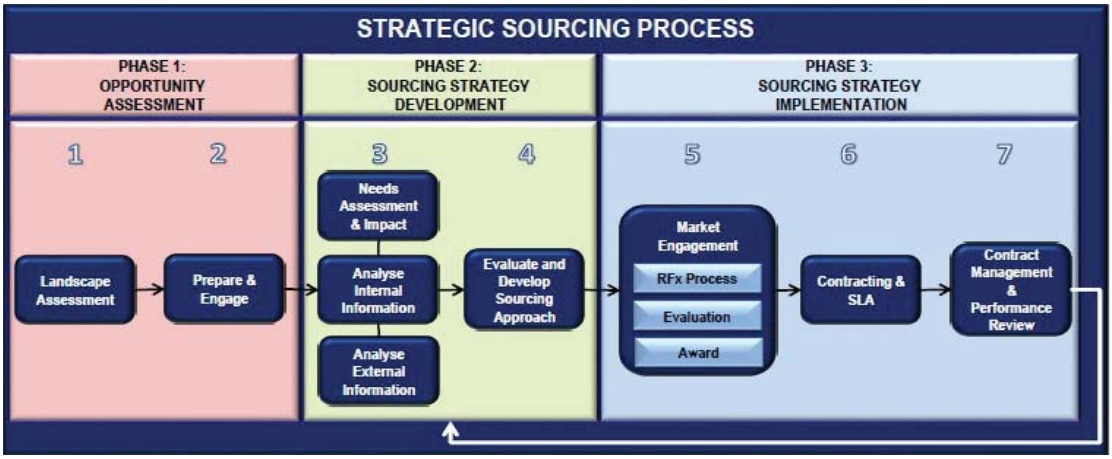

Figure 2: Strategic Sourcing Process

The Strategic Sourcing Process outlined above is well documented in this document. The methodology includes the following information for each of the steps presented in the diagram above:

- Best Practice Guide.
- Tools.
- Templates.
- Outputs.

The multi-stage bidding process outlined in the diagram below could also be used for the procurement of innovations that are required to be demonstrated and implemented at a much larger scale.

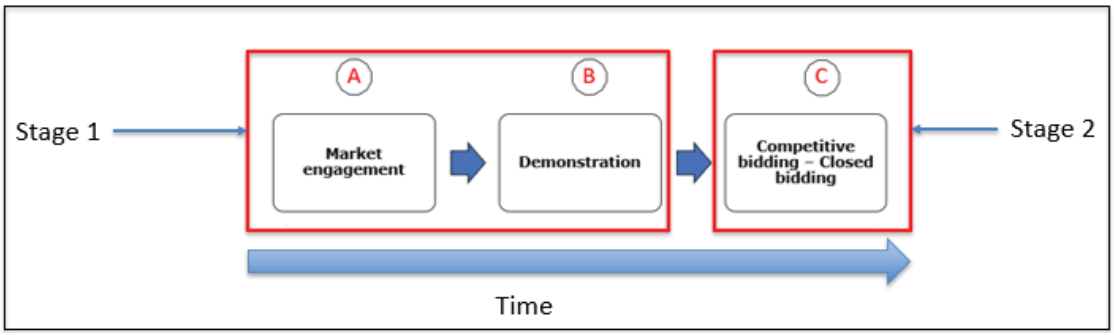

Figure 3: Multi-stage bidding

It is important that the performance criteria and implementation details are specified in the Expression of Interest that is issued in Stage 1. All innovations that meet the performance criteria should be afforded the opportunity to provide a quotation for the wider scale implementation phase of the project.

It is also recommended that Water Sector Institutions develop innovation policies that signals their intent to innovate, and also provides the innovation strategy for the organisation. Institutions that do not have the capacity and organisational processes in place to innovate should consider engaging national research organisations such as the WRC or CSIR.

It is also recommended that the incentivisation of innovations be considered by developing and including criteria the Blue and Green Drop programmes that have been initiated by the Department of Water and Sanitation.

ACKNOWLEDGEMENTS

The project team wishes to thank the following people for their contributions to the project.

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LIST OF ABBREVIATIONS

BBBEE:	Broad Based Black Economic Empowerment
CMA:	Catchment Management Agencies
CSIR:	Council for Scientific and Industrial Research
DBSA:	Development Bank of South Africa
DFIs:	Development Finance Institutions
DSI:	Department of Science and Innovation
DWS:	Department of Water and Sanitation
ERWAT:	East Rand Water Care Company
EWS:	eThekwini Water and Sanitation
IDP:	Integrated Development Plan
PPPs:	Public Private Partnerships
RBIG:	The Regional Bulk Infrastructure Grant
RDI:	Research, development and innovation
RFI:	Request for Information
RFB:	Request for Bids
RFP:	Request for Proposals
RFQ:	Request for Information
SALGA:	South African Local Government Association
SASTEP:	South African Sanitation Technology Enterprise Programme
SCM:	Supply Chain Management
TIA:	Technology Innovation Agency
UKZN:	University of KwaZulu-Natal
WADER:	Water Technologies Demonstration Programme
WRC:	Water Research Commission
WSA:	Water Service Authorities
WSP:	Water Service Providers
WTE:	Water Trading Entity

CHAPTER 1: INTRODUCTION

Water resource management and water and sanitation services provision is constitutionally a government/public sector function. Public sector institutions are therefore major drivers of the South African water sector and the various innovations that are deployed to support the provision of more efficient and effective delivery of water and sanitation services. However, these institutions have often faced challenges in procuring these innovations for implementation at scale. Innovations are new and require derisking through demonstration or expert input to determine specification development. Furthermore, it may require working with public officials to increase understanding of planning, resources and technical needs, and to ascertain of the meet regulation and service needs.

The research draws on the reflections and experiences of water sector practitioners and entities involved in developing and implementing innovations for the sector to improve the delivery of services and solve major challenges. This report presents the findings and recommendations from research commissioned by the Water Research Commission (WRC) to explore the challenges with procurement of water sector innovations and the mechanisms that could be used to enhance their uptake.

The recommendations are firmly rooted within the spirit and rules of the existing public procurement framework as the existing framework was found to be largely enabling with the challenges being on the application of the rules rather than the rules themselves.

1.1 PROJECT OBJECTIVES

The overarching aim of the research was to define innovations and to identify the interventions that would promote the uptake of these innovations within the public water sector, especially at a larger scale. This included the identification of key government departments and supporting institutions responsible for implementing and supporting the identified interventions.

1.2 PROJECT APPROACH

A phased approach was used to meet the project objectives. The research was underpinned by focused and systematically structured engagements with a range of stakeholders. This was key to obtaining a broad understanding of the nuanced issues within the sector, and to assimilate the proposed recommendations to be taken forward. The approach and methodology used in the study are presented in Appendix A.

1.3 STRUCTURE OF THE REPORT

The purpose of the report is to increase awareness of the public procurement model in South Africa, highlight certain misconceptions and indicate that manner in which it can be used to enable the uptake of innovations in the water and sanitation sector. The target audience of the report are practitioners involved in the sector, as well as decision makers in institutions that are strategically involved in the innovation development process.

This report has been structured to present the key findings and recommendations of the study. Information detailing the process employed in the survey, as well as other supporting information has been provided as Appendices. The recommendations from the study are presented as standalone sections that can be extracted and shared with different stakeholders.

CHAPTER 2: THE PROCUREMENT MODEL IN SOUTH AFRICA

This section of the report outlines the generic public procurement model in South Africa. This includes a summary of the Supply Chain Management (SCM) model and potential procurement processes as indicated in the Guide for Accounting Officers/Authorities issued by National Treasury in 2004. The procurement of innovations is a subset of the public procurement framework. It is therefore important to understand the general framework as any issues within the general framework could also apply to the procurement of innovations.

2.1 KEY PRINCIPLES

The public sector procurement model in South Africa is underpinned by five key pillars as indicated in Table 1 below, as defined in Section 217 of the Constitution of South Africa.

Table 1: Key principles for procurement in South Africa

Pillar	Principle
Open and effective competition	Public sector institutions need to apply effort and research so potential suppliers have access to procurement opportunities. Public sector institutions should also ensure that bias and favouritism for suppliers are eliminated and that the cost of bidding for opportunities does not deter competent bidders.
Value-for-money	Value-for-money refers to the best available outcome when all relevant costs and benefits over the procurement cycle are considered. Price alone is not considered a reliable indicator that municipalities will obtain the best value for money simply by accepting the lowest price offer that meets mandatory requirements. The principle of Total Cost of Ownership or Life Cycle Costing should be considered.
Ethics and fair dealings	All parties should deal with each other on the basis of mutual trust and respect and conduct their business in a fair and reasonable manner and with integrity. Public sector staff associated with procurement are required to identify any potential conflict of interests and deal with suppliers in a consistent manner.
Accountability and reporting	All individuals and organisations involved in procurement must be answerable for their plans, actions and outcomes. This includes technical and SCM practitioners. Openness and transparency through public reporting is an essential element of accountability.
Equity	Equity in the context of public procurement refers to the application and observance of government policies which have been designed to advance persons or categories of persons disadvantaged by unfair discrimination.

Source: National Treasury (n.d.)

The table above contains the key principles that all public procurement process must comply with.

2.2 ELEMENTS OF SUPPLY CHAIN MANAGEMENT

Figure 4 provides an indication of the elements contained within supply chain management (SCM).

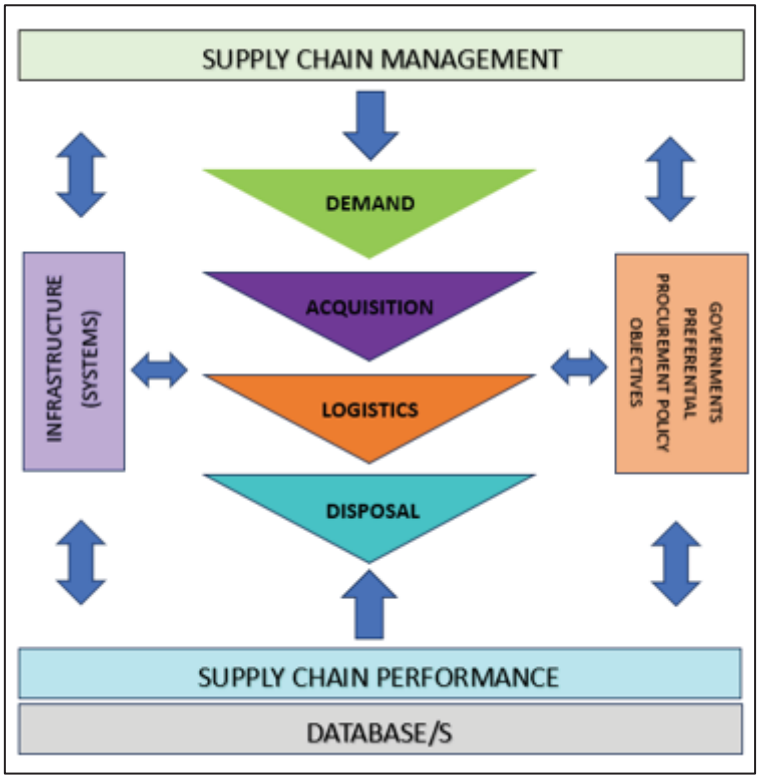

Figure 4: Elements of supply chain management

Source: National Treasury (2004)

There is a view that the model presented above is better suited to the procurement of conventional items such as toilet paper and chairs, as opposed to the development of strategic infrastructure assets, as are needed in the water and sanitation sector. A Procurement Bill is out for comment with the aim to rectify this process but is possibly still too focussed on administrative rather than strategic. It is not clear when the Bill will be finalised.

Each of the elements of SCM are further discussed below.

2.2.1 Demand Management

Demand Management is the start of the SCM process. This requires a needs assessment to be undertaken to ensure that goods and services are acquired to deliver a particular service. The demand management system must include timely planning and management processes to ensure that all required goods and services are quantified, justified and budgeted for and timeously delivered at the correct location.

The demand management system requires an analysis of the market that will be able to provide the required goods and services and that the link to the municipal budgeting process is made. The demand management analysis should also include research to identify innovations and to maximise technological benefits, as well as, ensuring that any benefits that may be generated through economies of scale are accessed.

2.2.2 Acquisitioning Management

Acquisition management refers to the manner in which the market is approached to obtain a required good or service. The total cost of ownership must be considered, along with ensuring that the bid documents are completed correctly and evaluated accordingly. This is typically the focus of the SCM process, but consideration should also be given to other elements. The diagram below provides an indication of the Acquisition Management process flow.

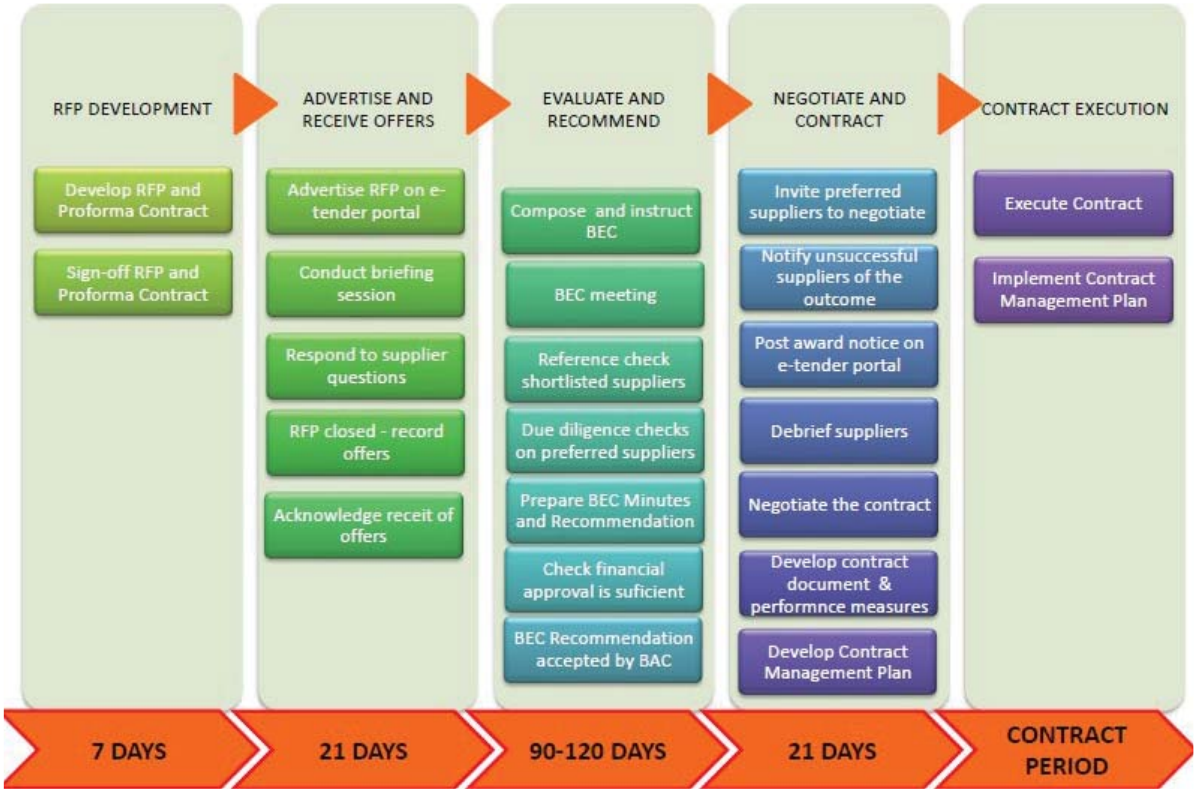

Figure 5: Tender process flow chart
Source: National Treasury (2004)

2.2.3 Logistics management

Logistics management refers to the receipt and distribution of material. This includes the storage and transport management of goods. The financial system should be activated to generate payments and the performance of vendors monitored.

2.2.4 Disposal Management

Disposal management refers to the development of a disposal management strategy and the execution of the physical asset disposal process. Material should be inspected for potential re-use and a database of redundant material maintained. This could then be linked to the acquisition process for the replacement of any assets that are disposed.

2.2.5 Supply chain performance

Supply chain performance refers to the monitoring process in which a retrospective analysis is undertaken to determine if the correct processes were followed, and the desired objective achieved. This includes a review of alignment of practices to Government's broader policy focus.

2.3 DEMAND MANAGEMENT PROCESS

The demand management process should also ensure that the goods and services required to enable effective service delivery are correctly budgeted for and timeously procured. The process should therefore include the time required to comply with the competitive bidding processes. It has been emphasised that a lack of planning does not constitute a reason for non-compliance with the prescribed bidding processes. The diagram below indicates the demand management process within the municipality.

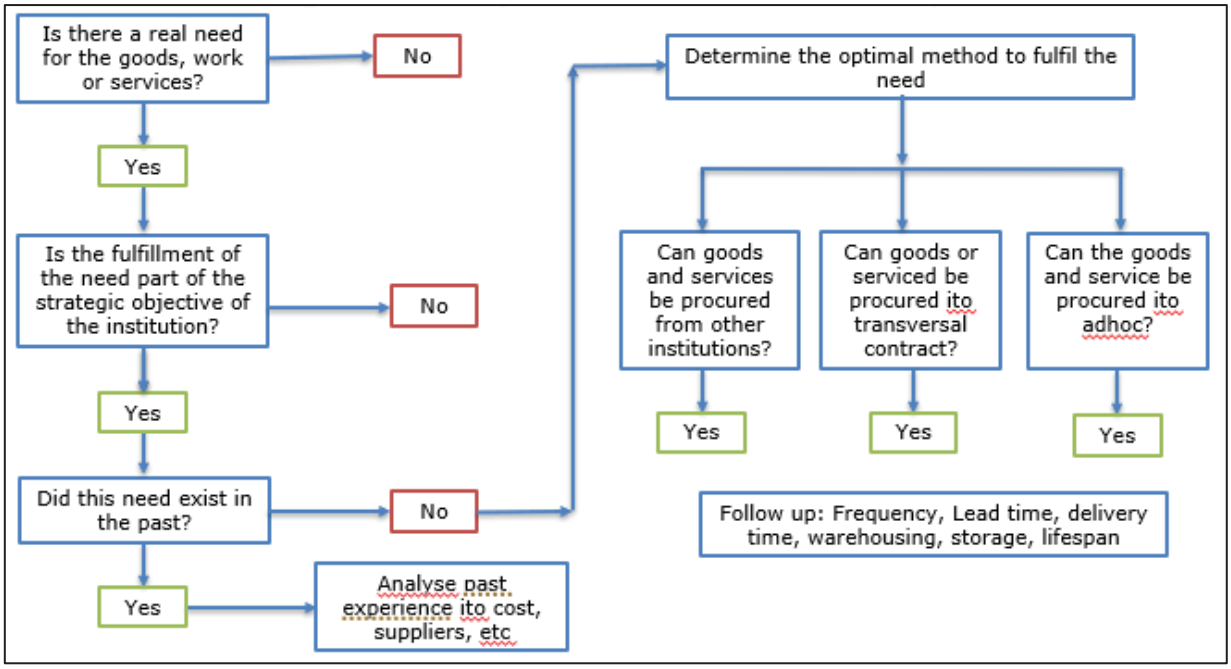

Figure 6: Demand management process in municipalities
Source: National Treasury (2004)

2.3.1 Procurement Plan

The development of a Procurement Plan is required to ensure efficient, effective and economical public procurement. The plan should be linked to the institution's strategic planning documents and preferably aligned to the three-year municipal budgeting period. Each department should prepare Departmental Procurement Plans that can then be consolidated at a municipal level.

2.3.2 Market analysis

The potential markets that could supply the goods and services included in the Procurement Plan would then need to be identified. This includes the size and scale of the market, as well as the level of competition within the market. This research and analysis should inform the strategy employed during the acquisition phase of the process. The potential to source goods and services from other public sector institutions should also be considered during this phase.

The purpose of the market assessment is to establish a balanced approach when considering, amongst others, keeping pace with modern technology and development, enabling newcomers/HDIs to supply the goods/services, making use of labour intensive methods and promoting BEE (National Treasury, 2004).

2.4 ACQUISITION MANAGEMENT

The table below provides an indication of the current procurement thresholds as indicated in the Guide for Accounting Officers of Municipal and Municipal Entities (National Treasury, 2005) .

Table 2: Procurement process[1]

Value (VAT Included)	Method of acquisition	Process Required
Up to R2 000	Petty Cash Purchase	Obtain by petty cash in line with internal prescribed processes
Over R2 000 but less than R10 000	Verbal or written price quotations	Obtain at least three verbal or written quotations preferably from a list of preferred accredited prospective suppliers.
Over R10 000 but less than R30 000	Formal written price quotations	Obtain a minimum of three written quotations preferably from a list of preferred accredited prospective suppliers.
Over R30 000 but less than R200 000	Formal written price quotations	Obtain a minimum of three written quotations preferably from a list of preferred accredited prospective suppliers. PPPFA regulations must be applied and the bid must be advertised for a minimum of seven days on notice board and website.
Over R200 000	Competitive bidding process	Follow open, transparent, competitive bidding process.

National Treasury Practice Note No. 8 of 2007/2008 provides the threshold values for the procurement of goods and services by means of petty cash, verbal/written price quotations or competitive bids for organisations that are governed by the PFMA. This is indicated in the table below.

Value (VAT Included)	Method of acquisition	Process Required
Up to R2 000	Petty Cash Purchase	Obtain by petty cash in line with internal prescribed processes
Over R2 000 but less than R10 000	Verbal or written price quotations	Obtain at least three verbal or written quotations preferably from a list of preferred accredited prospective suppliers.
Over R10 000 but less than R500 000	Formal written price quotations	Obtain a minimum of three written quotations preferably from a list of preferred accredited prospective suppliers.
Over R500 000	Competitive bidding process	Follow open, transparent, competitive bidding process.

[1] Values may differ for different organisations.

2.4.1 Competitive bidding process

Figure 7 provides an overview of the competitive bidding process[2] whilst Section 4.8 of the Accounting Officers Guide provides further detail when compiling bid documents.

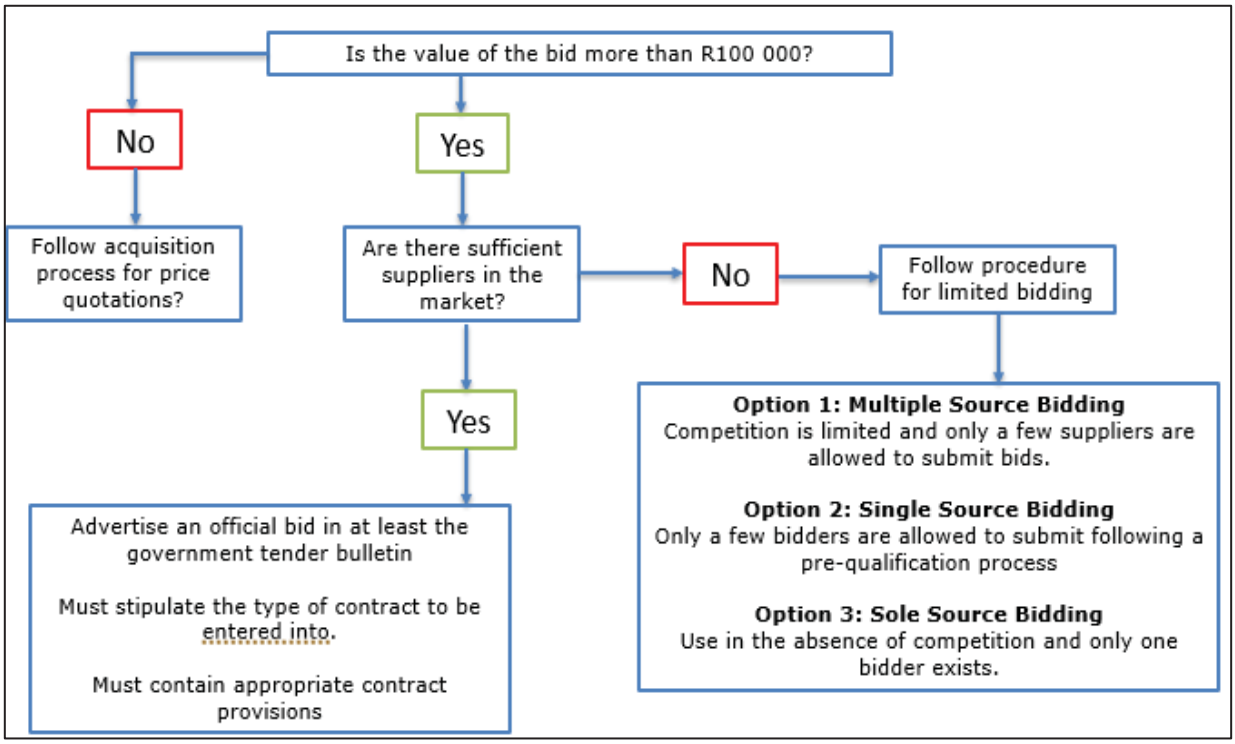

Figure 7: Competitive bidding process
Source: National Treasury (2004)

It is important to note that multiple, single and sole source bidding is by definition included in the competitive bidding process. This should be based on the availability of suppliers in the market that are able to bid for the contract. It is also important to note that the Zondo Commission report raised concerns with the abuse of the sole sourcing bidding approach and called for the amendment of the legislation covering this matter.

An institution may dispense with the competitive bidding processes in urgent and emergency cases. Urgent cases refer to instances when early delivery is critical, and the invitation of competitive bids is either impossible or impractical. Emergency cases require immediate action to avoid a dangerous or risky situation. The reasons for deviation must be clearly recorded and approved. A lack of planning does not constitute as an urgent case.

In general, public-sector organisations will have to advertise an intention to procure through a competitive process. Tenderers can only be excluded for justified reasons and unsuccessful tenderers must be provided an opportunity to appeal. The contract should be awarded on the results in the evaluation process and the rules set out at the outset. (OPCO - NT, 2016)

Figure 8 provides an overview of the information required to be contained in bid documents issued by public sector institutions.

[2] The R100 000 limit indicated was 2004 and this has since been changed.

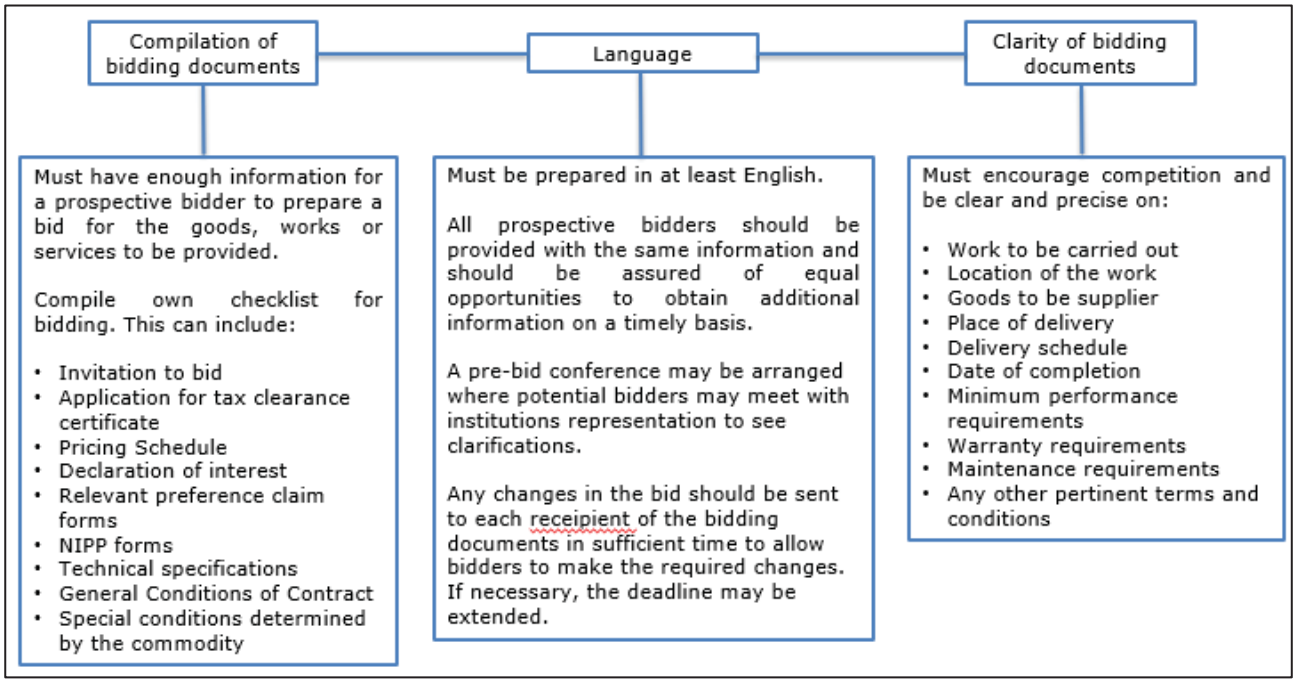

Figure 8: Bid document requirements
Source: National Treasury (2004)

2.4.2 Two-stage bidding

A two-stage bidding approach may be used for large complex plants or works of a special nature during which it maybe undesirable or impractical to prepare complete detailed specifications in advance. During the first step, unpriced technical proposals based on a conceptual design or performance specifications are invited, subject to technical and commercial clarifications and adjustments.

Amended bidding documents and the submission of the final technical proposals and priced bids are received during Stage 2. The two-stage process are also appropriate in the procurement of equipment that is subject to rapid technological advances, for example:

- If it is not possible to formulate detailed specifications for the goods, works or services, to identify their characteristics;
- If it seeks bids, proposals or offers as to various means of satisfying needs;
- Because of the technical character of the goods or works, or because of the nature of the services, it is necessary for the procuring entity to negotiate with suppliers or contractors; or
- When the procuring entity seeks to enter into a contract for the purpose of research, experiment, study or development, except where the contract includes the production of goods in quantities sufficient to establish their commercial viability to recover research and development costs.

2.4.3 Limited bidding

As per Section 4.7.8 of the Accounting Officers Guide, Single source quotations can be used based on a thorough analysis of the market and use a transparent and equitable pre-selection process to request only one amongst a few prospective bidders to make a proposal.

Sole source bidding can be used if there is no competition and only one bidder exists. Sole distribution rights is an example in which sole sourcing could be used. The reasons for single and sole source quotations must be recorded and approved by the accounting officer/authority or his/her delegate prior to the conclusion of a contract.

Section 4.4.7 of the Accounting Officers Guide, specifies that negotiations can be held with a Supplier subject to the accounting officers/authority's approval and if:

- There is an urgent need for the goods, works or services and engaging in bidding proceedings would be impractical. This is possible only if the circumstances given rise to the urgency was neither foreseeable not the result of dilatory conduct on the part of the procuring entity;
- The is an urgent need for the goods, works or services owing to a catastrophic event and it impractical to use the other methods due to the time required; and
- Bidders have been identified as preferred bidders through a competitive bidding process.

2.5 LOGISTICS AND DISPOSAL MANAGEMENT

Efficient inventory management requires balancing a large inventory required for effective service delivery against the cost of purchasing and storing high levels of stock. Holding higher levels of stock also ensures that protracted lead times are avoided and economies of sale through bulk purchases can be achieved.

2.5.1 Orders

Orders should be placed when an item reaches a pre-determined level or when a request from an end user is received for an item that is not held in stock. Orders should be placed from a supplier if a contract exists or advertised through the competitive bidding process if a contract does not exist. Orders should not be separated to fall within the prescribed thresholds to circumvent the competitive bidding process.

2.5.2 Disposal

Disposal is the final step when an institution needs to do away with unserviceable, redundant, or obsolete movable assets. One of the methods indicated below can be utilised for the disposal of an asset:

- Transfer to another institution at market related value;
- Transfer to another institution for free;
- Selling per price quotation, competitive bid or auction; and
- Destroying the asset.

2.5.3 Supply chain Performance

A retroactive analysis should be undertaken to determine if the proper processes are being followed and objectives achieved. The assessment of suppliers and service providers should also be undertaken, and processes introduced to ensure that these references can be made available in future.

2.6 PREFERENTIAL PROCUREMENT

Section 217 (2) of the Constitution allows public sector institutions to implement procurement policies providing for categories of preference to advance or protect persons disadvantaged by unfair discrimination. The Preferential Procurement Regulations (2022) specify that the 80/20 preference points system for the acquisition of goods or services with a Rand value equal to or below R50 million with a maximum of 20 points being awarded to a tenderer for the specific goals specified for the tender.

The regulations also specify that the 90/10 preference points system for the acquisition of goods or services with a Rand value above R50 million with a maximum of 10 points being awarded to a tenderer for the specific goals specified for the tender.

Section 2(1)d of the Preferential Procurement Policy Framework Act (2000) states that the specific goals may include:

(i) contracting with persons, or categories of persons, historically disadvantaged by unfair discrimination on the basis of race, gender or disability.
(ii) Implementing the programmes of the Reconstruction and Development Programme as published in Government Gazette No. 16085 dated 23 November 1994.

Any specific goal for which a point is awarded, must be clearly specified in the invitation to submit a tender. The goals specified must be measurable, quantifiable and monitored for compliance.

CHAPTER 3: KEY FINDINGS

This section of the report presents the key findings that have emerged over the course of the research. This was based on the analysis and synthesis of data gathered during the literature review and stakeholder engagement phases of the research.

3.1 THE DEFINITION OF INNOVATION

For the purposes of this study, the definition of "innovations" as provided by DSI in 2022 is used as ‘The process of translating new and existing knowledge into new products, processes, and services, as well as the dissemination of this knowledge enabling inclusive sustainable development and acting as a driver of economic growth and social development’. In large scale uptake, this process should positively impact on economic growth and social development in South Africa.

This definition encompasses new and existing technologies, processes, and methods that are used for managing and utilising water resources, and providing water and sanitation services. It includes external innovations that can be adopted within the South African context in addition to locally developed innovations to enhance the efficiency, effectiveness, and sustainability of water and wastewater management and use. The level of agreement from the online survey for the selected definition is presented in Figure 9.

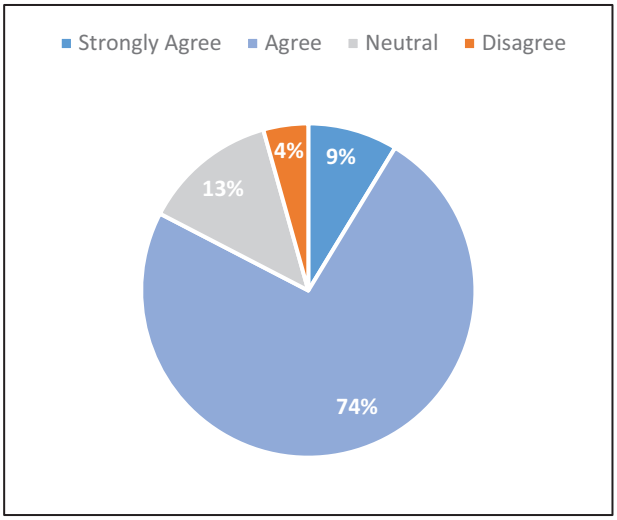

Figure 9: Level of agreement on selected definition

Among the 23 responses received, the chosen definition either garnered agreement or strong agreement from 19 respondents (83%), while three remained neutral (13%), and only one expressed disagreement (4%). The dissenting opinion stemmed from the observation that the selected definition does not explicitly encompass services that could be regarded as innovative, such as Internet of Things (IoT) services. This could be a perceived misunderstanding as the definition includes “process” as reference to services.

There was general agreement during all engagements that the definition used above was appropriate to define innovations.

3.2 CHALLENGES WITH PUBLIC SECTOR PROCUREMENT

3.2.1 Legislative framework is enabling

The legislative framework in spirit encourages and generally allows for the procurement of innovations in the public sector. It requires every institution to develop a procurement policy and system(s) that complies with the legislative framework. The challenge lies with the application of the public procurement framework rather than the framework itself. The barriers identified in the study indicate that there may be a lack of knowledge regarding the way the procurement system was designed to work at a leadership and practitioner level.

The preface of the SCM Guide for Accounting Officers notes the following challenges of the procurement system (National Treasury, 2004):

- Procurement are rules driven and value for money is equated to lowest cost;
- Procurement activities are not linked to budgetary planning;
- Bid documentation is not uniform and causes uncertainty to bidders and practitioners; and
- The costs and outcomes of the Preferential Procurement Policy Framework Act (PPPFA) are not fully quantified, making it challenging to evaluate the merits of the system effectively.

These challenges seem to persist, even though the document was initially published in 2004.

3.2.2 Barriers to procurement

The barriers that were identified during the stakeholder engagement phase of the study were presented and discussed at a workshop held at the WRC on 13 July 2023. Attendees at the workshop were requested to prioritise the identified barriers. The outcome of this exercise is presented in Table 3.

Table 3: Analysis of the barriers

Barriers	High priority	Medium Priority	Low Priority	No Priority	Total	K/E
Insufficient accountability mechanisms		1			1	E
Contract extension limitations		1		1	2	K
Lack of transparency			1	1	2	K & E
Lack of understanding and awareness	1				1	K
Disconnect between knowledge development and solutions			1		1	K
Organisational rediness and capacity	2				2	E
Municipal policy misalignment	3				3	K & E
Inadequate planning and preparation	1				1	K & E
Limited integration of innovative technologies		1			1	K & E
Absence of meaningful testing and evaluation	2	1			3	K
Inadequate Differentiation in Procurement Processes				1	1	K & E
Price-centric approach	3				3	K & E
Perceived bias and concerns about fairness	1				1	E
Learning from successful and unsuccessful experiences	1				1	K & E
Disconnect Between Knowledge Development and Solution-Seeking		1	1		2	K & E
Reluctance to share innovation due to competition.				1	1	E
Risk Aversion	1				1	K & E
Limited Implementation and Exploration of Innovations	1	1			2	K &E
Policing vs. support	1				1	K & E
Adoption of conventional solutions due to urgency	2				2	E
Skills and Capacity Mismatch	2				2	K & E
Inconsistent application of SCM policies		1	1		2	K
Risks Associated with Engineers' Inclination to not adopt new technology			2		2	K & E
Bureaucratic challenges and entrenched interests	3				3	K & E
Limited Knowledge in the Market				1	1	K
Resistance to change	3				3	E
Inadequate Budget Management	2				2	K & E
Additional Barrier Comments						
Lack of Integration of innovation and knowledge between organisational departments						K & E

The prioritisation exercise indicated that the attendees at the workshop prioritised six barriers (identified by the red highlights in the table) as being of a higher priority than the others. Further analysis highlighted that these barriers could be linked to Knowledge (K) and/or Effort (E).

Knowledge relates to the understanding of the ‘rules of the game’, as well as, how these can be applied within an institution. Effort needs to be applied by an individual to meet the intended outcome that is in the best interests of the organisation. As an example, the procurement system is often described as being burdensome and onerous, in other words, requiring considerable effort. This is seen to discourage the exploration and implementation of innovations. However, it is possible that there is a lack of understanding (knowledge) in the application of procurement processes, as well as the spirit of the procurement framework itself (Open and effective competition, Value-for-money, etc.). The effort required to overcome the perceived barrier is high and the net result is that there is little progress being made, but increased knowledge might reduce the level of effort required.

In order to visually represent these two factors, the matrix represented in Figure 10 was constructed to indicate the relationship between knowledge and effort and the impact that these factors would have on the objectives of public sector institutions.

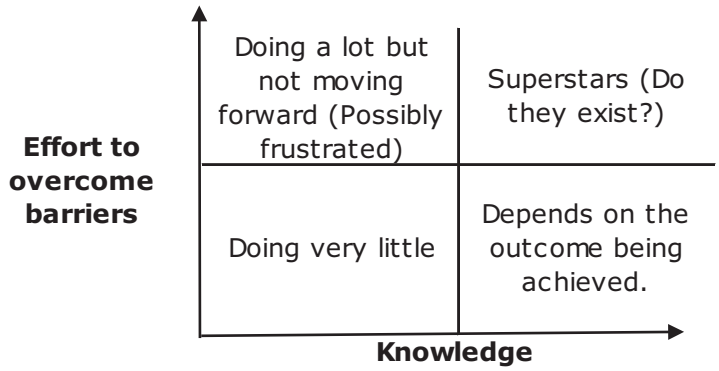

Figure 10: Framework to position behavioural challenges

Ideally, the water sector would benefit from seamless institutional processes that are streamlined and require limited individual effort and knowledge to navigate. However, the current position indicates that low levels of knowledge and effort have resulted in limited progress being made towards achieving organisational objectives. It is also possible that there are individuals (leadership and end users) that are frustrated by the lack of progress but do not necessarily understand the 'rules of the game'.

The diagram above could also be used to position organisations that are better skilled at innovating based on superior knowledge and processes makes it easier for individuals and teams to innovate. However, other organisations may lack the required knowledge and processes to enable the uptake of innovation.

A key knowledge gap is the lack of awareness of the demand management phase and how this process could be used to address some of the challenges experienced during the acquisition phase of procurement. Effectively the planning phase should be used to define the business need and outline the strategy to meet this need. Thereafter, the acquisition phase is merely the mechanism that will be used to achieve the business objective.

Figure 11 indicates that interventions should prioritise enhancing knowledge of procurement processes and innovation opportunities within the sector and addressing the perceived barriers that hinder the adoption of innovations and the improvement of water and sanitation service delivery. Efforts should be directed towards designing interventions that facilitate a better understanding of procurement practices, and streamline the process of overcoming barriers, thereby promoting the successful uptake of innovative solutions in the water sector. This will also need to be supported by the implementation of organisational policies and procedures that embed the uptake of innovation.

3.2.3 Disconnect between SCM and technical water services unit

Many of the water sector practitioners engaged expressed their frustration with regard to the way the SCM policy is applied. It was often mentioned that practitioners in technical positions were unable to use single or sole source quotations to obtain parts to fix critical equipment in emergency situations due to demands from SCM about processes to be followed, despite single or sole source quotations being allowed in the SCM policy as part of the definition of competitive tendering.

However, it is not often mentioned that the SCM policy also specifies that poor planning should not be used as a reason to deviate from the competitive bidding process. Therefore, it is possible that the SCM decision makers may deem certain practices as uncompetitive due to poor planning on the part of technical staff. It would appear that even though single and sole source bidding is included in the definition of competitive tendering, this approach could only be used if the market is severely limited and thorough market research has been undertaken.

It was also clear during the research that some water sector practitioners do not receive clear and transparent feedback and direction on better practice and approaches from the various procurement committees that have been established. This is a particular challenge in institutions in which the committees are also responsible for water, sanitation, and other infrastructure projects.

An example of the disconnect between SCM and Technical practitioners around the use of single source quotations. Technical practitioners motivated for a single supplier, but SCM would often say that this method was not appropriate and requested a minimum of three quotations before an order can be approved. The issue could be of the view that the criteria that was used to determine the single supplier was onerous and not necessary to meet the objectives of the advert. This would then result in the sole supplier approach not meeting the Constitutional principal of competitive bidding, and possibly Value-For-Money.

The project team attempted to engage SCM practitioners in public institutions to provide input to the research, but no feedback was received. There is a need to ensure closer collaboration between SCM and technical decision makers during the procurement process, particularly in the planning stages. This is particularly important given the operational nature of the public water and sanitation businesses and the impact on the communities being served.

It is clear that the organisations that have identified and committed to innovations have been more successful than organisations that do not have an innovation policy, dedicated resources and budgets. This suggests that the need to innovate has to be supported by the organisation rather than individuals themselves. As an example, an operations engineer in one part of a municipality decides to procure one type of pump as there are operational benefits, (training, spare parts, etc.) is likely to be met with resistance when using the sole quotation approach. However, the response from the various committees may be different if the Water and Sanitation Unit had documented the need for strategic sourcing of pumps and developed the strategy to this.

3.2.4 Policing as compared to support

It was noted during the engagements with numerous stakeholders that the manner in which SCM approaches their function has transitioned from a supportive function towards a more compliance function and focussed towards ensuring that the procurement process will be able to withstand the scrutiny of the Auditor General.

The result of this approach is that practitioners are often afraid of being identified as responsible for deviations from the competitive bidding process and avoid using these aspects of the SCM process. As an example, this included a process to issue the same EoI on four separate occasions to the market as the EoI only received two responses on each occasion. This was even though the practitioners knew that it was a specialised request to the market and that there were only two known suppliers that could provide the required product. This delayed the project by over a year and resulted in the required goods not being available during the period.

Water sector practitioners also expressed their frustration that Bid Approval Reports are rejected with no clear reasons or mechanisms to address the issue in the report provided. There also appears to be reluctance to provide guidance on the procurement process during the initial phase of the market acquisition exercise. This could be attributed to a fear of consequence management being implemented.

The sector would benefit from a more integrated and collaborative approach in which SCM could be integrated into the work done by water sector practitioners to meet the objectives of innovation and service delivery. Ensuring procurement processes adhere to applicable policies are important but this should be integrated into the planning processes rather than at the stage when an award is made. The integrated approach should also include a review of the performance of the goods and services procured during the operational phase of the contract to ensure that the procurement has met the needs of the end user.

3.2.5 The issue with single and limited sourcing

Many of the practitioners engaged during the study expressed frustration with not able to procure a required good via the single sourcing approach. The issue appears to be the criteria that is used to justify the need for a single supplier to be used. The concern on the part of SCM may be that the criteria used is onerous and does not promote open and effective competition. There is also concern that the market research conducted did not include all potential suppliers.

3.2.6 Awareness of the innovation system

It was noted during the study that respondents mentioned that they were not aware of innovation hubs and some of the innovations that have been developed. However, there are several programmes that specifically target the developmental phase of bringing innovations to market. WADER and SASTEP are examples of these. Whilst there is an awareness to some practitioners that these programmes do exist, more marketing could result in a broader awareness within the sector.

Institutions should also be aware of the value to the business that innovations could provide, as well as consumer benefits of innovations to services delivery. It should also be noted that whilst public sector institutions have supplier databases and may advertise opportunities for suppliers to be added to the database on an annual basis, these databases may not be comprehensive. It is also possible that innovations may not be included in the supplier database.

3.3 THE PROCUREMENT PROCESS

3.3.1 Current procurement methods for innovations

The approach currently used to procure water sector innovations is presented in Figure 11 The activities presented below could be undertaken by the WRC, Water Services Authorities (WSAs), Water Boards and academics/research institutions independently or through a combination of institutions at different stages of the project.

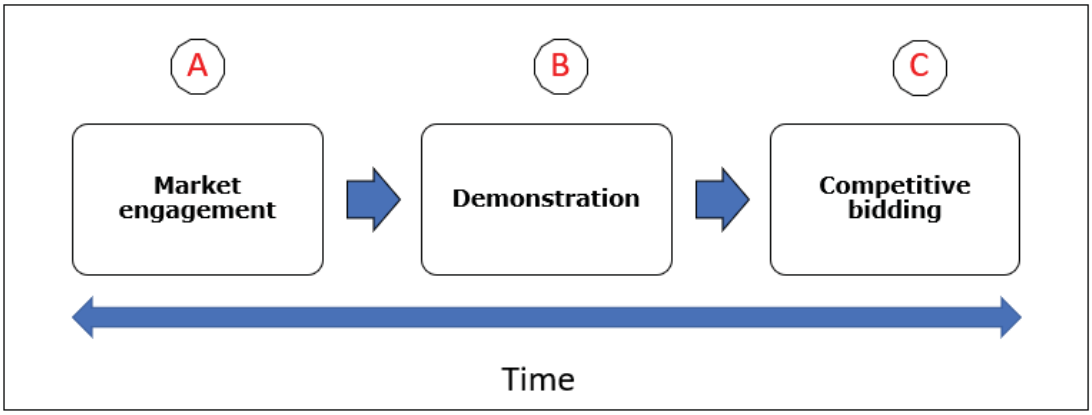

Figure 11: Current approach to procure innovations

Table 4 outlines each step of the procurement process that is generally used in order to acquire and implement innovations within the water sector, along with the corresponding challenges currently faced during each stage. The iterative nature of the innovation process should also be noted as innovators return to improving the design of the innovations once feedback from the demonstrations phase has been received.

This information was based on information obtained during the stakeholder engagement phase of the study.

Table 4: Current development and procurement approach for innovations

Item	Description	Challenge
A – Market Engagement	Expressions of Interest are used to obtain information for demonstration projects that meet specific criteria. This could be in the form of EoI, RFI, RFP or RFQ.	The full costs associated with the prototype may not be known at this stage. Operating risks are largely theoretical and the costs of mitigating these may not be included in the project costs.
B – Technology and/or Service Demonstration	Technology demonstration projects that are used to confirm the performance of the innovations and end user acceptance. The performance of the innovation can be confirmed by independent verification by an Evaluator.	The identification and selection of suitable test sites and demonstration partners. Reliable independent data (flow rates, quality of effluent, etc.) is not collected.
C – Competitive Bidding Process	Innovators respond to adverts issued by public sector institutions requesting proposals or quotations for solutions.	Evaluations may be cost based and does not include strategic considerations that innovations may provide. Innovators do not have the track record in supplying innovations at the required scale. Implementation is more operational than strategic resulting in a preference for the status quo. Single and source bidding processes cannot be used based on feedback received.

The current procurement approach for the procurement of innovations utilises a different method at each stage of the process (A, B and C). As an example, an organisation may issue an EoI for a particular need. Thereafter, an RFP is issued for demonstration, followed by a separate RFP for widescale implementation. In some cases, the EoI may also include a demonstration component.

It is also possible that there are different stakeholders involved at the different stages indicated. As an example, SASTEP may lead the demonstration phase with municipalities leading the competitive bidding component of the process. The timeline for the process outlined above can be long and requires multiple approvals from different procurement committees. One of the overarching challenges between innovation demonstration and competitive bidding process is the lack of credible data and evidence that can be leveraged to build a robust business case advocating for the adoption of an innovation. The current processes tend to be subjective and the alignment to the strategic objectives of the institution and national policy directives are not being made.

3.3.2 Misconceptions about the procurement process

The table below provides an indication of some of the misconceptions that were identified during the research.

Table 5: Common misconceptions about public procurement

Item	Comment
Competitive bidding means open tender.	Competitive bidding includes bidding such as single and sole source approaches which could be used as specified in Section 4.7.8 of the SCM Accounting Officers Guide and based on a thorough analysis of the market. However, the limited bidding approach should be justified through a thorough analysis of the market and the reasons for limited competition are understood.
Municipal contracts are limited to a maximum of three years.	Section 33 of the MFMA outlines the process to be used for a contract that will impose a financial obligation beyond three years. Section 28 of the PFMA requires a multi-year budget to be tabled annually but does not specify the period for multi-year. It should also be noted that infrastructure departments usually undertake longer term projects that extend beyond three years.
Single and sole source bids are not allowed	Limited bidding options can be used as a part of the competitive bidding process (Section 4,12 of the SCM Accounting Officers Guide. This must be based on a thorough analysis of the market.
Process is long and onerous	The planning process for the procurement of innovation is important to confirm the value proposition to the institution and confirm the business case. The risk management process and approvals are also required to ensure that public funds are spent in the best interests of the communities served.
Current conventional processes are cost-effective	Value-for-money assessments are based solely on capital costs and do not account for the full life cycle costs, potential savings that may accrue, as well as other strategic benefits.
Bids must be readvertised if less than three quotations are received.	There is no reason to readvertise if the competitive bidding process was complied with and tenderers were provided sufficient time (minimum of 21 days for RFP) to prepare a response. The reasons must be documented by the municipality and records maintained for audit purposes.

It is important to ensure that the Section 33 mechanism is well understood to:

1. Enable proper planning.
2. Project preparation.
3. Public consultation.
4. Budgeting.
5. Council approvals.

The above-mentioned process is important as a financial obligation on the municipality will exist beyond the mandate of the existing council.

3.4 GOOD PRACTICES

This section of the report focusses on good practices that were identified during the research and could be used to promote the uptake of innovation in the water sector.

3.4.1 Planning for procurement of innovation

The Strategic Sourcing Process, as defined by National Treasury, is a collaborative and structured approach to analysing government spending and using the information from the analysis to acquire commodities and services effectively. Strategic procurement assists supply chain managers in planning, managing and developing the supply base to achieve governments service delivery objectives. The Strategic Sourcing Process is outlined below. (OPCO - NT, 2016)

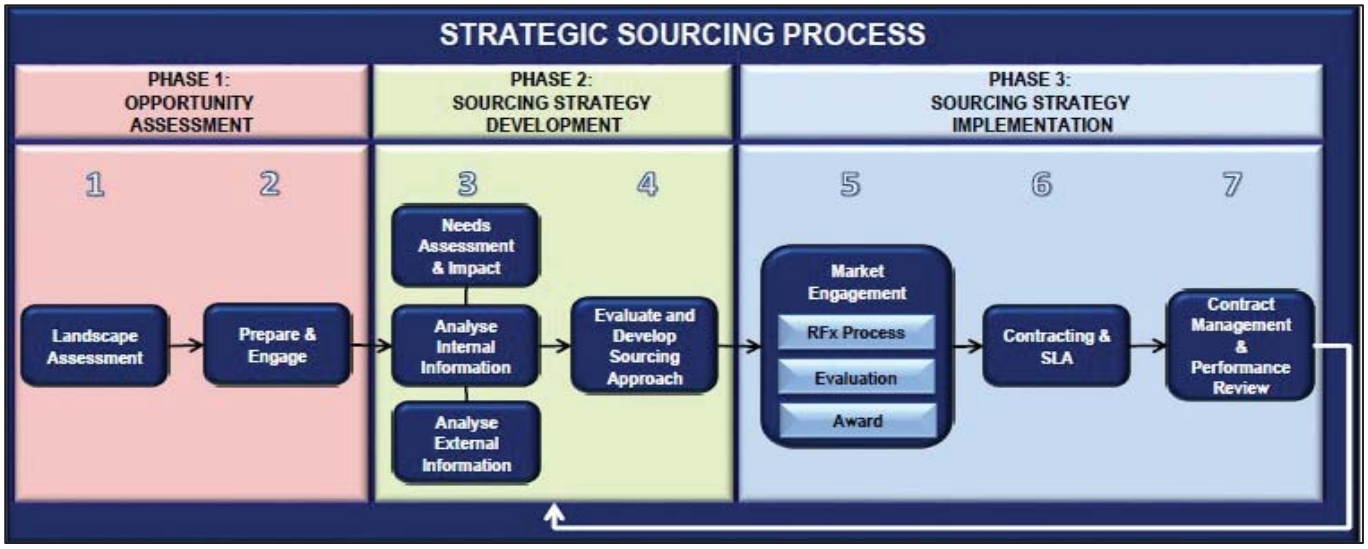

Figure 12: Strategic Sourcing Process
Source: National Treasury (2016)

Strategic Procurement is not intended for the purchase of good and services on a day-to day basis. It is rather a long-term and all-encompassing means of achieving procurement and strategic business goals (OPCO - NT, 2016). The uptake of innovation within the water sector is a strategic objective and is therefore aligned to the Strategic Procurement Process.

Many of the barriers identified during the research were focussed on the market engagement component of the process. Whilst it could be argued that some of barriers identified during market engagement could also apply to other stages of the procurement process, it would appear that there is a reactive focus on market engagement without any significant level of prior planning being done to justify the market engagement approach and confirmation that the proposed approach and expenditure is in the best interest of the organisation.

Phase 2 of the Strategic Sourcing Process is related to the Development of the sourcing strategy. A key feature of this phase is the need to gather data. The activities to be completed are presented in Table 6.

Table 6: Sourcing Strategy Development

Item	Description
Needs assessment, and impact of the purchase category	Obtain information on existing sourcing practices, plans and contracts. Undertake the initial risk analysis.
Analyse internal information	Obtain and analyse past purchase trends and overall spend. Analyse the performance of existing suppliers and solutions, as well as the institutions risks and vulnerability.
Analyse external information	Analyse trends in the market using tools such as Porter's Five Forces Analysis to determine the structure of the market and determine the major suppliers. Information provided in reports generated by research institutions and councils could be used to support this process.

Source: OPCO (2016)

The process outlined above ensures the identification of risks that would need to be mitigated during the procurement process. This can then be used to determine the type of contract that would need to be utilised in the operations phase, as well as the identification of other organisations that may need to be included in the procurement and implementation phase.

The Strategic Sourcing Process outlined above is well documented in this document. The methodology includes the following information for each of the steps presented in the diagram above:

- Best Practice Guide.
- Tools.
- Templates.
- Outputs.

There are several outputs from the different phases of the process, but a key outcome from Phase 1 and 2 of the process outlined above is the development of a Business Case that justifies and explains the decision to pursue a particular market engagement approach. The elements contained in the Business Case are presented in Figure 13.

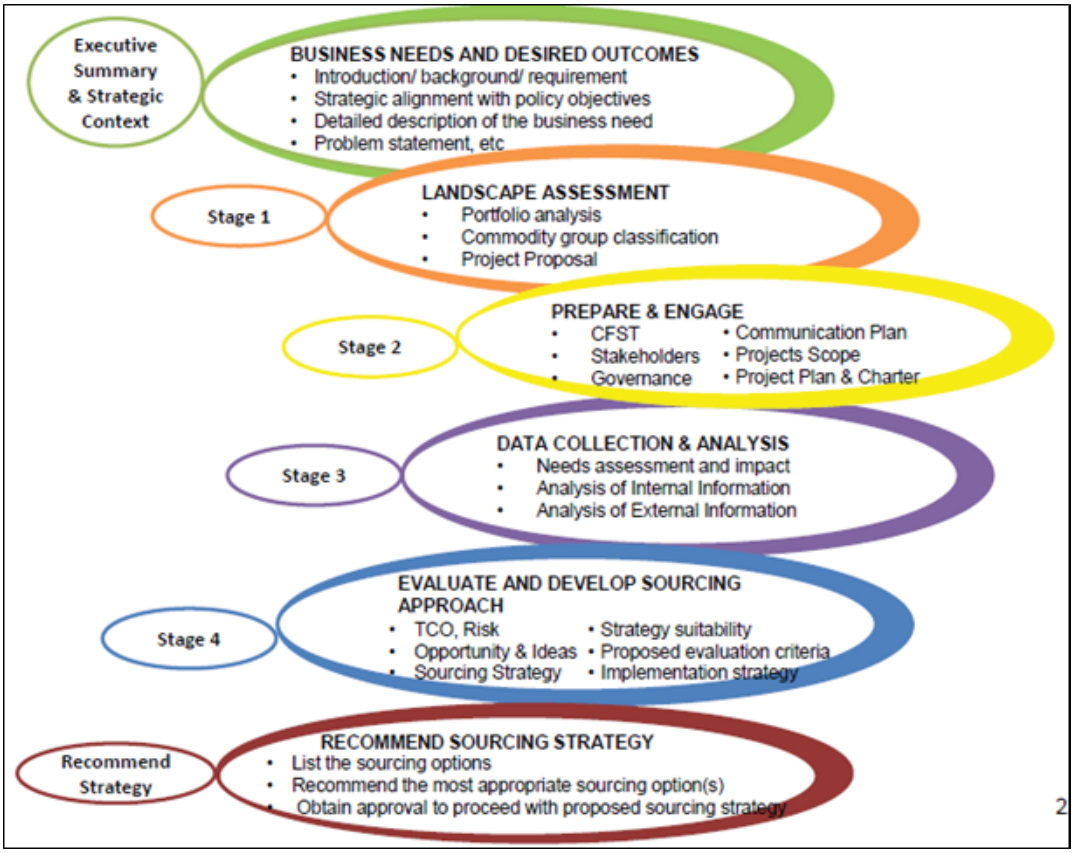

Figure 13: Structure of the Business Case
Source: National Treasury (2016)

The development of the Business Case will ensure risks are identified and mitigated during the subsequent phases of the study. A concern raised during the study was that the quality of the Business Case was dependent on the quality of the information used, as well as the capability of the team to compile the various elements and this was often found to be lacking. This process also ensures that the strategic criteria (job creation, development of communities, etc.) are included in the business case and can be considered by decision makers for approval.

It is possible that decision makers may choose to not proceed to procurement once a sound business case has been developed and documented. However, this would be very difficult to justify if a business need has been identified and a risk-based solution has been developed that is in the best interests of the organisation.

Appendix D provides further detail of the strategic procurement process.

3.4.2 Integrating Innovations into Institutional Operations

Institutions valuing the business and consumer benefits of innovations to service delivery should be intentional about developing SCM policies and systems to implement innovations as part of their ongoing operations. There are good examples in South Africa, most notably Johannesburg Water, Rand Water and Umgeni Water. These organisations have integrated uptake of innovation into their regular operations by having appropriate policies, systems and procedures where technical and SCM practitioners are involved throughout the various processes. These institutional processes and budgets for innovation have been aligned to operations and has therefore integrated innovation into their operational business.

To achieve successful innovation uptake, it is essential to integrate innovative practices into the regular operations of the utility and its associated supply chain and procurement processes. This integration involves aligning institutional and SCM processes and budgets to effectively accommodate innovation within day-to-day business operations. Moreover, fostering collaboration and integration between the Planning, Research

and Development, and Operational teams is crucial to ensure a seamless transfer of knowledge and expertise during the entire innovation development process.

Implementing innovation on a large scale poses a significant risk as it may not work at a larger scale, even where such innovation has been successfully piloted, tested and even supported by research evidence. Managing such risk is therefore critical, especially demonstrating that no negligence or maladministration was present should an innovation be proven ineffective when implemented on a large scale. Such risk management should be addressed throughout the innovation development and uptake process. The three institutions mentioned above are aware of this and addressed the risks throughout the process so when the innovation does not work at a large scale, it is clear that such "failure" is not due to any negligence or lack of oversight.

Institutional (especially municipal) decision makers are often focussed on social issues and empowerment – including strategic organisational focuses such as job creation and community engagement and empowerment – and the implications of innovations on these should be properly motivated. The impact of utilising innovations is often perceived as negative (e.g. on job creation), though there is evidence for this, on the contrary innovation uptake has usually led to increased job creation. It must also be noted that innovation during the demonstration phase of the innovation process is not only focussed on job creation but rather the opportunity to technically assess an innovation and to determine the value, robustness, resilience and cost.

3.5 A POSSIBLE PROCUREMENT METHOD FOR EMERGING WATER AND SANITATION INNOVATIONS

The Multi-Stage bidding process has emerged as a possible procurement (acquisition) method for emerging water and sanitation innovations. However, this approach should be confirmed by making use of the Strategic Sourcing Process during demand management process.

3.5.1 Multi-stage bidding

Multi-stage bidding can be advantageous over a single-stage process for complex projects, particularly where there is room for innovation. This process can assist in ensuring that solutions are aligned to needs and improve the final quality of proposals. However, it must be noted that the multi-stage process can take longer, be more complex to manage and more expensive for all parties involved. Care should also be taken to retain competitive pressure, protect intellectual property and maintain transparency. (The World Bank, 2022)

Figure14 provides an indication of a procurement process that could enhance the uptake of innovation.

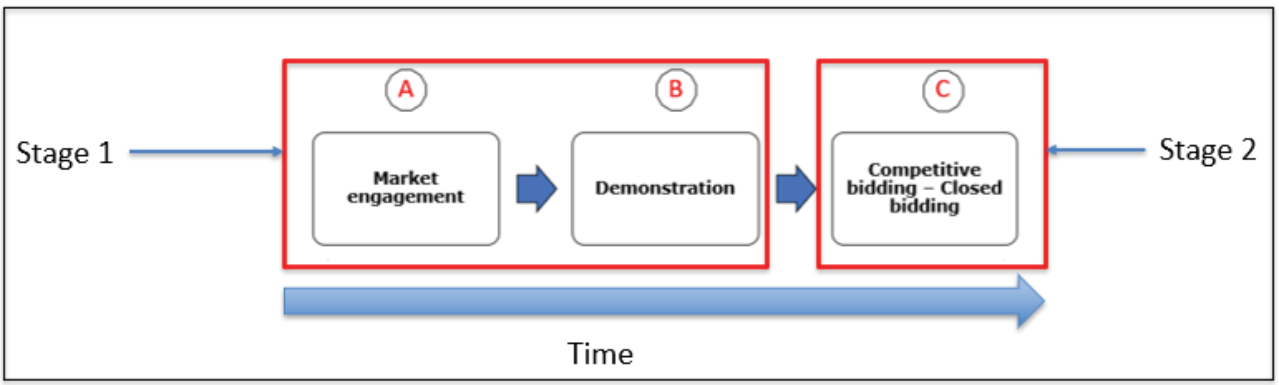

Figure 14: Alternative procurement method

The diagram above indicates the potential to invite innovators using an EoI process to demonstrate a particular group of innovations. However, the EoI would also specify the performance criteria that will be used to evaluate the innovations during the demonstration phase, as well as the quantities required to be supplied post the demonstration phase. Thereafter, innovators that meet the performance criteria will be invited to respond to

an RFP process to provide solutions at a larger scale. The RFP process will also allow for innovators to provide a price for scaled-up solution once the demonstration phase has been completed.
The provision of the performance criteria in the EoI for the evaluation in the innovations in the demonstration phase and the quantities to be provided during the broader scale up ensure that the principles of transparency and fairness would be met. This process also allows for progression from demonstration to bidding for implementation at scale without the need to advertise to parties that had not participated during the demonstration phase.

It is envisaged that the process outlined above could be implemented with various partners during the demonstration and implementation. However, it is important to ensure the demonstration and implementation components of the process are included in the different organisations planning and budgeting processes. It may also be possible to make use of an implementing agent or programme manager during the implementation phase if organisational support or additional capacity is required.

The time required to undertake the multi-stage bidding process would vary based on the cluster of innovations being demonstrated. The demonstration phase should ensure that there is sufficient time for innovations to demonstrate to End Users and practitioners that the units are able to meet the proposed value proposition. Sufficient time should also be provided to ensure that feedback from communities can be obtained (if required). The RFP process should also allow for sufficient for the Innovators to produce valid and reliable quotations.

Single and source procurement may be suitable for other categories of innovations. However, it would appear that there are many innovations that are developed in clusters and the multi-stage process allows for innovators to be evaluated on site specific conditions and on a case-by case basis. The multi-stage bidding process is different from the two-stage bidding process as two stage bidding would require a price to be provided at the EoI stage and not after the demonstrations have been completed.

It should also be noted that the proposed process would not be suited to all innovations, as some innovations at earlier Technology Readiness Levels may benefit from being involved in demonstration projects only as the innovations aim to move further ahead on the innovation development spectrum.

3.5.2 Example of Multi-Stage Bidding

Non-Sewered Sanitation Systems (NSSS) are a cluster of emerging sanitation innovations that can be used to treat wastewater and produce effluent that could be used to flush toilets or reused for agricultural purposes. The benefit of NSSS is that these can be implemented during a shorter timeframe (3-6 months) than a bulk sewer connection (4-6 years from planning to commissioning) and provides users a higher level of a sanitation service as compared to a VIP.

Using the multi-stage process would allow for entity such as the WRC to issue an EoI for the demonstration of NSSS at ten schools in Gauteng. The EoI would specify that all innovations that are able to produce effluent at the required quality, resource efficiency benefits and has an operating costs less than R16/kl will be invited by the Department of Basic Education (DBE) for implementation of the NSSS at 100 schools.

An additional benefit that may arise from the process is that suppliers may be able to provide more competitive prices as there able to achieve supplier discounts on raw materials due to economies of scale. Innovators are also able to access funding from commercial banks based on the order being received from the public sector institution thereby assisting with cashflow challenges often faced by emerging suppliers.

CHAPTER 4: RECOMMENDATIONS AND WAY FORWARD

The recommendations presented in this section of the report have been structured in a manner that allows for each intervention to be extracted and shared with the identified stakeholders. These recommendations are based on research undertaken based on available literature, as well as extensive engagement with practitioners from Water Boards, Water Services Authorities and the Office of the Chief Procurement Officer at National Treasury.

The interventions have been designed to enable the uptake of water and sanitation innovations by:

- Ensuring that the procurement of innovations is embedded in the organisations planning and budgeting processes, as well as aligned to the strategic objectives.
- Developing policies that empower practitioners to innovate.
- Supporting institutions to improve their ability to innovate.
- Enhancing skills to navigate the existing procurement framework.
- Improving accountability within the innovation system.

4.1 USING THE STRATEGIC SOURCING PROCESS TO PROCURE INNOVATIONS

4.1.1 Problem statement

The Water Research Commission (WRC) commissioned the research to review the current procurement policy environment/framework as this was considered to inhibit the uptake of innovations developed in the water and sanitation sector. A key finding of the research is that the regulatory environment/framework allows for the uptake of innovations, but the actual implementation of the framework was inconsistent and there were several behavioural factors within the sector that resulted in the perception that the regulatory framework inhibited the widescale implementation of innovations.

Several behavioural factors are underpinned by a lack of knowledge of the procurement framework and the perceived effort that is required to navigate through the procurement processes. The result is limited uptake of innovations that may improve the delivery of water and sanitation services and provide savings, as compared to conventional solutions.

In addition, it was noted that there was a lack of coordination between water sector practitioners and SCM practitioners. One of the emerging views is that SCM practitioners sometimes adopt a ‘policing’ approach as compared to a supportive function that enables improved provision of water and sanitation services.

4.1.2 Design of intervention

Conceptually, the multi-stage bidding process has emerged as a potential procurement process that could be utilised to enhance the uptake of innovation within the water and sanitation sector. However, the concept would need to be proven through use for an actual project.

It is therefore recommended that the Multi-Stage bidding process be considered as a possible procurement approach should this be supported by the data gathered and analysed during the sourcing strategy development process for a particular cluster of technology, such as NSSS. Consideration should also be given to the municipal budgeting processes to ensure that any planned spend by a municipality is captured in the appropriate budgets.

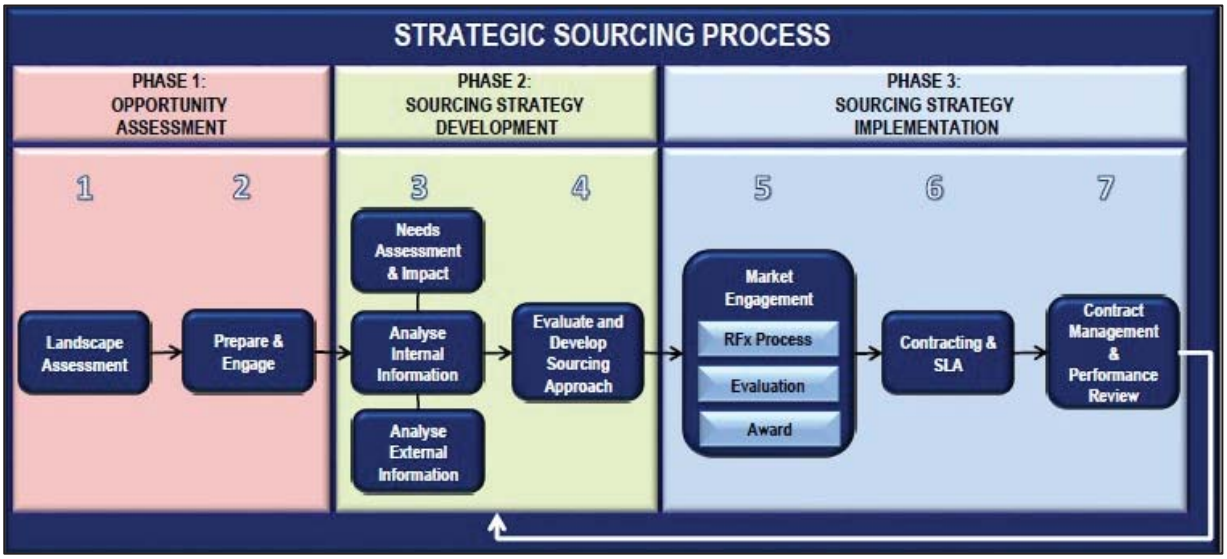

Figure 15 Strategic Sourcing Process

The use of the Strategic Sourcing Process (outlined above) would ensure the identification of efficient procurement processes that support the uptake of innovation, as well as provide a blueprint for the implementation of the multi-stage bidding process that other organisations, and possibly sectors, could implement to effectively promote the uptake of innovation.

It is also proposed that the Strategic Sourcing Process be used by the WRC with support from OCPO to design procurement strategies for other different clusters of emerging innovations. The procurement strategy would include consideration for appropriate market engagement strategies that enable the uptake of innovations by Water Boards and Water Services Authorities once the clusters of technologies have been successfully demonstrated.

4.1.3 Proposed success criteria and benefits

The intention of the intervention is to provide a blueprint procurement process that can be used by Water Boards (WB) and Water Services Authorities (WSA) once the concept has been proven by the WRC with support from the OPCO. This will confirm in practice that the procurement framework allows for the uptake of innovation if structured correctly.

There may be other procurement strategies that would be appropriate for different clusters of innovation. Researching cluster specific procurement strategies will provide an opportunity to identify and implement these solutions to enable the uptake of water and sanitation innovations.

4.1.4 Implementation plan

The table below provides an overview of the implementation plan for using the Strategic Sourcing Process to procure innovations. It should be noted that this intervention would require support and input from various role players. This could include the use of data and support from a WSA to enable the implementation of an emerging solution at scale. .

Table 7: Implementation plan for intervention 1

Action	Facilitator and possible partners	Activity
Use the strategic sourcing process for selected cluster of technology. This could be the multi-stage bidding process for Non-Sewered Sanitation Systems (NSSS).	WRC with support from OCPO and selected WSAs. DWS, SALGA and WB could also provide input at different stages of the process.	WSA to work with WRC using the Strategic Sourcing Process to implement an emerging solution. Engage NT once the outcome from the SSP has been developed. It may be possible to have different institutions lead different activities in the process if this is supported by the outcomes from the SSP.
Prioritization of clusters of technology to be include in the Strategic Sourcing Process	WRC with input from DWS, WB and WSA.	WRC to lead a prioritisation process for different clusters of technologies with input and support from WSAs. WSAs to provide information that will be used in the data gathering phase.
Joint scoping of the Terms of Reference for market studies and business case development that would be beneficial to the organisations.	WSA and WB with support from WRC and SALGA.	WSA and WB to lead the process with input from Technical and SCM Practitioners. SALGA and WRC to provide support in the development of the market research studies and development of the business case to support the proposed procurement process for the larger scale uptake of the identified interventions.

The benefits of the actions identified above would be the development of an example of an efficient procurement process that results in the broader innovations that enables the efficient and effective delivery of water and sanitation services.

4.2 ADVANCING THE DEVELOPMENT OF INNOVATION POLICIES IN WATER BOARDS AND WATER SERVICES AUTHORITIES

4.2.1 Problem statement

In South Africa, public sector institutions, mainly municipalities, are responsible for the provision of water and sanitation services, including implementation of innovations that are deployed to improve the provision of more efficient, effective, affordable and sustainable delivery of such services. The capability and capacity of water sector institutions vary across the country with some organisations having strong capabilities and skilled staff whilst others lack the capacity and skillset to positively meet their mandate.

From an innovation perspective, one of the central challenges to widespread uptake is a lack of innovation policies and procedures within Water Boards and municipalities in SA. This was highlighted through the continued semantic discourses during the stakeholder engagement process of the study.

It emerged as a high-priority area through the study, a potential strategic lever, and central to shifting toward innovative behaviours and practices within institutions. Bureaucratic challenges and a lack of internal integration and support for innovation were also cited as indicative of a lack of formalised institution-wide processes and policies.

4.2.2 Design of intervention

The Water Research Commission (WRC) and other innovation partners have developed various Innovation platforms and mechanisms to support the water sector in testing, piloting, demonstrating innovations. However, there remain gaps in the institutionalisation of large scale uptake of innovations invested in. This could be supported through the development of internal innovation policies and procedures in Water Boards and Water Services Authorities that could improve knowledge, activity and reflect a return on investment made on innovations for by these institutions.

The following principles inform the institutions' innovation policy and its alignment to supply chain/procurement, governance structures and budgeting processing and structures:

- Implementation of innovations should improve delivery of services

  Effective, efficient, sustainable, affordable water and sanitation services provision are required by the Water Services Act and innovations should enhance these requirements.

- Large scale uptake of innovation may not necessarily prove practical, and the associated risks should be managed

  Even when tested and piloted at limited scale, large scale implementation may not be practical for some innovations. It is therefore critical to document the processes used and lessons learnt for the benefit of the institution, as well as other sector institutions.

  It is therefore critical to identify and manage the risks at each stage of the innovation process, so that when the innovation development process does not lead to widescale uptake, no allegations of negligence can be made against anyone. This would also address concerns that investment in innovations could be considered wasteful expenditure.

- Implementing innovations should become part of usual utility business

  As innovation contributes to improved delivery of services, this approach should become part of the normal business of the institution.

- Innovation process development

  The innovation policy should provide an overview of the institutional processes that will be used to identify, develop, demonstrate and embed uptake of innovations within the organization. This will include the roles and responsibilities of different stakeholders during the process to ensure the development of an integrated solution.

  The innovation development process should be integrated to allow for engagement and input from stakeholders at different stages of the process. As an example, the SCM Manager and Finance Manager or an organisation could be involved in the upfront planning process undertaken by the technical resources.

Other interventions that will enable the uptake of innovations by institutions include:

- The Water Research Commission funded research project on the role of Innovation policies and procedures in advancing technology uptake and improvements within the SA water sector. This could include international and local case studies, successes, learnings and best practices; and

- Development of Innovation Policy sessions and tools through SALGA's Technology and Innovation strategy and platforms. This could include the development of a step-by-step guide for Innovation Policy and Procedure Development and related Case studies.

  In addition to the items presented above, the WRC should work with the Department of Water and Sanitation to review and include further evaluation and accolades for WSA and WB that demonstrate the 1) existence of and 2) the application of innovation policies and procedures that support improved quality, infrastructure and service through the Green Drop, Blue Drop and No Drop audits and reports. This is expected to incentive institutions to develop and implement innovation policies.

4.2.3 Proposed success criteria and benefits

The intention of the innovation is to make it easier for individuals in institutions to implement innovations by creating an enabling environment. The development and use of innovation policies by organisations also signals the organisations commitment to embedding the use of innovations within their environment.

4.2.4 Implementation plan

The table below provides an overview of the implementation plan to advance the development of innovation policies in Water Boards and Water Services Authorities.

Table 8: Implementation of intervention 2

Action	Owner	Mandate	Partners	Roles
WRC research project – innovation policies and procedures	WRC	Levy funded research aligned to sector priorities	Project leads, academia and consultancies	WRC to develop and advertise TOR. Fund and manage the project.
Development of internal innovation policies	WB and WSA	Water Services Act	WRC and SALGA	WB and WSA to lead the development of innovation policies.
Innovation Policy engagement sessions and guides	SALGA	Local government support	WRC, DWS and NSI partners	SALGA as lead with NSI partners and DWS providing specialist/technical input
Green and Blue drop audit inclusion	DWS	National custodian and regulator	WRC, SALGA, COGTA	DWS to review and take on key criteria from partners for inclusions
National policy on innovation uptake	NT, DWS	Water Services Act, PFMA, MFMA	DWS, SALGA	DWS to work with NT on national framework

4.3 ROADMAP FOR IMPROVING THE MATURITY OF INNOVATION SYSTEMS

4.3.1 Problem statement

Whilst research institutions, such as WRC and CSIR, have programs to verify and 'pilot' new innovations, uptake of innovations has generally not been achieved at a large scale with some of the barriers identified though research being that institutions don't have a culture of innovation.

A part of the challenge is the availability of capacity and skills in municipalities and Water Boards and Water Services Authorities to innovate. The implementation of innovation policies may assist the higher skilled and capacitated water sector institutions to successfully procure innovations. However, other organisations require support in the innovation development process to develop capacity and skills to move towards the uptake of innovations.

4.3.2 Design of intervention

The Water Services act requires water and sanitation services to be provided effectively, efficiently, sustainably and affordably which implies continuous improvement of existing technologies or new and innovative technologies and approaches.

Institutions need to be deliberate about implementing innovation by adopting an innovation policy that is aligned to supply chain/procurement, governance structures and budgeting processing and structures. These processes should include close cooperation between technical and supply chain practitioners, with these required to serve on each other's management structures and committees.

Research Institutions (including CSIR and WRC) could provide support to WB and WSA to develop the capacity and skills to implement innovations. This could be in the form of assisting with the demonstration of technologies at test sites provided by the institutions.

In addition, the WRC could provide support to the institution to utilise the strategic sourcing process to identify innovations that could be demonstrated through an appropriate procurement method to enable the uptake of a solution that would benefit the communities being served.

The sector would also benefit from research being conducted to determine the optimal institutional model that would enhance the development and uptake of water sector institutions. As an example, some WSAs have entered into Agreements with Institutions of Higher Education to develop and pilot innovations. However, there may additional conditions that could be included in the agreements that would facilitate the uptake of innovation. Consideration should also be given to the optimal manner in which WSA and WB could work with national research and innovation institutions (WRC, CSIR, etc.).

4.3.3 Proposed success criteria and benefits

The intention of the innovation is to support institutions that do not currently have the skills and capacity to innovate, to receive support from National Innovation Institutions to develop these attributes to enable the uptake of innovations.

Implementation of innovation and managing the risks should therefore be included in key performance indicators of institutions and staff and addressed and/or aligned to appropriate change management approaches within the normal business of the institution.

4.3.4 Way forward

The table below provides an indication of the different institutions and the functions to be performed for the implementation of the solution.

Table 9: Implementation of intervention 3

Action	Owner	Mandate	Partners	Roles
Innovation policy defined	Institution's Chief Accounting Officer	Water Services Act	WRC, SALGA, DWS	DWS to work with NT on national framework
Address innovation in institutional and individual KPIs	Senior Management of institution	Water Services Act	WRC, SALGA, DWS	DWS to work with NT on national framework
Develop organisational structures and process to include innovation	Senior management of institution	Water Services Act	WRC, SALGA, DWS	DWS to work with NT on national framework
Research into the optimal institutional model for the development and uptake of innovation.	WRC	Water Research Act	WRC, CSIR, TIA, WSA, WB, Universities	WRC to work with other institutions to research optimal institutional model.

4.4 ENHANCING GOVERNANCE, INTEGRITY, AND TRANSPARENCY

4.4.1 Problem statement

The challenge of innovation uptake in the public sector is as much a governance issue as a technical one. On the governance front, the South African public service has been plagued by deep and systemic corruption and lack of accountability. Corruption mitigates against the effective uptake of appropriate innovation: decision-making is skewed towards the interests of the corrupt parties, rather than being based on informed and unbiased decision making. The result may be, for example, the adoption of inappropriate or expensive innovations, or the rejection of innovative approaches that would bring significant benefits to the sector. Corrupt processes are enabled by lack of transparency and accountability in the water and sanitation sector.

4.4.2 Design of Intervention

Over recent years, considerable effort has been put into addressing the issue of corruption, by a number of key organs of state, generally at a transversal level in government. A number of these initiatives could be supported by the water and sanitation sector in order to improve integrity in decision making. These include:

- The National Treasury programme on development of a system for the mandatory publication of data (according to open data standards and policy), including for local government where there are significant failures in this respect. DWS could look to working with National Treasury to implement this across the water and sanitation sector as a pilot. The outcome of this would be the publication of all procurement information on a publicly accessible database. This enables civil society and the private sector to engage with the data and to question problematic processes. Such approaches have been

widely implemented in other countries and have resulted in significant benefits in reducing corruption and improving use of limited resources;

- Implementation of the Integrity Management Framework described in the 2015 Local Government Anti-Corruption Strategy (LGACS)[3]. This framework was devised through a consultative process in the development of the LGACS. Implementation will take time and investment, but will result in considerably improved governance and integrity at local government level;

- The development of a cadre of integrity practitioners as per the 2015 Local Government Anti-Corruption Strategy. In the strategy this is proposed as a municipal-wide programme, but DWS could drive this for water and sanitation teams at local government level. The development of such a cadre can contribute considerably to the reduction of corruption risk and the improvement of integrity practices at local government level.

4.4.3 Proposed success criteria and benefits

Benefits of this approach include the effective uptake of innovations as needed in the sector. Success criteria for this intervention could include an indicator that tracks the quantum of information of data made available according to set data standards.

4.4.4 Way forward

Table 10: Implementation of intervention four

Action	Owner	Mandate	Partners	Roles
Open Data Standards and Policy	National Treasury and DWS	System for the mandatory publication of data	WRC, SALGA, Water Boards, municipal water departments	DWS to work with NT on implementing open data in the water and sanitation sector
Implement Municipal Integrity Management Framework	CoGTA and DWS	Local Government Anti-Corruption Strategy 2015	WRC, SALGA, Water Boards, municipal water departments	DWS to work with CoGTA on implementing the framework in the water and sanitation sector at local government level
Develop cadre of integrity practitioners in municipal water teams	CoGTA and DWS	Local Government Anti-Corruption Strategy 2015	WRC, SALGA, Water Boards, municipal water departments; relevant organisations such as Ethics Institute, Corruption Watch	DWS to work with CoGTA on implementing the programme in the water and sanitation sector at local government level

[3] https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiRmqiUjKqAAxXgg_0HHXrWDKIQFnoECBAQAQ&url=https%3A%2F%2Fwww.cogta.gov.za%2Fcgta_2016%2Fwp-content%2Fuploads%2F2017%2F02%2FLGACS-Integrity-Management-Framework.pdf&usg=AOvVaw2yMxUch88AFOj4WFwKOxHJ&opi=89978449

4.5 SKILLS AND CAPACITY BUILDING

4.5.1 Problem statement

The Water Research Commission (WRC) commissioned the research to review the current procurement policy environment/framework as this was considered to inhibit the uptake of innovations developed in the water and sanitation sector. A key finding of the research is that the regulatory environment/framework allows for the uptake of innovations, but the actual implementation of the framework was inconsistent and there were several behavioural factors within the sector that resulted in the perception that the regulatory framework inhibited the widescale implementation of innovations.

Several behavioural factors are underpinned by a lack of knowledge of the procurement framework and the perceived effort that is required to navigate through the procurement processes. The result is limited uptake of innovations that may improve the delivery of water and sanitation services and provide savings, as compared to conventional solutions.

Many practitioners advised that whilst the spirit of the procurement framework was enabling institutional practices within the organisations was not aligned to this. This was evidenced by practitioners stating that lowest capital cost was often used as an indication of value-for-money.

In addition, it was noted that there was a lack of coordination between water sector practitioners and SCM practitioners. One of the emerging views is that SCM practitioners have adopted more of a ‘policing’ approach as compared to a supportive function for the provision of water and sanitation services.

4.5.2 Design of intervention

It is proposed that National Treasury: Office of the Chief Procurement Officer (OCPO), in association with the WRC, undertake capacity building sessions that delve into the various mechanisms that can be used for Innovation projects and Adoption. This could include providing practitioners with an overview of the manner in which the procurement framework was designed and how it could be used.

It is also proposed that the findings from the study and the Practitioners Guide is distributed widely and presented at Roadshows. This will enable the dissemination of the findings and improve water sector’s practitioners understanding and awareness of the procurement framework.

It is important to promote the coordination and collaboration between SCM, Technical and Financial Practitioners. This will ensure the development of integrated solutions and better alignment within each of the different fields.

4.5.3 Proposed success criteria and benefits

The intention of this intervention is to improve the procurement and innovation related skills and capacity of water sector practitioners. It is also intended to increase the awareness of the manner in which the public procurement framework was developed and the manner in which it be used to enable the uptake of innovations.

4.5.4 Implementation plan

Table 11: Implementation plan for intervention five

Action	Owner	Mandate	Partners	Roles
Roadshows sharing the practitioners guide that has been developed as an outcome from this study.	WRC with support from OPCO	Levy funded research aligned to sector priorities	DWS, WISA, IMESA, CESA, SAICHE, ECSA	Share the findings from the study to promote the correct application of the procurement framework and the Practitioners Guide.
Knowledge sharing sessions between Technical, Financial and SCM practitioners	SALGA	Local government support	WRC and DWS	Promote active collaboration between the different teams that are involved in procurement at local government.
Capacity building on the effective development and implementation of innovation policies.	WISA	Water sector capacity building	WRC, DWS and NSI partners	WISA coordinates efforts to proactively enhance the capacity of the water sector.

4.6 FINAL DELIVERABLE

It is recommended that a Practitioners guide be prepared and shared as the final deliverable for this study. This would summarise the research and share the findings for consideration.

4.7 ADDITIONAL QUESTIONS TO NATIONAL TREASURY

These questions were posed to the project team during the final Reference Group meeting and subsequent finalisation of the project deliverables. These should be raised and clarified with National Treasury.

- Can the total cost of ownership under the Value-For-Money principle take into consideration the implementers added cost to rehabilitate water sources, ecosystems and cost to deal with waterborne outbreaks?
- Does treasury provide examples of performance or delivery-based contracts?
- Does procurement allow for a supplier to be selected to co-develop the final finished good or service with the public sector customization of a product?
- Does the procurement framework allow for the development of a particular market in order to develop competition or increase supplier options for the provision of services?
- In 2020, NT circulated a paper for public comment on increasing the current procurement thresholds, especially for metropolitan municipalities. Is there an update on this? Will these thresholds be increased? Can individual municipalities negotiate with NT for higher thresholds?
- Does National Treasury allow the report from a demonstration from a municipality to be used in planning and informing the budget?

- Can a supplier be excluded from the competitive bidding process as their solution is causing pollution or will this be abused or open to legal challenges?
- Can a service provider be eliminated from future bids if there is a report that this suppliers provided poor quality goods or service in the past?
- Can partnerships after an initial EOI be developed to enable customization through deliverables as opposed to cost and rate per hour? – This would allow for prudent management of technology or infrastructure or services
- Does national treasury allow the report from a demo from one municipality to be used in planning and market for another municipality?

CHAPTER 5: REFERENCES

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Final evaluations and recommendations – Appendix A: Approach and Methodology

TABLE OF CONTENTS

CHAPTER 1: APPROACH AND METHODOLOGY

This section of the report outlines the approach and methodology that was utilised during the project.

1.1 PHASE 0: CONFIRMATION OF APPOINTMENT/LETTER OF AWARD AND UPFRONT PAYMENT

WRC has confirmed the award of the contract in writing, followed by a signed Service Level Agreement (SLA)/Letter of Award between the parties. Thereafter 20% of the project value became due and payable prior to commencement of work on the project.

Deliverable: Minutes of inception meeting

Status: Completed

1.2 PHASE 1: INCEPTION

The project team convened a kick-off meeting with the WRC. This meeting was used to confirm the process, timelines, scope and deliverables of the project, as well as highlighted the proposed approach and proposed sector engagements. Notes of the meeting and any changes to the project plan was captured in an inception report.

Deliverable: Inception Report

Status: Completed

1.3 PHASE 2: DESKTOP REVIEW OF THE ISSUE AND RELEVANT POLICIES

Phase 2 of the study was the desktop review of the issue and relevant policies. This included a wide overview of existing international and local literature to explore approaches and technologies – both in the water and other public services sectors – where innovative approaches and technologies have been procured and to identify possible lessons for South Africa. The emphasis of the review was on water and wastewater treatment, distribution, collection, and management, and how systems have developed to enable the uptake and application of new hardware, digital technologies and know-how (technology and processes).

This assisted in defining the problem statement that limits the uptake of emerging innovations in the public sector. This review also enabled the development of definitions for innovative technologies, process solutions and/or approaches that such definitions may be applied to required procurement processes but still enable appropriate solutions that will improve services delivery to the public and improve and simplify existing systems and procedures.

The desktop review was segmented into the following areas:

- Institutional;
- Technical;
- Financial;
- Legal;
- Deployment of innovations; and
- Commercial.

Further details on each of these areas are provided below.

1.3.1 Institutional

There are various institutional challenges that inhibit the uptake of innovations. The review also investigated various institutions and categories of institutions' understanding and interpretation of the policy and legislative environment and the factors influencing such understanding and interpretation. Consideration will further be done on how this influences innovative solutions, technologies and approaches in order to develop "model(s)" and/or arrangements that would enable the public sector to adopt and implement innovative solutions, technologies and approaches. This included institutional arrangements (including required contracts and capability) and/or models considered appropriate for relevant solutions, technologies and approaches.

1.3.2 Technical

There are several challenges with the technical performance of the innovations. This includes the confirmation of the value proposition of the technology to the WSA and End User. In some cases, Innovators verbally indicate that their innovations can meet the performance specifications required by the End User but the data to prove this is lacking. The technical component also included a literature review and categorization of the emerging innovations.

The associated challenges of operation and maintenance (O&M) of water and sanitation infrastructure and systems are high on the agenda. The current poor O&M is often linked to insufficient budget and unskilled operators, and these are areas that will be measured when considering the enabling environment for public sector uptake of emerging water and sanitation innovations.

Alternative operating and maintenance models will be considered within the study and shall fall within the institutional and commercial headings.

A review of the specifications in Request for Proposals (RFP) for goods and services will be undertaken. This will in determine whether the desired outcome is provided as compared to specifications provided for a pre-identified technology. There may be novel, more pragmatic approaches to the drafting of specifications that could unlock the pathway for innovations.

1.3.3 Financial

The financial barriers that may inhibit the uptake of innovations could include limited funding sources for the End User, as well as the inability of the Innovator to access funding to complete the required development of the innovations.

It could also include the lack of tried and tested implementation and financial models that allow for cost effective and revenue generation opportunities for the End User. Engagements with the Water Partnerships Office (WPO), NT on the revised PPP model and DWS on the Water Services Improvement Plan (WISP) will add further context and insight into a possible shift in procurement partnerships that improve the uptake of innovations toward an effective and efficient water sector.

1.3.4 Legal

A systematic assessment will be undertaken to assess the legislative, regulatory and policy environment and instruments in South Africa that directly or indirectly affect innovation uptake in the water sector and other

related public sectors. Information will be gathered and collate information in three distinct areas. This includes policy drivers regulating water use and wastewater treatment at a local (e.g. municipal tariffs and by-laws), national (e.g. the National Environmental Management Act and its regulations), and international (e.g. international water law, UN Watercourses Convention) areas.

The legal review will be completed for each of the areas listed above, as well as other overarching water sector legislation as it relates to the deployment and use of the innovations that have been identified. Legislation reviewed includes:

- The Constitution;
- The National Water Act;
- The National Water Services Act;
- The Public Finance Management Act;
- The Municipal Finance Management Act; and
- National Treasury Supply Chain Management Regulations.

Other relevant documents to be reviewed will include the White Paper on Science, Technology and Innovation, the NT regulations relating to unsolicited bids, NT practice notes, Supply Chain Management (SCM) Guides, etc.

The legal review also included a review of legislation and associated regulations that may present a barrier to innovation. As an example, NT Regulation 16A.6.4 allows an organ of state to deviate in circumstances when it is impractical to invite competitive bids. Paragraph 5.10.5.1 of the Supply Chain Management (SCM) Guide for the Accounting Officer indicates that a single-source selection should be used only in exceptional cases. The justification for single-source selection should be examined in the context of the overall interests of the client and the project. Paragraph 5.10.5.2 of the SCM Guide for the Accounting Officer, states that a single-source selection may be appropriate only if it presents a clear advantage over competition for tasks that represent a natural continuation of previous work carried out by the firm; where a rapid selection is essential (for example, in an emergency operation); for very small assignments; or when only one firm is qualified or has experience of exceptional worth for the assignment. However, in practice such deviations and single-source justifications are almost never used, even when an innovative solution to an intractable problem is available.

The legal review also considered the widespread challenge of corruption in the public procurement in South Africa. Recommendations from the study will be crafted in a manner that does not allow new pathways for corruption to be developed.

1.3.5 Commercial

The commercial review will focus the challenges that the innovators may experience in developing sustainable businesses that can provide the public sector with sustainable solutions. This area will focus on the business aspects that enable the deployment of innovations to the identified market.

The literature review will assist with defining the problem statement of the deployment of innovations to the public sector. This includes innovations that emerge from the systems of innovation, as well as those that have been developed through other frameworks.

The literature review also included a scan of international innovation deployment frameworks and mechanisms, in order to identify interventions that could be introduced in South Africa.

1.3.6 Case studies

Phase 2 of the study will also include the development of case studies that provide examples of innovations that have successfully navigated the current procurement framework, as well as examples of innovations that have experienced challenges. These challenges would serve as learning and provide an indication of barriers that would need to be overcome. The case studies would initially be developed based on the literature available but will be refined during the Stakeholder engagement component (Phase 3) of the study. The selected case studies will be linked to key themes that emerge from the literature review phase and will also be used to identify stakeholders that will be engaged in Phase 3. It is expected that these case studies will provide valuable insights to mechanisms required to enhance the current procurement framework.

The institutional, technical, and financial issues are probably the most significant barriers to the adoption of water innovations in the public sector. The Water Recycling project at eThekwini Metropolitan Municipality is concerned with the construction of the wastewater treatment plant designed to treat 48 million litres per day (10% of the municipality's wastewater) for reuse by industrial clients (Durban Water Recycling Project, 2019). A total investment of R72 million was required for the project (World Bank Group, 2018). Following the municipality's sanitation departments technical capabilities assessment, it was evident that the municipality couldn't carry out a project of this scale. Furthermore, a financial feasibility study was performed internally and externally, which demonstrated that this project was well suited to attract private capital. Based on these studies, the municipality crafted short-listing criteria that would benefit their preferred bidder and invited international tenders for a public-private partnership (PPP) to achieve this project. The first PPP of its kind in South Africa, was awarded to the Veoila Water Systems consortium with Veoila Water Solutions and Technologies as the lead, Zetachem, Khulani Holdings Limited, Umgeni Water and Marubeni in 1999, with payments against key performance targets. The 20-year concession contract is a Build-Own-Operate-Transfer (BOOT) contract, valid until 2021 (World Bank Group, 2018). Through this partnership, the municipality can generate revenue, comply with relevant legislative requirements and recover its infrastructure investment cost.

The success of the BOOT projects at eThekwini Municipality has inspired the structuring of a similar contract for upgrading the Rustenburg WWTW, Boitekong WWTW and the recommissioning of the Bospoort WTW belonging to the Rustenburg Local Municipality. The plants are operated in partnership with the local water board – Magalies Water. The 25-year concession contract was awarded to the Mati Ya Vanhu consortium in December 2003. As part of the consortium, Magalies Water (the bulk water board) as the operator, ABSA bank as the lead arranger and financer and Rustenburg Consulting, led by Bigen Africa (a consulting engineering firm), to implement the project (Serumaga-Zake, 2015; World Bank Group, 2016). The scope of work involved the design, finance, upgrade and operation of the facilities that were upgraded. In addition to this, the consortium and the municipality created the Rustenburg Water Service Trust (RWST), a municipal entity which operated as a Special Purpose Vehicle (SPV) for the project (World Bank Group, 2016). Securing off-take agreements with the different industrial clients (i.e. mines), increased investor confidence.

When public and private sector partners take a seat at a round table, adoption of water innovations can be tackled successfully. The success of the (PPP model) in the eThekwini Municipality Water Recycling project and the Rustenburg Local municipalities has been largely due to key factors that contributed to the success of the projects, which include the following: the political will and collaboration between private and public sector; signing off-take agreements with potential clients/end-users; establishing SPV's; conducive environment to engage and develop private initiatives.

Deliverable: Desktop review of the issue and relevant policies

Status: Completed upon approval of this report

1.4 PHASE 3: STAKEHOLDER ENGAGEMENT

The stakeholder engagement process was separated into a multi-phased approach as outlined below. The project team ensured that stakeholder engagement during both stages (online survey and in-depth interview) was conducted in a sensitive and confidential manner given the sensitive nature of the topic and the perception around the link between public sector procurement and corruption.

1.4.1 Stakeholder identification

A total of 86 stakeholders were identified during the desktop review phase of the study by leveraging existing contacts held by the project team, conducting online research, and consulting with industry experts and regulatory bodies. These stakeholders were selected for engagement in order to gather sector specific insights. The stakeholders were separated into primary and secondary groups depending on their relevance in the public and water/wastewater sector and the potential value they would bring to the findings of the interview stage. The research intended to included up to 15 primary stakeholder interviews.

The secondary stakeholders were involved in stage one only, after which their individual responses were analysed to determine whether it would be relevant and beneficial to include them in stage two.

The primary stakeholders included national government, end users, innovators, incubators, regulators, independent technical consultants, and specialist water sector governance and finance consultants. The secondary stakeholders included academic institutions, non-governmental organisations (NGOs), industry/trade associations, financial institutions, and information and technology communications institutions.

1.4.2 Stakeholder engagement methodology

The stakeholder engagement process involved a two-staged approach, consisting of an initial online survey followed by in-person or virtual interviews with a subset of key stakeholders. The purpose of this process was to gather anonymous data from a larger number of stakeholders and ratify the themes that emerged from the desktop study. The in-depth interviews gathered richer and more detailed data to determine if there were new themes and insights to progress the discourse on current research identified in Stage 1.

The development of the survey and the stakeholder selection were conducted with input and agreement from the Water Research Commission (WRC). Background engagements with National Treasury (NT) and the South African Local Government Association (SALGA) were taken into consideration. The conversations were designed to find out what the real and perceived barriers to innovation uptake are, as well as the pathways by which individuals had managed to become first adopters of water sector innovations. In particular, it was important to understand how NT staff interpreted their practice notes, etc., and foresaw the implementation, and how the practitioners (e.g. water boards, municipalities) interpreted and implemented them.

1.4.3 Stage 1: Initial online survey

On initiation of the engagement phase, 86 stakeholders were identified to participate in Stage 1 and were invited to take part in the study through email. The large sample size was selected to ensure sufficient participation (20-30 respondents) in the survey. The aim was to inform them of the background and objectives of the study. Participants were requested to complete an online survey designed to collect anonymous data, identify sector-wide issues, and act as a form of validation for the initial findings uncovered during the desktop review. The stakeholder groups that were identified are:

- National Government (DWS, NT, DSI);
- End Users (Water Services Authorities and Water Boards);
- Innovators (WEC Projects, Tecroveer, UKZN WASH); and
- Independent technical Consultants (Marissa Moore, Teddy Gounden).

The categories of the participants approached to complete the survey are presented in the diagram below.

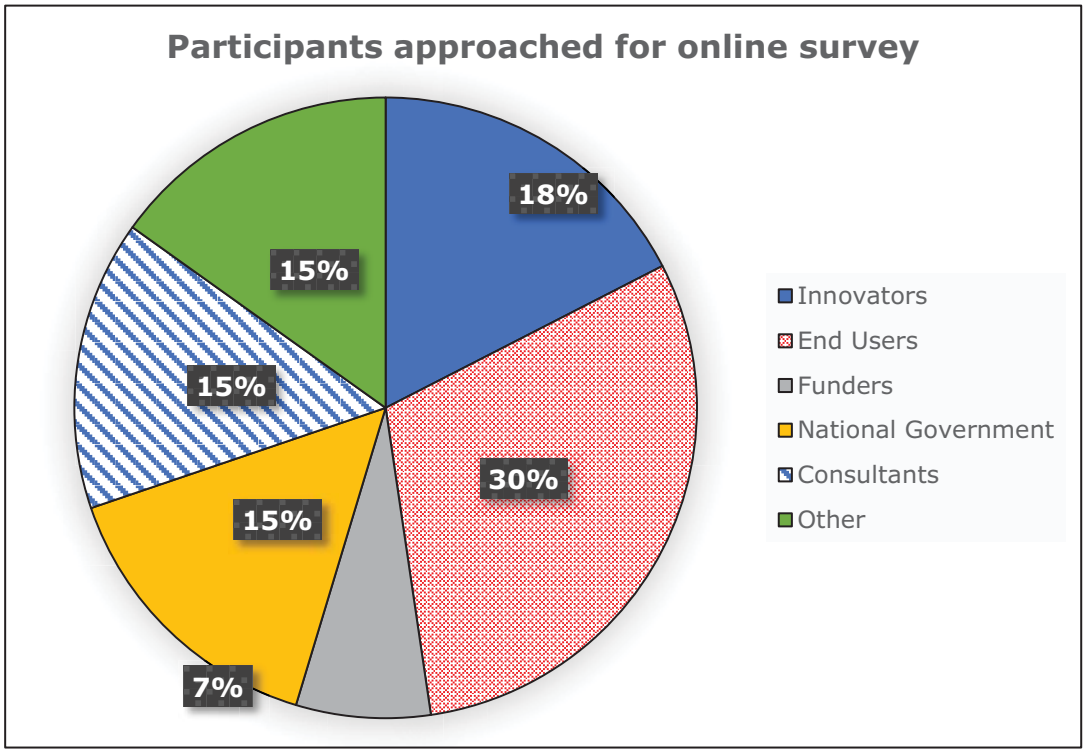

Figure A-1: Participants categories approached for online survey

End Users comprised the largest participant group that was approached to complete the survey as these are often the individuals that try to implement innovations once this has been proven. Funders represented the smallest participant group at 7%. However, this was seen to be appropriate given the focus of the study.

The development of the survey was a critical aspect of the stakeholder engagement process. The project team followed a process that included clearly defining the objectives of the survey, determining its content, developing questions, distributing the survey, and analysing the data. To ensure the quality, accuracy, and relevance of the survey, it underwent review by the WRC, research project team members, and experts in the field prior to distribution.

The survey was created using Google Forms, which provided a user-friendly and customisable platform for survey development. Once the survey was finalised and reviewed, it was distributed to stakeholders of interest via a link. The project team ensured that clear instructions were provided to respondents on how to complete the survey to maximise the response rate. Using an online platform like Google Forms allowed for easy and efficient distribution of the survey to a large number of stakeholders, regardless of their location. The responses were automatically collected and compiled into a database, ready for analysis by the project team. The categorisation of respondents to the survey are presented in the diagram below.

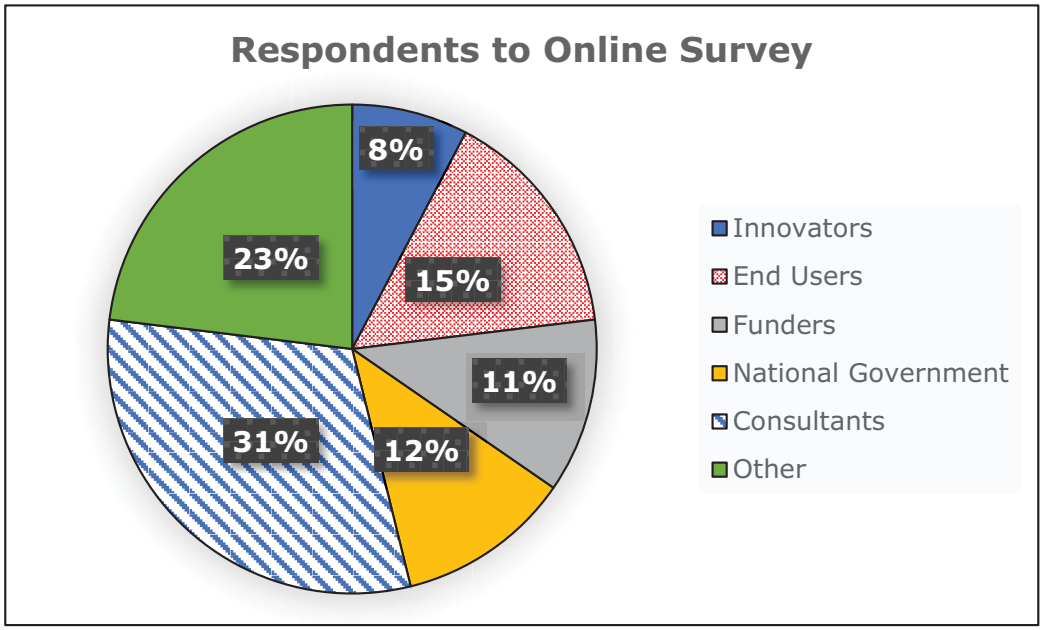

Figure A-2: Respondents to Online Survey

26 of the 86 participants approached completed the online survey. This resulted in a response rate of 30% and it would appear that most categories are appropriately represented. Innovators were the lowest category of respondents, but this was not seen to be an issue as the focus is the uptake of innovation in the public sector. The diagram below provides an indication of the responses received for the different categories.

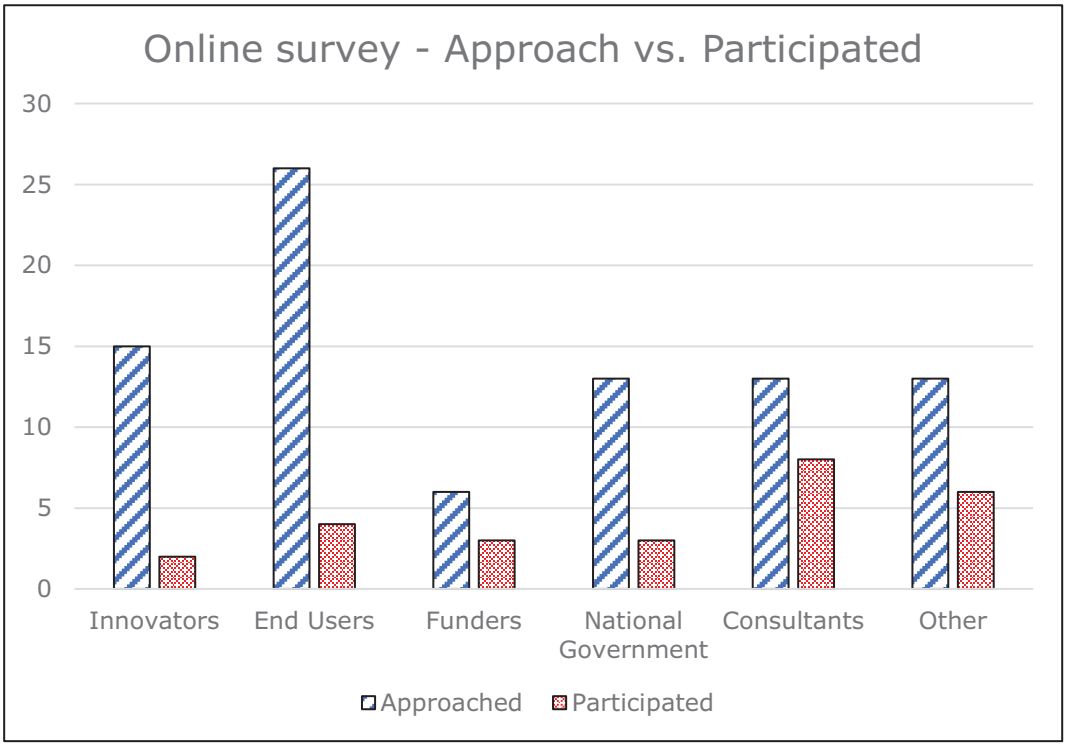

Figure A-3: Participants approached as compared to surveyed

The diagram above indicate that Innovators and End Users had the lowest response rate by category at 13% and 15%. However, the End Users would be targeted for the in-depth interviews as their experience was crucial in guiding the outcomes of the study. The responses were deemed sufficient to have captured broad feedback on the topic from the different categories of stakeholders.

Once the data were collected from the online survey, they were analysed to identify trends, themes, and patterns to inform Stage 2 of the process. The analysis helped to identify key insights and gather a comprehensive understanding of the subject matter.

The survey used in this study can be found attached to this report as Appendix C.

1.4.4 Stage 2: In-depth interviews

Stage 2 of the stakeholder engagement process entailed conducting in-depth interviews with a smaller, select group of key stakeholders identified during the desktop review phase of the study. The purpose of these interviews was to delve deeper into the issues identified in the online survey and supporting literature and gain a more nuanced understanding of stakeholders' perspectives and gain further insights for the study.

The development of the questionnaire and selection of stakeholders was conducted with input and agreement from the WRC. It is noted that there has been a range of background engagements with NT and SALGA and the project team will need to be connected to this process. The conversations will be designed to find out what the real and perceived barriers to innovation uptake are, as well as the pathways by which individuals have managed to become first adopters of water sector innovations. In particular, it will be important to understand how NT staff interpret their practice notes, etc. and foresee the implementation, and how the practitioners (e.g. water boards, municipalities) interpret and implement them.

The respondents will be offered anonymity, because procurement may be perceived as a sensitive issue, but identifiable case studies will be sought especially of successes in trial and implementation of novel technologies and know-how. All interpretations gathered will be synthesised and subjected to a consultative process with NT and SCM, PFMA/MFMA and public sector procurement specialists.

The selection of interviewees was informed by an analysis of the data collected through the online survey. Additionally, certain individuals were selected based on their knowledge and experience within the sector. Out of the stakeholders identified in Stage 1, the project team reached out to 15 stakeholders who had provided particularly insightful responses, and highlighted issues requiring further exploration. Out of these 15 stakeholders, 10 interviews have already been conducted, with the remaining interviews scheduled for June 2023. The insights gathered from these outstanding five interviews will be incorporated into the next stage of the study, further enriching its findings and analysis. The figure below provides an overview of the categories of participants that were approached to participate in the semi-structured interviews.

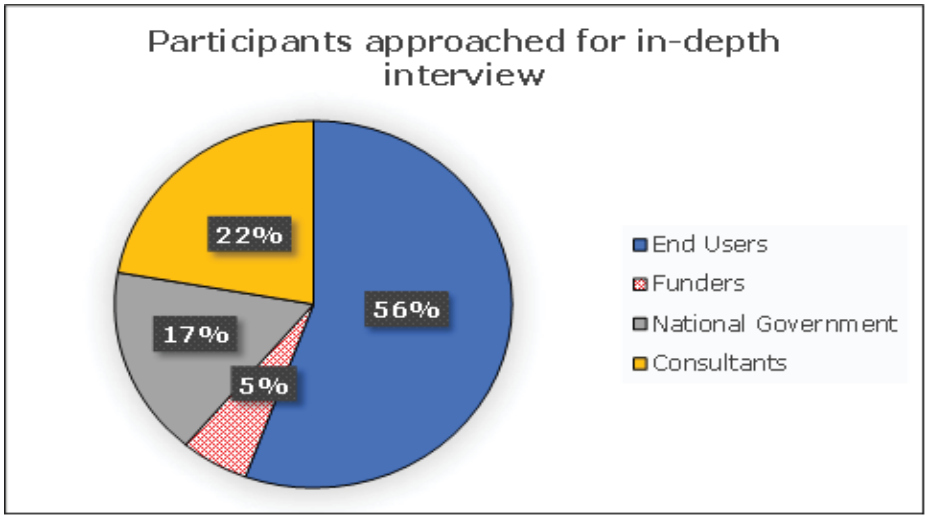

Figure A-4: Participants approached for semi-structured interviews

The diagram above indicated that the End Users formed the largest grouping for the in-depth interviews. This was due to these categories of Users of facing challenges with implementing proven innovations at scale. Consultants were selected based on their knowledge of specific areas in the water value chain, as well as, having worked with on in public sector institutions. Sixteen of the eighteen (89%) participants approached completed the interview process.

In-person interviews are one of the richest data gathering instruments available. The identified individuals were invited to expand on the subject in terms of challenges faced, perceived mismatches between the national and organisational supply chain management (SCM) policies they need to adhere to, their interpretation of these policies, and whether they had any suggestions to offer for solutions and recommendations as to how policies can be improved.

The interviews were conducted either face-to-face or via video conferencing, depending on the preference of the interviewee and their location. Each interview lasted between one and two hours and was conducted by a member of the project team trained in conducting qualitative research.

The data collected from the interviews was transcribed and analysed to identify common themes. These findings were then compared to the data collected from the online survey through triangulation to validate and expand on the insights gained.

The NT (Chief Procurement Officer and Chief Director: Procurement Policy) was identified as a key primary stakeholder in the project. The project team worked closely with NT contacts provided by the WRC, and engagements being facilitated at the following points in the study:

- Inception report and work plan has been confirmed; and
- Draft guideline and recommendations are available.

The next engagement with National Treasury will be convened in August 2023. It is understood that there is a review of some of the relevant legislation underway. This will be discussed with the team at NT and possible engagements with the relevant review teams will be requested.

The insights gained from both stages was used to inform the development of recommendations for the research study. The objective of this phase of the study is to produce a matrix which visually compares the different interpretations of the 'rules' and how each one equates to a barrier or an enabler.

Deliverable: Report of stakeholder engagement process, including workshop proceedings.

Status: Completed

1.5 PHASE 4: FULL EVALUATION AND RECOMMENDATIONS REPORT

The information gathered during Phase 2 and 3 of the study was analysed and synthesized to provide a full evaluation and recommendations report. This report contains a set of recommended policy and/or practice adjustments that would enable sector-wide uptake of innovations. The organisations and where possible the individual roles within those organisations where power to make such interventions is vested will also be identified.

All recommendations will be further processed through a consultative workshop with NT and SCM, PFMA/MFMA and public sector procurement specialists to examine their feasibility under current regulatory frameworks and identify necessary and/or possible policy adjustments that would better serve the ability of the water sector to adopt appropriate innovations.

This report is also expected to include a set of recommended procurement models or approaches that would enable sector-wide uptake of innovations. All proposed models and approaches will also be further processed through a consultative workshop with NT and SCM, PFMA MFMA and public sector procurement specialists to examine their feasibility under current regulatory frameworks and identify adjustments that would make them models and approaches practicable.

This report will be structured in a manner that will enable submissions to key stakeholders such as NT and Department of Science and Innovation.

Deliverable: Evaluation and Recommendations Report

Status: To be initiated once Phase 2 is completed

1.6 PHASE 5: TAILORED POLICY BRIEFS FOR ALL PRIORITISED STAKEHOLDER GROUPS

The findings from the study will be distilled and presented as a policy brief(s) to targeted stakeholders. The brief will be prepared as a vehicle that will enable these stakeholders to assist with decision making.

The structure of this deliverable will be confirmed during Phase 3 of the study. This deliverable will be targeted to different stakeholders and will need to be useful and presented in a way that is useful to the sector.

This deliverable will be submitted by 31 August 2023 with the contract end date being 31 October 2023. This will allow for two months to allow for the project close out process within the WRC.

Deliverable: Policy Brief

Status: To be initiated once Phase 2 is completed

1.7 DELIVERABLES SCHEDULE

The deliverable schedule for the project is presented in the table below.

Table A-1: Deliverables schedule

	Title	Description	Target Date
1	Upfront Payment	Upfront payment on signature of contract.	01 Nov 2022
2	Inception report	Inception report detailing the approach to the project (including on planned sector engagements).	15 Dec 2022
3	Desktop review	Desktop review of the issue and relevant policies	28 Feb 2023
4.	Stakeholder engagement report	Report of stakeholder engagement process, including anonymised workshop proceedings.	31 May 2023
5	Evaluation and Recommendations Report	Full Evaluation and Recommendations report, ready for submission to NT and other prioritized stakeholders.	31 Jul 2023
6	Policy Briefs	Tailored Policy Briefs for all prioritized stakeholder groups.	31 Aug 2023

It is noted that Deliverables 1 and 2 (Phase 0 and Phase 1) has been completed and this report serves as the Deliverable 3 (Phase 2) of the project.

1.8 CONCLUSION

The approach and methodology outlined in this section of the report will enable the project team to meet the project objectives. The proposed phased approach will also enable the project team to engage regularly with the Client and provide feedback as the project progresses.

It should also be noted that the provision of information from the Innovator is crucial to meet the project objectives. The project team will endeavour to treat the information with the required sensitivity but may require the Client to assist with facilitating discussions with the Innovator to obtain the required

Final evaluations and recommendations – Appendix B: Legislative Review

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1 LEGISLATIVE ENVIRONMENT FOR PROCUREMENT

This section of the document outlines the key documents and requirements of the procurement framework as it applies to public institutions in the water sector. This section also contains an analysis of each piece of legislation identified to determine whether it has an intent to enable uptake and how it enables or inhibits uptake of innovations in public institutions.

Regarding uptake of innovation, the following scenarios may be considered:

a) A public sector institution wanting to implement an innovation which it needs to procure:

   i. A technological innovation of which the effectiveness and/or efficiency has been proved at a pilot level (e.g. through WRC, WADER, CSIR, etc.), but not yet implemented at a larger scale; or

   ii. A technological innovation conceptualised and/or developed by the institution which wants to pilot it; or

   iii. An institutional innovation that requires to be piloted and/or implemented at scale.

b) A developer of an innovation wanting to promote or sell the innovation to the relevant public sector institution for implementation where:

   i. A pilot phase is still required to test the effectiveness and/or efficiency; or

   ii. A pilot phase has proven the effectiveness and/or efficiency of the innovation (e.g. through WRC, WADER, CSIR, etc.), which is now ready for implementation at scale.

1.1 THE CONSTITUTION (ACT 108 OF 1996)

The Constitution is the supreme law of the country and defines three primary spheres of government – local, provincial and national – each with powers and functions. According to the Constitution of South Africa (Act 108 of 1996), local government has executive authority in respect of, and the right to administer water and sanitation services limited to "*potable water supply systems*" and "*domestic waste-water and sewage disposal systems*". [section 156(1)(d) read with Schedule 4, Part B]. Thus, local government has the constitutional obligation to ensure that all people and institutions get access to (potable and domestic) water and sanitation services.

Local government must ensure that communities have access to sustainable services and promote a safe and healthy environment. In executing the developmental duties of local government, municipalities must be structured and managed to give priority to the basic needs of communities. National and provincial government have the obligation to support local government and regulate the performance of local government.

Section 217 (1) of the Constitution states that when an organ of state in the national, provincial or local sphere of government, or any other institution identified in national legislation, contracts for goods or services, it must do so in accordance with a system which are:

- Fair;
- Equitable;
- Transparent;
- Competitive and
- Cost-effective.

The subsection specified above does not prevent the organs of state or institutions referred to in that subsection from implementing a procurement policy providing for:

- Categories of preference in the allocation of contracts; and
- The protection or advancement of persons, or categories of persons, disadvantaged by unfair discrimination.

Assessment:

The Constitution neither encourage nor prohibits the uptake of innovation, though the requirements of competitiveness and cost-effectiveness could be interpreted to encourage innovation uptake, though it assumes that a demonstration phase has already proven that innovations are competitive and offer a benefit superior to the solutions that are currently available.

1.2 MUNICIPAL STRUCTURES ACT (ACT NO. 117 OF 1998)

The Municipal Structures Act establishes municipalities and creates their internal structures, such as whether the mayor will be executive and the form of the council. The Act deals with the division of powers and functions between district and local municipalities. “Functions” means the local government functions as set out in Part B of schedule 4 and Part B of schedule 5 of the Constitution. “Powers” means the legislative and executive authority associated with each of the functions. Legislative authority is referring to the power to make by-laws and executive authority the power to make decisions in relation to the functions.

The Municipal Structures Act is largely static in that it outlines the structures a municipality can have and provides guidance on how these must be created – but does not elaborate on the functioning of these structures. This is contained in the Municipal Systems Act.

Assessment:

This Act does not address procurement, therefore has no effect on the uptake of innovation.

1.3 MUNICIPAL SYSTEMS ACT (ACT NO. 32 OF 2000)

The Act, together with the Municipal Finance Management Act, is the primary piece of legislation that regulates municipal services delivery. The Act provides a range of service delivery mechanisms through which municipalities may provide municipal services and sets forth the process to be applied and the criteria to be considered in reviewing and selecting municipal service delivery mechanisms.

Amongst others, the Local Government: Municipal Systems Act intends:

- To provide for the core principles, mechanisms and processes that are necessary to enable municipalities to move progressively towards the social and economic upliftment of local communities, and ensure universal access to essential services that are affordable to all;
- To provide for the manner in which municipal powers and functions are exercised and performed;
- To establish a simple and enabling framework for the core processes of planning, performance management, resource mobilisation and organisational change which underpin the notion of developmental local government;
- To empower the poor and ensure that municipalities put in place service tariffs and credit control policies that take their needs into account by providing a framework for the provision of services, service delivery agreements and municipal service districts; and
- To establish a framework for support, monitoring and standard setting by other spheres of government in order to progressively build local government into an efficient, frontline development agency capable of

integrating the activities of all spheres of government for the overall social and economic upliftment of communities in harmony with their local natural environment.

All these mentioned above may be positively improved by the uptake of innovation.

Chapter 8 – sections 73 to 94 of the Act defines requirements for decision making about municipal services delivery:

Section 73(2) requires that municipal services must be equitable and accessible, provided in a manner that is conducive to the prudent, economic, efficient, and effective use of available resources; and the improvement of standards of quality over time; be financially and environmentally sustainable; and be regularly reviewed with a view to upgrading, extension and improvement. These could well be supported by uptake of innovation.

Section 75 require municipalities to promulgate bylaws to give effect to its policy, implying that municipal policies and bylaws should be developed to encourage uptake of innovation, should that be desired.

Sections 76 to 84 defines the decision-making process that municipalities must adhere to when considering alternative mechanisms for municipal services delivery with the process being strongly bias towards internal mechanisms. The critical issue here is understanding the definition of a "municipal service" as per the constitutional definition quoted above – this could be interpreted as meaning the entire delivery of services (all component functions) is to be done externally, or only a portion of the services.

In terms of the definition of "internal" and "external" delivery mechanisms (Section 76 (a)), the Municipal Systems Act prefers internal systems and administration of the municipality.

Section 78 1 (a) (ii) requires the municipality to assess its capacity and potential future capacity to furnish the skills, expertise and resources necessary for the provision of the service through an internal mechanism as defined in section 76(a) – there is nothing in this process that requires an evaluation of the innovation capacity of the municipality. This could perhaps be an important addition to a section 78 assessment to require a very specific focus on innovation as a key element of service delivery.

For example, outsourcing auxiliary services or components, e.g. meter reading or management of treatment works could be incorrectly interpreted as requiring a decision making process as per this Act. Innovations – being either technical or systems will seldom result in an external services delivery mechanism and would therefore not be subject to these requirements.

Section 108 of the Act allows the national Minister (of local government) to make regulations relating to national and minimum standards.

Assessment:

The Municipal Systems Act does not specifically encourage nor hinder innovation uptake, though much does depend on interpretation, for example, regarding the institutional arrangements to be adopted for service delivery. There is a lack of consideration in terms of both internal capacity or external options regarding capacity for innovation. The intentions of the act (as stated) does seem to require consideration of innovative solutions, technologies and approaches.
Section 33 relating to contracts with financial obligations for longer than three years appears to be a stumbling block for municipalities in that:

- "Financial obligation" is not defined; and
- The process to approve such contracts are very onerous and protracted.

This could leave municipal staff and councillors to view it of too much effort and/or risk.

1.4 NATIONAL WATER ACT (ACT NO. 36 OF 1998)

The National Water Act deals with the water resource – that is rivers, streams, dams, and ground water. It contains rules about the way that the water resource (surface and ground water) is protected, used, developed, conserved, managed, and controlled in an integrated manner. The guiding principles are sustainability, equity and efficiency. The purpose of the National Water Act (Act 36 of 1998) is to ensure that the nation's scarce water resources are protected, used, developed, conserved, managed and controlled in ways which consider amongst other factors:

- Meeting the basic human needs of present and future generations;
- Promoting equitable access to water;
- Redressing the results of past racial and gender discrimination;
- Promoting the efficient, sustainable and beneficial use of water in the public interest;
- Facilitating social and economic development; and
- Providing for growing demand for water use.

The introduction to Chapter 1 sets out the fundamental principles of the Act:

> "*Sustainability and equity are identified as central guiding principles in the protection, use, development, conservation, management and control of water resources. These guiding principles recognise the basic human needs of present and future generations, the need to protect water resources, the need to share some water resources with other countries, the need to promote social and economic development through the use of water and the need to establish suitable institutions in order to achieve the purpose of the Act.*"

The objects of the National Water Act (Act 36 of 1998) gives effect that water resources amongst others must be managed and controlled in ways which takes into account the factors such as promoting equitable access to water and redressing the results of past racial and gender discrimination with Minister of Water and Sanitation holding the Public trusteeship of the Nation's Water Resources with ultimate responsibility to ensure that water is allocated equitably and used beneficial in the public interest, while promoting environmental values.

In its preamble, the National Water Act (Act 36 of 1998) recognises:

- That water is a scarce and unevenly distributed national resource which occurs in many different forms which are all part of a unitary, interdependent cycle;
- That while water is a natural resource that belongs to all people, the discriminatory laws and practices of the past have prevented equal access to water, and use of water resources;
- National Government's overall responsibility for and authority over the nation's water resources and their use, including the equitable allocation of water for beneficial use, the redistribution of water, and international water matters;
- That the ultimate aim of water resource management is to achieve the sustainable use of water for the benefit of all users;
- That the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users; and
- The need for the integrated management of all aspects of water resources and, where appropriate, the delegation of management functions to a regional or catchment level to enable everyone to participate.

Assessment:

The NW Act does not regulate anything with regard to procurement, but its spirit, aims and objectives seems to encourage uptake of innovation. because of the guiding principles of sustainability, equity and efficiency and creating a legislative environment for this.

1.5 WATER SERVICES ACT (NO. 108 OF 1997)

The Water Services Act legislates the local government function as defined in the Constitution of executive authority in respect of, and the right to administer water and sanitation services limited to "*potable water supply systems*" and "*domestic waste-water and sewage disposal systems*". [section 156(1)(d) read with Schedule 4, Part B]. It defines how municipalities should provide water supply and sanitation services and regulates the role of other water services institutions, especially water services providers, and water services intermediaries and water boards. It empowers the Minister to make standards and regulations. To date the following regulations have been promulgates in terms of the Water Services Act:

- Norms and Standards in respect of tariffs for water services in terms of s10(1) of the Water Services Act;
- Regulations relating to compulsory national standards and measures to conserve water in terms of s9(1) and s73(i)(j) of the Water Services Act; and
- Regulations relating to water services provider contracts in terms of s19(5) of the Water Services Act.

The main objects of this Act include:

- The right of access to basic water supply and the right to basic sanitation necessary to secure sufficient water and an environment not harmful to human health or well-being;
- The setting of national standards and norms and standards for tariffs in respect of water services;
- The preparation and adoption of water services development plans by water services authorities; and
- A regulatory framework for water services institutions and water services intermediaries.

The Act defines the duty of water services authorities to all consumers or potential consumers in its area of jurisdiction to progressively ensure efficient, affordable, economical and sustainable access to water services.

The Act further defines the role of water services providers, their relationship to the water services authority and their appointment, subject to the subsequently promulgated Municipal Systems Act (Chapter 8).

Assessment:

The WS Act does not specifically mention innovation, but since uptake of innovation could assist in improving the efficiency, affordability, economics and sustainability of delivery of water and sanitation services, the act can be interpreted to be promoting appropriate innovation uptake.

1.6 PUBLIC FINANCE MANAGEMENT ACT (NO. 1 OF 1999)

The objective of the Public Finance Management Act (No. 1 of 1999) (PFMA) is to regulate financial management in the national and provincial government and to ensure that all revenue, expenditure, assets

and liabilities of those governments are managed efficiently and effectively. The PFMA also provides for the responsibilities of persons entrusted with financial management in those governments and to provide for matters connected therewith.

The PFMA applies to national and provincial government departments, public entities and constitutional institutions; in the water sector this includes water boards and catchment management agencies. National Treasury (NT) must enforce this Act and any prescribed norms and standards, including prescribing an investment policy for public entities – provincial treasuries must do the same for provincial departments and entities.

Accounting officers of departments and state-owned entities are responsible to put in place for their institution:

- Appropriate procurement and provisioning system, which is fair, equitable, transparent, competitive and cost-effective; and
- A system for properly evaluating all major capital projects prior to a final decision on the project.

Similarly, accounting authorities of public entities have the same responsibility for that entity.

The PFMA is focussed on preventing irregular expenditure, fruitless and wasteful expenditure, losses resulting from criminal conduct, and expenditure not complying with the operational policies of the Department or public entity and holds the accounting officer and authorities responsible. Section 81 and 83 defines misconduct to include making and permitting unauthorised expenditure, irregular expenditure and fruitless and wasteful expenditure.

The NT may make regulations or issue instructions applicable to all institutions to which the Act applies concerning various issues including the determination of a framework for an appropriate procurement and provisioning system which is fair, equitable, transparent, competitive and cost-effective, as well as relating to donations (for interest here is donation of innovative technologies or solutions post the completion of a successful demonstration project in which the public sector institution has participated as a demonstration partner).

In terms of section 79, NT may on good grounds approve a departure from a treasury regulation or instruction or any condition imposed in terms of the Act.

Assessment:

The PFMA does not encourage or prohibit innovation uptake and requires SCM procedures and systems from each institution it governs. This places the onus on each institution to develop procedures and systems that should be enabling to uptake of innovation in the spirit of the Act.
No provision is made in the legislation for the procurement of innovative goods or services. Unlike the MFMA, the PFMA only refers "specifications" with no distinction between "technical specifications" and "functional specifications" as there is in the MFMA.

1.7 MUNICIPAL FINANCIAL MANAGEMENT ACT (NO. 56 OF 2003)

The Municipal Finance Management Act (MFMA) regulates the financial affairs of municipalities and municipal entities and establishes treasury norms and standards for budgets, reporting and financial controls. The Act applies to all municipalities, all municipal entities and national and provincial organs of state to the extent of their financial dealings with municipalities. The objectives of the Act include ensuring transparency, accountability and appropriate lines of responsibility. It focuses on ensuring the management of revenues, expenditures, assets, liabilities and the handling of financial dealings.

The Act regulates certain aspects of municipal service delivery mechanisms and the process of implementing such mechanisms. Matters addressed include the establishment of municipal entities, public-private partnerships and municipal budgets.

This Act places the obligations on municipalities to practice supply chain management. This is a holistic approach to procuring goods and services by local government.

Regulations have been issued by the Minister of Finance. Those relevant for purposes of WSA functions are the Municipal Supply Chain Management Regulation (Government Gazette 27636, Notice No. 868 dated 30 May 2005); and the Municipal Public-Private Partnership Regulations (Government Gazette 27431, Notice No. 309 dated 1 April 2005).

As municipalities spend public funds, the process of spending these funds is highly regulated, the MFMA:

- Sets the process for procuring PPPs in Chapter 11 of the MFMA, and has also issued regulations dealing in detail with the process of PPPs; and

- The MFMA also requires that all municipalities must develop, implement and comply with a Supply Chain Management Policy. The policy must be fair, equitable, transparent, competitive and cost effective. Supply Chain Management comprises demand management, disposal management, risk management and performance management.

The Municipal Financial Management Act (No. 56 of 2003) (MFMA) was introduced to:

- Secure sound and sustainable of the financial affairs of municipalities and other institutions in the local sphere of government;
- Establish treasury norms and standards for the local sphere of government; and
- To provide for matters connected therewith.

Section 15 of the MFMA stipulates that a municipality may only incur expenditure if this is aligned with the approved budget and within the limits of the amounts appropriated for the different votes in an approved budget. This means that municipalities musts be intentional on the uptake of innovation and should specifically include such as part of their planning and budgeting process.

1.7.1 Capital projects

Section 19 (1) of the MFMA stipulates the conditions under which a municipality may spend funds on a capital project. These conditions include:

a) Ensuring that the funding required has been appropriated in the capital budget;
b) The project, including the total cost has been approved by council; and
c) The sources of funding for the project are available and have not been committed to other projects.

19 (2) Prior to the approval of a capital project, the council of a municipality must consider:

a) The projected cost of the project until the project is operational; and
b) The future operational costs and revenue of the project.

1.7.2 Unauthorised, irregular or fruitless and wasteful expenditure

Section 32 of the MFMA states political office bearers and accounting officers are liable for unauthorised, irregular, fruitless and wasteful expenditure in cases of deliberate negligence and that this must be recovered from the liable person.

The accounting officer must notify the mayor, provincial MEC and auditor general in writing when s/he finds any such expenditure.

Guilty parties may further be disciplined and criminally prosecuted.

1.7.3 Contracts with future budgetary implications

Section 33 of the MFMA requires that for any contract that has financial obligations beyond three years, the following is required:

- The municipal manager (MM) must publish the contract for public and community comment, get relevant line department and NT comment;
- The council must consider the financial obligations for future financial years, impact of tariffs and comment from previous requirement; and
- The council must adopt a resolution approving the contract and authorising the MM to sign it based on assessed benefit of contract for the municipality.

The term “financial obligation” is not specifically defined in this Act (or the PFMA).

1.7.4 Supply Chain Management Regulations

Section 111 of the MFMA stipulates that each municipality and municipality entity must have an implement a Supply Chain Management (SCM) policy which gives effect to Chapter 11 of the MFMA (Goods and Services).

Section 112 of the MFMA specifies that the SCM Policy of a municipality and municipal entity must be:

- Fair;
- Equitable;
- Transparent;
- Competitive;
- Cost-effective; and
- Compliant with a prescribed regulatory framework for SCM.

The prescribed regulatory framework for SCM should include the following:

- The range of SCM processes that can be implemented;
- When a municipality and municipal entity may or must use a particular type of process; and
- Procedures and mechanisms for each type of process.

The MFMA SCM regulations, unlike the PFMA, specify that specifications must "where possible be described in terms of performance required rather than in terms of descriptive characteristics for design". This approach, rather than the approach of providing technical specifications, opens the door for innovation. The PFMA and SCM Regulations and the PPPFA and its Regulations do not specify this need for focus on performance rather than technical specifications.

To promote innovation, the procuring entity would have to set out the expected outcome or end result, not how the end result of the procurement process should be achieved through using "functional" rather than "technical" specifications. Where there is a need to be technically specific, the procuring entity should still allow sufficient scope to offer variants and innovations.

1.7.5 Unsolicited bids

Section 113 of the MFMA provides an overview of the process to consider unsolicited bids received by a municipality outside the normal bidding process. Effectively, the municipality is not obliged to consider the unsolicited bid but, should the municipality choose to consider an unsolicited bid, this would need to be undertaken in with a prescribed framework.

The MFMA does note that the prescribed framework must strictly regulate and limit the power of municipalities to approve unsolicited bids received outside their normal tendering or other bidding processes.

1.7.6 Unauthorised expenditure

Unauthorised expenditure is defined in the MFMA as:

a) Overspending the total amount appropriated in the municipality's approved budget;
b) Overspending the total amount appropriated for a vote in the approved budget;
c) Expenditure from a vote unrelated to the department or functional area covered by the vote; and
d) Expenditure of money appropriated for a specific purpose, otherwise that for that specific purpose.

A vote is one of the main segments into which a budget of a municipality is divided for the appropriation of money for the different departments or functional areas of the municipality.

1.7.7 Irregular expenditure

Irregular expenditure in relation to a municipality or municipal entity means:

a) Expenditure incurred by a municipality in contravention of, or that is not in accordance with a requirement of the MFMA and has not been condoned by in terms of Section 170;

b) Expenditure incurred by a municipality in contravention of, or that is not in accordance with a requirement of the Municipal Systems Act and has not been condoned by in terms of that Act;

c) Expenditure incurred by a municipality in contravention of, or that is not in accordance with a requirement of the Public Office-Bearers Act (No. 20 of 1998); and

d) Expenditure incurred by a municipality in contravention of, or that is not in accordance with a requirement of the SCM policy of the municipality or any municipal by-laws that give effect to such policy and has not been condoned by in terms of such policy and by-laws.

Section 32 (c) of the MFMA specifies that any political office-bearer or municipal official who deliberately or negligently made or authorised irregular expenditure is liable for that expenditure.

1.7.8 Fruitless and wasteful expenditure

Fruitless and wasteful expenditure refers to expenditure that was made in vain and would have been avoided had reasonable care been exercised. Section 32 (d) of the MFMA specifies that any political office-bearer or municipal official who deliberately or negligently made or authorised fruitless or wasteful expenditure is liable for that expenditure.

1.7.9 Donations

Section 12 of the MFMA prescribes the following:

1. "*No political structure or office-bearer of a municipality may set up a relief, charitable, trust or other fund of whatever description except in the name of the municipality. Only the municipal manager may be the accounting officer of any such fund.*
2. *A municipality may in terms of section 7 open a separate bank account in the name of the municipality for the purpose of a relief, charitable, trust or other fund.*
3. *Money received by the municipality for the purpose of a relief, charitable, trust or other fund must be paid into a bank account of the municipality, or if a separate bank account has been opened, into that account.*
4. *Money in a separate account opened may be withdrawn from the account without appropriation in terms of an approved budget, but only a) by or on the written authority of the accounting officer acting in accordance with decisions of the municipal council; and b) for the purposes of which, and subject to any conditions on which the fund was established or the money in the fund was donated*"

It is not clear how these address donations of innovative technologies or solutions.

Assessment:

The MFMA is more open to innovation than the PFMA, through requiring specifications of performance, rather than technical specifications in procurement processes. On the other hand, it could discourage, though not prohibit, innovation uptake due to:

- Strict accountability requirements when something goes wrong – especially in the case of unauthorised, irregular, fruitless and wasteful expenditure, which could be seen as a risk by managers and accounting officers when considering uptake of innovation;
- Cost of new innovations may vary and/or change;
- Inherent assumption that known technologies/systems will be procured;
- Section 33 being perceived as an obstacle by municipalities, since its requirements are onerous and open to interpretation, as well as the term "financial obligation" not being defined; and
- Each individual municipality must develop its own donations policy.

1.8 MUNICIPAL FISCAL POWERS AND FUNCTIONS ACT (ACT NO. 12 OF 2007)

The objects of this Act includes to effectively oversee the exercise of municipal fiscal powers and functions and it applies to municipal surcharges and municipal taxes referred to in section 229 of the Constitution, other than rates on property regulated in terms of the Local Government: Municipal Property Rates Act, 2004 (Act No. 6 of 2004), and municipal base tariffs regulated under the Local Government: Municipal Finance Management Act, 2003 (Act No. 56 of 2003), the Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000), or sector legislation.

Assessment:

It therefore does not regulate procurement of any goods and services.

1.9 PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT (NO. 5 OF 2000)

The Preferential Procurement Policy Framework Act requires that government departments develop and implement a preferential procurement policy. The PPPFA provides a framework for achieving specific goals such as contracting with historically disadvantaged persons.

A preferential procurement policy must be implemented within the following framework:

- For contracts above a value of R50 million, a maximum of 10 scoring points may be allocated for "specific goals" such as historical disadvantage. The remaining 90 points must be allocated to price and functionality concerns; and
- For contracts equal to or below R50 million (but above R30 million) a maximum 20 scoring points may be allocated for these "specific goals" and the remaining 80 points must be allocated to price and functionality concerns.

The framework also allows for the use of procurement to favour locally produced goods over imported goods. This is known as the "local content" requirement.

Assessment:

This act neither encourages nor prohibit uptake of innovation, though the local content preference could be interpreted to include uptake of local innovations by excluding international companies.

1.10 PUBLIC PROCUREMENT BILL, 2023

The aim of the Bill is to regulate public procurement and to prescribe a framework within which preferential procurement must be implemented by introducing uniform treasury norms and standards for all procuring institutions to implement their procurement systems as envisaged in section 216 and 217 of the Constitution; and determining a preferential procurement framework for all procuring institutions within which to implement their procurement policies.

It will apply to all institutions regulated by the PFMA and MFMA and establishes a Public Procurement Office in National Treasury.

It will require all institutions to:

- Develop and implement an effective and efficient procurement system that complies to the act,
- Define procurement needs by compiling a statement of requirements that includes invitation documents, evaluation process and contracts;
- Procure in accordance with the prescribed thresholds; and
- Clearly state the methodology and criteria to be used in the evaluation of bids.

Assessment:

This act neither encourages nor prohibit uptake of innovation, though the requirements mentioned above would be an ideal opportunity for institutions to address uptake of innovations.

1.11 CONSTRUCTION INDUSTRY DEVELOPMENT BOARD (ACT NO. 38 OF 2000)

The purpose of this act is to establish the Construction Industry Development Board (CIDB) to implement an integrated strategy for the reconstruction, growth and development of the construction industry and related matters.

Section 5 of the act defines the strategic leadership of the Board to include promoting and implementing policies. programmes and projects aimed at, amongst others, innovation and best practice processes.

Assessment:

This act specifically states that part of the CIDB ‘s function is to encourage innovation and best practices

1.12 PUBLIC PRIVATE PARTNERSHIPS (PPPS)

PPPs are regulated through various legislations: the Public Finance Management Act (PFMA), the PPP Manual and Standardized PPP Provisions (which are issued as Treasury Practice notes under the PFMA) and the Municipal Finance Management Act (MFMA). South Africa also has a central PPP Unit, the Government

Technical Advisory Centre (GTAC), which advises and supports the Treasury on major infrastructure procurement, including PPP.

The legislative framework is meant to cut across the various levels of government (municipal, provincial and national), but in practice, it works best at national government. At subnational level, especially municipal, PPP-related texts overlap and contradict other legislation: for instance, the MFMA and the Municipal Systems Act both require feasibility studies for a PPP, but with different scopes. Stakeholders have also noted great variations in PPP support between municipalities and provinces.

In general, it is felt that dedicated legislation is required for PPP to take off at sub-national level. The NT has defined a PPP as:

> "*a contract between a public-sector institution and a private party, where the private party performs a function that is usually provided by the public sector and/or uses state property by agreement. Most of the project risk (technical, financial and operational) is transferred to the private party. The public sector pays for a full set of services, including new infrastructure, maintenance and facilities management, through monthly or annual payments. In a traditional government project, the public sector pays for the capital and operating costs and carries the risks of cost overruns and late delivery*."

Conceptually this is innovative, though it has extensively been practiced internationally and locally, including in the water and sanitation sector – though in South Africa such uptake has been limited.

According to NT, government is working on several reforms to strengthen public investment management and the associated value chain, which include reviewing the public-private partnership (PPP) framework. South Africa has considerable experience in implementing and operating PPPs and government is improving the PPP regulatory framework and intends to expand the pipeline of externally financed public investment projects, most of which are likely to be PPPs.

Despite the PPP regulatory framework being remaining unchanged for nearly 15 years and early success of the PPP model in South Africa, NT reports that new project transactions declined from an estimated R10.7 billion in 2011/12 to R5.6 billion in 2019/20. Therefore, NT commissioned in 2019 a review of the entire PPP regulatory framework applicable to the three spheres of government falling under the Public Finance Management Act (1999) and the Municipal Finance Management Act (2003) and other related legislation. The NT provides views and recommendations relating to municipal PPP projects, although it does not approve them

The water sector has also been slow and/or reluctant to embrace the PPP concept with reasons not being very clear, though the long time period requirement (usually decades) for such contracts is a factor. This could be partially due to the scale of capital investment required relative to the operational income potential, which results in very long contract periods, typically 20-30 years in the case of concessions. Such contract periods could be interpreted as an excessive risk and commitment for the institution.

The review findings indicate that certain aspects of the PPP regulatory framework compare well with international benchmarks. Nonetheless, there are critical gaps and challenges that need to be addressed to improve the operational environment. The review recommends legislative changes to improve the selection, prioritisation, planning, financing support mechanisms, procurement, implementation and monitoring of PPPs with these changes foreseen to enhance application and practice to improve the reliability of results and raise confidence in the overall PPP framework.

Recommendations of the PPP framework review

Finding	Recommendation on amendments to National Treasury Regulation 16
Policy	
• No overarching infrastructure policy framework that mainstreams PPPs as part of fiscally prudent planning process	• Develop an integrated public investment management system and PPP policy • Introduce PPP champion at senior institutional level • Define roles of key institutions
PPP legal and regulatory framework and guidelines	
• Multiple and time-consuming approvals • Lack of accountability for procuring institutions • Lack of clarity on the treatment of unsolicited proposals • Dwindling private-sector capacity and poor public engagement	• Exempt low-value projects (R1 billion and below) from procurement approvals • Set a clear time frame for approvals by regulator • Make it mandatory to continue PPP once feasibility study shows value for money, risk transfer and affordability • Establish accountability mechanism for procuring institutions • Provide guidance on treatment and incentives for unsolicited proposals • Clarify roles of different entities in managing fiscal commitments and contingent liabilities • Develop financing support mechanism to enhance bankability of PPP projects • Revise exemption clause to enable monitoring of exempt PPP projects • Adjust the BEE requirements for PPPs
Inadequate institutional arrangements	
• No centralised approach to identifying and screening PPPs • No capacitated PPP regulator and no defined guidelines to perform functions • Lack of capacity and skills at procuring institutions at provincial and national levels and PPP Unit • Dwindling private-sector capacity and poor public engagement	• Centralise the identification of PPP projects • Establish function to screen and prioritise all infrastructure proposals, including PPPs, with a screening tool for public investments • Explore feasibility of provincial infrastructure funding agencies • Establish full-time capacitated PPP regulatory unit with operating guidelines • Develop guidelines, tools and methodologies to monitor and report on fiscal commitments and contingent liabilities • Transform PPP Unit into centre of excellence and increase staffing, including in-house sector experts, to assist procuring institutions • Capacitate procuring institutions with qualified project officers • Promote collaboration and coordination with private sector through PPP forums, policy and public consultations as part of PPP project cycle
Shortcomings in the PPP project life cycle	
• Lengthy, rigid and costly feasibility studies with some projects proving unfeasible after the process • Slow pace of implementation of PPP projects, in particular delays in the procurement process • Lack of sector focus and customised approach for key sectors • Poor contract management – prone to delays • Lack of preparedness at exit management stage	• Make pre-feasibility studies mandatory for high-value projects at inception • Review and calibrate requirements for value for money and public-sector comparator requirements based on project size, nature and complexity • Require non-negotiable draft PPP agreement with request for proposals • Amend PPP manual to calibrate project preparation requirements according to size, sector and complexity and define where a one-stage bidding process would be allowed • Engage transaction advisors throughout PPP project cycle • Develop sector-specific toolkits and PPP standard provisions in priority sectors, including standardised contract management templates • Make it mandatory to prepare high-level exit plan during project preparation phase • Ensure PPP Unit assists procuring institutions in preparing detailed exit management plan

Source: National Treasury

Assessment:

Though practiced internationally and locally, PPPs have only been implemented in a few cases in the South African water sector. The reluctance could be at least partially due to perceived risk or perceived loss of power or control over operational revenue streams, though this seems to ignore the benefit of outsourcing the risk of capital financing.

1.13 GENERAL PROCUREMENT GUIDELINES

The General Procurement Guidelines issued by NT stipulates the successful government procurement rests upon the following five pillars:

- Value for money;
- Open and effective Competition;
- Ethics and Fair Dealing;
- Accountability and Reporting; and
- Equity.

1.13.1 Value for Money

Price alone is not considered to be a reliable outcome to confirm value for money. Best value for money refers to the best available outcome when all relevant costs and benefits over the procurement cycle is considered.

The procurement function itself must also provide value for money and must be carried out in a cost-effective way. Organisations should:

- Avoid any unnecessary costs and delays for themselves or suppliers
- Monitor the supply arrangements and reconsider these if they cease to provide the expected benefits
- Ensure continuous improvement in the efficiency of internal processes and systems.

1.13.2 Open and Effective Competition

This requires:

- A framework of procurement laws, policies, practices and procedures that is transparent, i.e. they must be readily accessible to all parties;
- Openness in the procurement process;
- Encouragement of effective competition through procurement methods suited to market circumstances; and
- Observance of the provisions of the Preferential Procurement Policy Framework Act.

Departments must ensure that research and effort is applied to source the best possible outcome from the market by ensuring that:

- Potential suppliers have reasonable access to procurement opportunities and those available opportunities are notified at least in the Government Tender Bulletin;

- Where market circumstances limit competition departments recognise that fact and use procurement methods that take account of it;
- Adequate and timely information is provided to suppliers to enable them to bid;
- Bias and favouritism are eliminated;
- The costs of bidding for opportunities do not deter competent suppliers; and
- Costs incurred in promoting competition are at least commensurate with the benefits received.

1.13.3 Ethics and Fair Dealing

In procurement, if all parties comply with ethical standards, they can deal with each other on a basis of mutual trust and respect. It would also be possible for business to be conducted in a fair and reasonable manner and with integrity.

Government associated with procurement are required to:

- To recognize and deal with conflicts of interest or the potential therefor;
- To deal with suppliers even-handedly;
- To ensure they do not compromise the standing of the state through the acceptance of gifts;
- To be scrupulous in their use of public property; and
- To provide all assistance in the elimination of fraud and corruption.

1.13.4 Accountability and Reporting

This pillar ensures that individuals and organisations are answerable for their plans, actions and outcomes. Openness and transparency in administration is an essential element of accountability.

Within the procurement framework:

- Heads of departments are accountable to their ministers for the overall management of procurement activities;
- Heads of Procurement and senior procurement directors are accountable to heads of departments for various high-level management and co-ordination activities;
- Individual procurement officers are accountable to Heads of Procurement, and to their clients, for the services they provide; and
- All people exercising procurement functions must have regard to these guidelines and are accountable to management.

1.13.5 Equity

Equity in the context of the procurement guidelines refers to the application and observance of government policies which are designed to advance persons or categories of persons disadvantaged by unfair discrimination. This pillar ensures that government is committed to economic growth to support industry and advance the development of Small, Medium and Micro Enterprises (SMMEs).

The government has implemented the Preferential Procurement Policy Framework Act as the foundation on which all procurement activities are to be based. Its aim is to:

- Advance the development of SMMEs and Historically Disadvantaged Individuals (HDI)s;
- Promote women and physically handicapped people;
- Create new jobs;
- Promote local enterprises in specific provinces, in a particular region, in a specific local authority, or in rural areas; and
- Support the local product.

The General Procurement Guidelines explicitly states that no public procurement system should be operated if it is not founded on this pillar.

Assessment:

The general procurement guidelines do not specifically encourage innovation uptake, though it could discourage, though probably not prohibit, innovation uptake due to:

- Strict accountability when something goes wrong – same issues as for MFMA;
- Cost of new innovations may vary and/or change; and
- Underlying assumption that well know technologies and systems are procured.

1.14 MUNICIPAL SCM REGULATIONS

1.14.1 Specifications in bids

Section 27 (2) of the SCM Regulations stipulate that the specification include within bids:

a) Must be drafted in an unbiased manner to allow all potential suppliers to offer their goods or services;

b) Must take into account any accepted standard to which the equipment or material or workmanship should comply;

c) Where possible, be described in terms of performance required rather than in terms of descriptive characteristics for design;

d) May not create trade barriers in contract requirements in the forms of specifications, plans, drawings, designs, testing and test methods, packaging, marking or labelling of conformity certification;

e) may not make reference to any particular trademark, name, patent, design, type, specific origin or producer unless there is no other sufficiently precise or intelligible way of describing the characteristics of the work, in which case such reference must be accompanied by the words “equivalent”; and

f) must indicate each specific goal for which points may be awarded in terms of the points system set out in the supply chain management policy of the municipality or municipal entity.

1.14.2 Unsolicited bids

Section 37 (1) of the Municipal SCM regulations reaffirms that in terms of Section 113 of the MFMA, municipalities are not obliged to consider unsolicited bids received outside a normal bidding process.

Section 37 (2) specifies that a municipality or municipal entity may consider a solicited bid only if:

a) The product or service offered is a demonstrably or proven unique innovative concept;

b) The product or service will be exceptionally beneficial to, or have exceptional cost advantages for, the municipality or municipal entity;

c) The person who made the bid is the sole provider of the product or service; and

d) The reasons for not going through the normal bidding processes are found to be sound by the accounting officer.

The decision by a municipality to consider an unsolicited bid must be made public in accordance with Section 21A of the Municipal Systems Act, along with:

a) Its reasons as to why the bid should not be open to other competitors;

b) An explanation of the potential benefits for the municipality or entity were it to accept the unsolicited bid; and

c) An invitation to the public or other potential suppliers to submit their comments within 30 days of the notice.

The municipality or municipal entity must submit the comments received from the public notice, as well as any responses from the unsolicited bidder to NT and the relevant provincial treasury for comment.

Assessment:

Sometimes competitive bidding is required where new innovations must be compared to existing proven technologies, and it is not clear how to evaluate these. Additionally, there may be reluctance by accounting officers to support innovations for the same reasons as stated for the MFMA.

National Treasury's Practice Note on unsolicited bids that involve innovation is useful and appropriate. The challenge lies not in the regulations and legislation but in the skills, knowledge and capacity of the procurement officials.

1.15 SUPPLY CHAIN MANAGEMENT: A GUIDE FOR ACCOUNTING OFFICERS

The Guide was published in February 2004 establishes the philosophy behind the adoption of an integrated SCM management function across government and will assist stakeholders to the understand the responsibilities that this implies.

1.15.1 Supply Chain Management Model

The diagram below provides an indication of the envisage public sector procurement model.

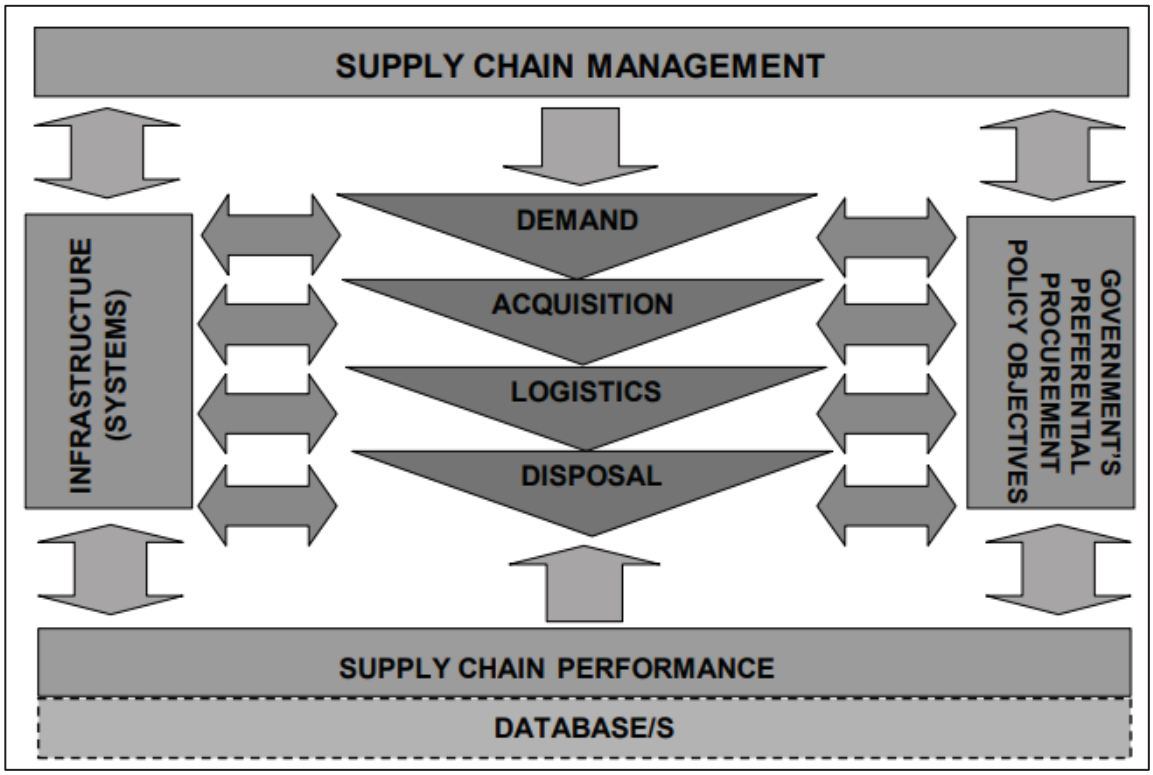


Figure B-1: Supply chain management model

The supply chain begins with demand management and includes a needs assessment to ensure that goods or services are acquired in order to deliver the agreed service is done. This phase of the model ensures that specifications are precisely determined, and the requirements are linked to industry. The supplying industry will also be analysed during this phase.

Acquisition management includes the decision on the manner in which the market will be approached and establishment of the total cost of ownership of a particular type of asset. This phase also ensures that bid documentation is complete, and bids are evaluated in accordance with the published criteria.

Logistics managements addresses the setting of inventory levels and the receiving and distribution of material. This phase also includes stores, warehouse and transport management, as well as the review of vendor performance. The financial system should be activated during this phase to generate payments to suppliers.

Disposal management includes the maintenance of a database of redundant material and inspecting material for potential re-use. This phase of also includes the development of a disposal strategy and the execution of the physical disposal process.

The model also includes a process for Supply Chain Performance. This is a monitoring process to determine whether the proper processes have been followed and if the desired objectives were achieved. The cost efficiency of SCM processes and compliance to appropriate norms and standards are some of the issues that may be reviewed.

1.15.2 Specifications of goods/works or services

Section 3.4 of the Guide specifies that standards and technical specifications quoted in bidding documents should promote the broadest possible competition, while assuring those critical elements of performance or other requirements for the goods, services and/or works being procured are achieved. It is recommended that, as far as possible, accepted standards issued by organisations such as the SABS, International Standards Organisation or an authority recognised by the South African National Accreditation System (SANAS) be specified.

Specifications should be based on relevant characteristics and/or performance requirements. References to brand names, catalogue numbers, or similar classifications should be avoided. If it is necessary to quote a brand name or catalogue number of a particular manufacturer to clarify an otherwise incomplete specification, the words “or equivalent” should be added after such reference. The quality of goods/services required should, however, not be over specified to the extent that it will be impossible for others to offer such a product.

1.15.3 Sourcing Strategy

Obtaining goods and\/or services does not imply that these requirements should be procured from outside sources only. As part of acquisition management, all possible methods of obtaining the requirements should be investigated, such as obtaining the goods and/or services by means of a transversal term contract, could other institutions satisfy the requirements at a better price. Sourcing strategies might include (amongst others):

- Utilising transversal term contracts;
- Local versus international sourcing;
- Obtaining written quotations;
- Inviting competitive bids;
- Pre-qualification of bidders;
- Two-stage bids;
- Utilising E-procurement; and
- Negotiations.

The table below provides an indication of the conditions under which the different sourcing approaches may be utilised.

Table B-1: Sourcing approaches

Approach	Conditions
Competitive bidding	The objective of competitive bidding is to provide all prospective bidders with timely and adequate notification of an institution's requirements and an equal opportunity to bid for the required goods, works or services. This allows for unfettered competition.
Direct negotiation with a supplier	There is an urgent need for the goods or services and engaging in bidding proceedings would be impractical, provided that the circumstances given rise to the urgency was neither foreseeable by the institution nor the result of dilatory conduct on its part. There is an urgent need for the goods or services due to a catastrophic event. Bidders have been identified as preferred bidders through a competitive bidding process.
Multiple Source	There is limited competition, hence only a few prospective bidders are allowed to make a proposal. This should be based on a thorough analysis of the market.
Single Source	This should be based on a thorough analysis of the market and use a transparent and equitable pre-selection process, to request only one amongst a few prospective bidders to make a proposal
Sole Source	There is no competition and only one bidder exists (for example, sole distribution rights).
Two-stage bidding	Usually reserved for complex or turnkey projects in which it is undesirable or impractical to prepare complete detailed technical specifications in advance. A two-stage bidding process is used, under which first unpriced technical proposals on the basis of a conceptual design or performance specifications are invited, subject to technical as well as commercial clarifications and adjustments, to be followed by amended bidding documents and the submission of final technical proposals and priced bids in the second stage. This approach may also be useful when the procuring entity seeks to enter into a contract for the purpose of research, experiment study or development, except where the contract includes the production of goods in quantities sufficient to establish their commercial viability or to recover research and development costs.

The procedure for competitive bidding is indicated in the diagram below.

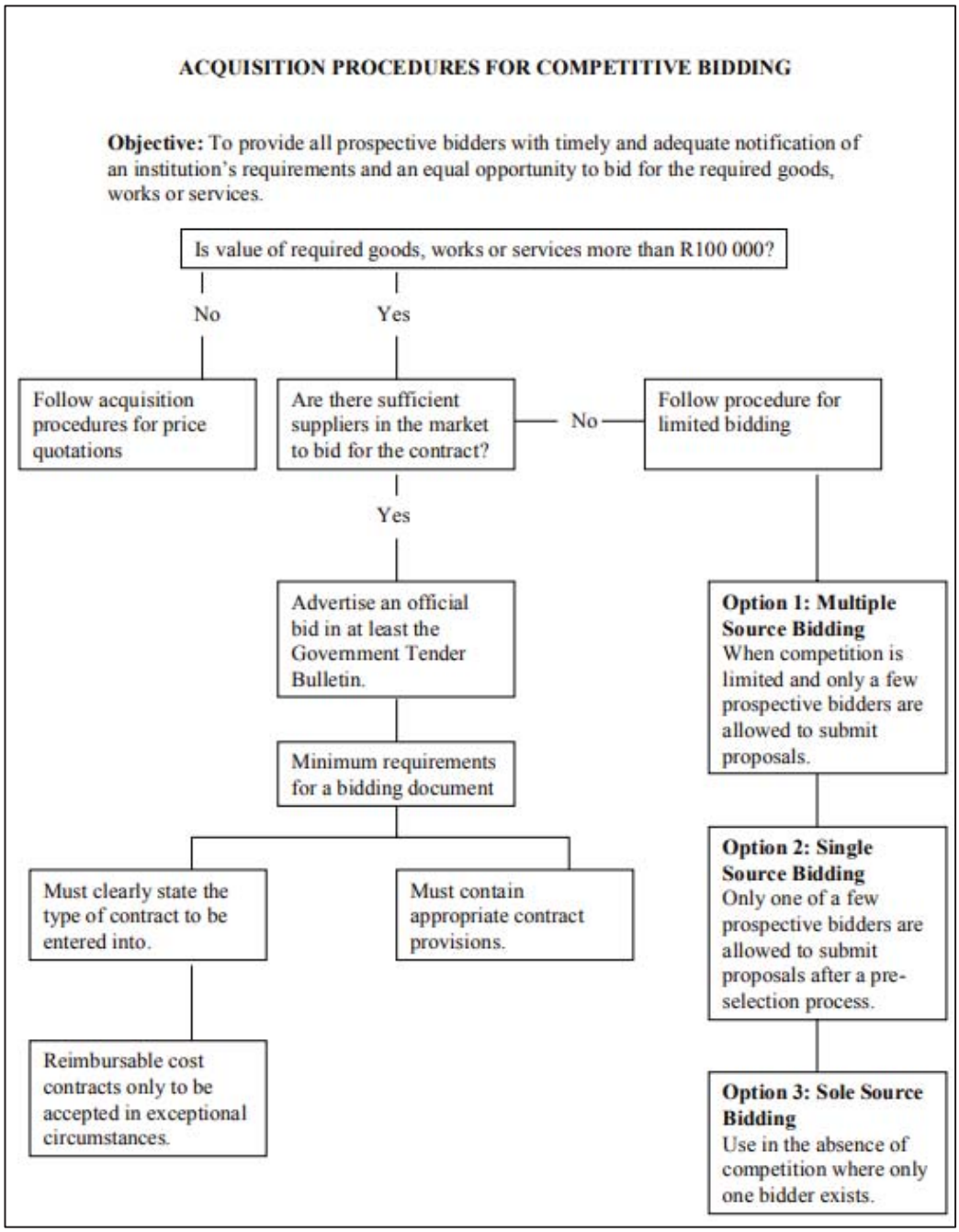


Figure B-2: Procedure for competitive bidding

1.15.4 Type of contract

The bidding documents should clearly state the type of contract to be entered into and contain the appropriate contract provisions. The most common types of contracts provide for payments on the basis of lump sum prices, unit prices, reimbursable cost-plus fees, or combinations thereof.

Reimbursable cost contracts should be acceptable only in exceptional circumstances, such as conditions of high risk or where costs cannot be determined in advance with sufficient accuracy. Such contracts should include appropriate incentives to limit costs and may only be concluded subject to the approval of the accounting officer/authority.

1.15.5 Appointment of Consultants

Section 5 of the Guide explains the procedures for selecting, contracting and monitoring consultants required for projects. The following considerations should guide the accounting officers/authority's policy on the selection process:

- The need for high-quality services;
- The need for economy and efficiency;
- The need to give qualified consultants and opportunity to compete in providing the services; and
- The importance of transparency in the selection process.

The approaches available to select consultants are outlined in the table below.

Table B-2: Approaches to select consultants

Approach	Considerations
Quality and cost-based selection (QCBS)	Evaluations of the proposals are carried out in two stages: first the functionality and then the price. The contract is awarded to the bidder that scores the highest points based on functionality, price and BBBEE score. This approach is usually recommended in most instances.
Quality based selection	Appropriate for the following types of assignments: • Complex or highly specialised assignments for which it is difficult to define a precise ToR • That have a high downstream impact and in which the objective is to have the best experts • That can be carried out in different ways and the proposals may not be comparable. The evaluation process would be the same as QCBS, but the financial proposal would be requested from the consultant with the highest ranked technical proposal.
Selection under a fixed budget	Appropriate for assignments that are relatively simple and can be precisely defined and the budget can be fixed. The RFP should indicate the available budget. Proposals that exceed the indicated budget should be rejected and the remaining proposals evaluated using the QCBS method.
Least cost selection	Appropriate to selection of consultants for assignments of a standard or routine nature where well-established practices and standards exist and in which the contract amount is small.

Approach	Considerations
	Technical envelopes are opened first and those that score below a minimum mark are rejected. All proposals above the minimum mark compete on 'cost' and the promotion of HDIs.
Single source selection	Single-source selection may be appropriate only if it presents a clear advantage over competition: • for tasks that represent a natural continuation of previous work carried out by the firm; • where a rapid selection is essential (for example, in an emergency operation); • for very small assignments; or • when only one firm is qualified or has experience of exceptional worth for the assignment.

Paragraph 5.10.5.1 of the Supply Chain Management (SCM) Guide for the Accounting Officer indicates that a single-source selection for consultants should be used only in exceptional cases as the process does not provide the benefits of competition in regard to quality and cost, and also lack transparency in selection that could encourage unacceptable practices.

Assessment:

SCM policy and system is critically important to enable innovation uptake and must be specifically developed to enable it.

Risk management is critical but should be interpreted as avoiding risk. Innovation uptake by its nature may present a higher risk, which in turn must be managed prudently and pro-actively.

The guide could be updated to enable and encourage innovation uptake by defining mechanisms and criteria to evaluate new innovations and compare to existing practices.

1.16 NATIONAL TREASURY PRACTICE NOTE NO 11 OF 2008/2009 – UNSOLICITED PROPOSALS

The practice notes 3A, 3B, 3C and 3D of the PFMA establishes a consistent approach both by government and the private sector.

1.16.1 Criteria for consideration of an unsolicited bid

Institutions are not obliged to consider an unsolicited proposal but may consider the proposal if the following requirements are met:

- A comprehensive and relevant project feasibility study has established a clear business case; and

- The product or services involve an innovative design; or
- The product or service involves and innovative approach to project development and management; or
- The product or services presents a new and cost-effective method of service delivery.

The concept note also specifies the information that should be contained in the proposal submitted to the institution.

1.16.2 Unacceptable unsolicited proposals

The note stipulates that the accounting officer or accounting authority must reject the unsolicited proposal if the proposal:

- Relates to known institutional requirements that can, within reasonable and practicable limits, be acquired by conventional competitive bidding methods;
- Relates to products and services that are generally available;
- Does not fall within the institution's powers and functions;
- Does not comply substantially for the criteria to consider and unsolicited bid listed above;
- Has not been submitted by a duly authorised representative of the proponent; and
- Contravenes the provision of any law.

1.16.3 Steps to follow upon receipt of an unsolicited bid or proposal

The diagram below provides an indication of the steps to be followed once an unsolicited bid or proposal is received by an institution.

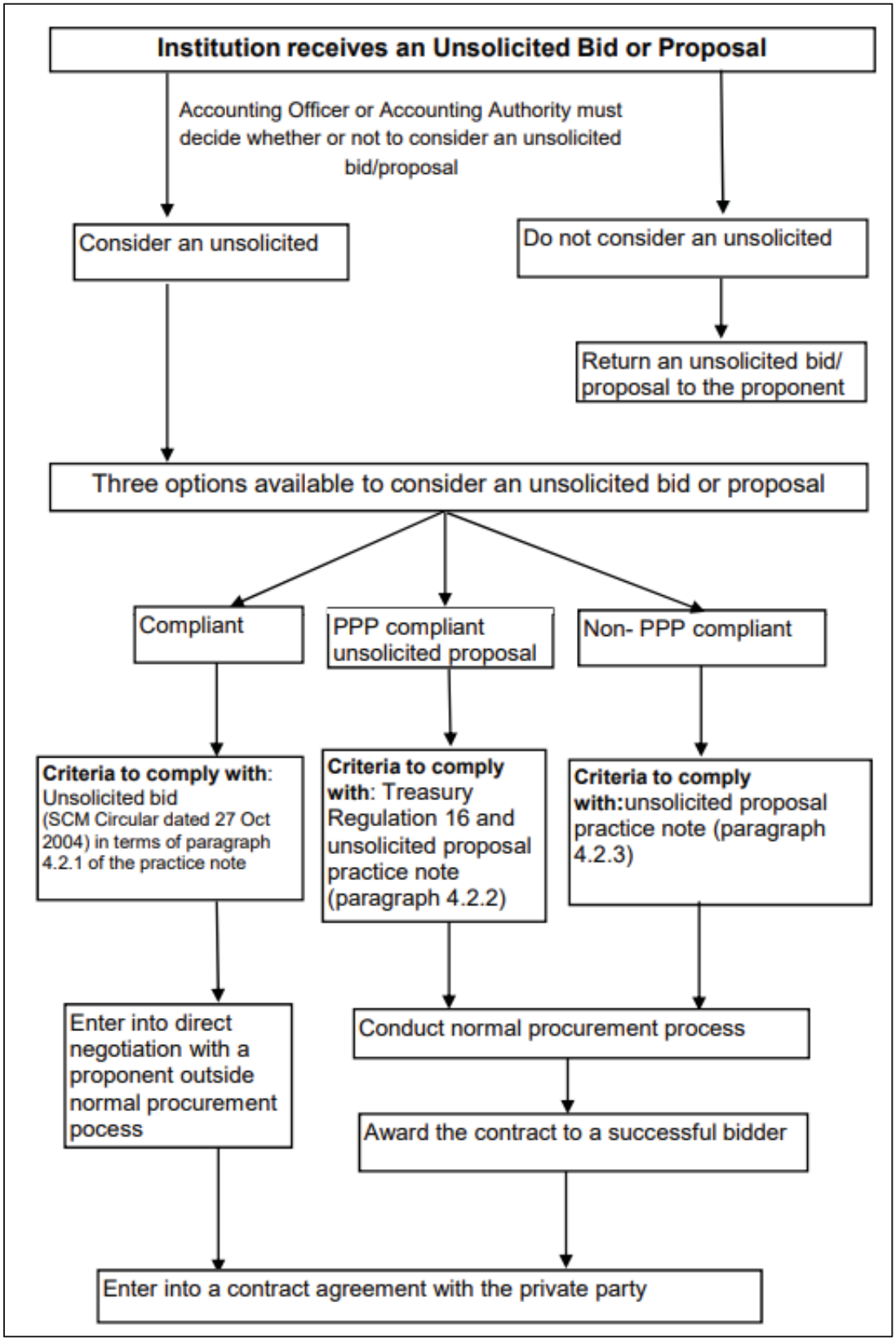


Figure B-3: Steps to follow when an unsolicited bid/proposal is received
Source: National Treasury (2009)

The diagram above indicates that the process between an unsolicited bid being received, and a contract being entered into with the private party can be onerous and does include a procurement process within which the institution has to formally approach the market and confirm that there are no other similar solutions that are available, or which competitive or comparative solutions or systems there may be.

1.16.4 Risks to the institution

The institution may enter into negotiations with the proponent should there be a decision to proceed with the unsolicited proposal. Section 4.2.4.1 (a) of the practice note specifies that the negotiation should include the methodology for determining any costs to be reimbursed to the proponent should the procurement process result in an award for the product or services being made to a party other than the proponent.

The cost considerations for reimbursement should be restricted to direct costs incurred by the proponent in developing technical and other materials relevant to meeting the criteria to consider an unsolicited bid as outlined above. Should the institution and proponent not reach consensus on the cost methodology, the institution will not be responsible for any costs that the proponent has incurred in preparing and submitting the unsolicited proposal.

Section 6 of the practice note specifies that an institution may appoint independent consultants or experts to provide advice on the proposed solution subject to confirming that the consultant or expert will treat the material as confidential. The cost of obtaining independent advice will be incurred by the institution.

Assessment

Unsolicited bids are aimed at innovative technologies and solutions and is a useful tool for public sector institutions to enable and encourage uptake of innovation.

1.17 NATIONAL WATER SERVICES IMPROVEMENT PROGRAMME

As mentioned in the National Water Services Improvement Programme (WISP) framework, the critical factors affecting procurement in general speak to:

- Contracting capability;
- Skill capacity; and
- Financial management within the public sector.

There are four types of contracts used to access the capability to provide water services effectively in the short-term, namely that of professional services contracts, construction contracts, operations and maintenance contracts, and management contracts. Additionally, the private sector is a potential source for increasing capability, as these contracts do not fall under the NT's Public-Private Partnership (PPP) regulatory framework and are not considered external mechanisms as per the Municipal Systems Act.

The framework further states that due to the fiscal position of the country, funding must be prioritised to address the key public finance issues relating to national transfers to local government for water services and municipal water services. There is an overall underutilization of grants in the water sector, leading to inefficient and ineffective allocation and spending. The focus of regulation and support must be to improve the use of resources (both capital and operating, including revenue and collection). Collaboration between NT and the Department of Cooperative Governance will streamline capacity building and avoid duplication, fragmentation, and competition.

Assessment

The impact of the WISP on the uptake of innovation in the South African water sector will be determined by its content and implementation. If the WISP provides resources for capacity building, funding and regulation, it can encourage the implementation of innovative water technologies. Conversely, if the WISP lacks these provisions, it could inhibit the implementation of innovation, perpetuating existing challenges in the water sector and the procurement of traditional technologies that no longer meet shifting market requirements. Therefore, the effectiveness of the WISP in fostering or hindering innovation is largely dependent on the specific policies and measures included

1.18 MUNICIPAL BIDDING PROCESS

The diagram below provides an indication of the conventional municipal bidding process that is employed for different contract amounts.

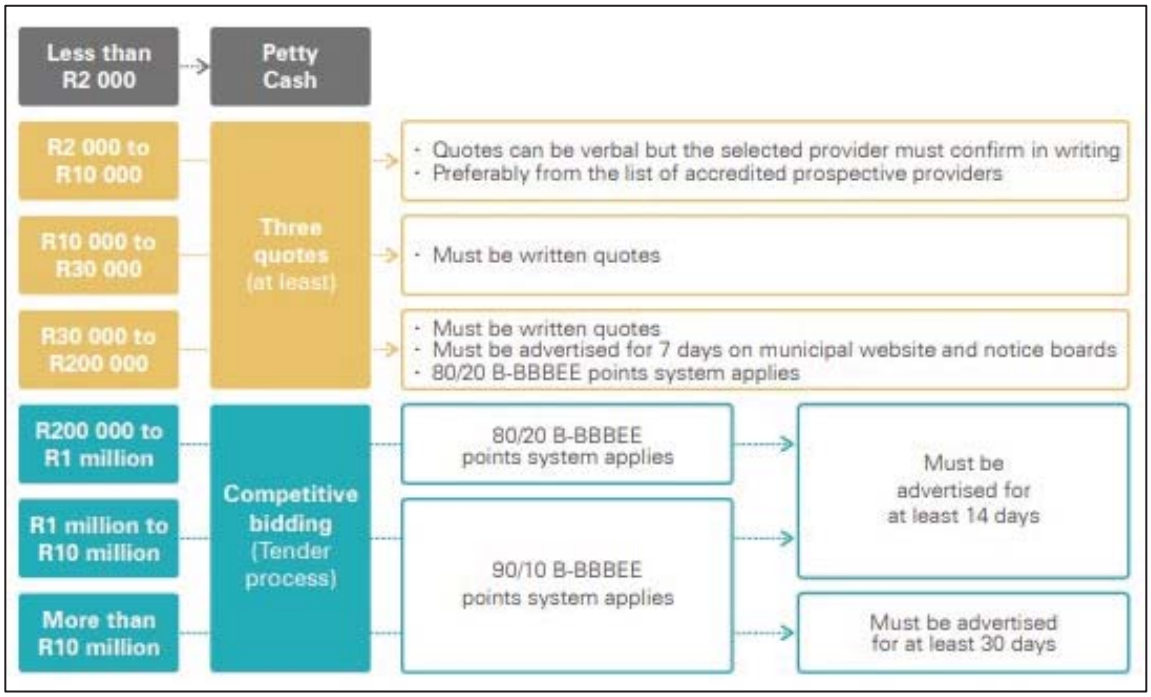


Figure B-4: Municipal bidding process
Source: Ethics Institute of South Africa (n.d)

It should be noted that bids may not be split into smaller parts to avoid following the required processes. It should also be noted that the system is more complex as the contracted price increases. This is to ensure that there are more checks and balances in place to prevent corruption and ensure that the correct goods and services are obtained at the right price. (Ethics Institute of South Africa, n.d.)

This practice note is useful where the product or services is provided by a sole supplier who could then submit an unsolicited bid, if the criteria are met:

- Feasibility study has established a clear business case, and
- Product or services involve an innovative design; or
- Product or service involves and innovative approach to project development and management; or
- Product or services presents a new and cost-effective method of service delivery.

Assessment:

This does not address innovations not provided by sole supplier, or where the business case has not been proven sufficiently. It is further open to interpretation by SCM practitioners and accounting officers.

1.19 WHITE PAPER ON SCIENCE, TECHNOLOGY, AND INNOVATION, 2018

This White Paper sets the medium- to long-term policy direction for government to ensure a growing role for Science, Technology and Innovation (STI) in a prosperous and inclusive society in which the potential of all South Africans is realised. It builds on the National Development Plan (Vision 2030), which was introduced in 2011 to serve as South Africa's long-term planning framework." The NDP envisages STI playing an important role in achieving its vision for 2030 and acknowledges that economic development takes time, and that innovation should grow in importance in years to come.

The white paper foresees a standing ministerial-level STI Structure, chaired by the Minister of Science and Technology, to be established to comprise of relevant STI-intensive departments and further focusses on establishment and coordination of institutions involved in STI and research and development (R&D).

It notes that the concept of open innovation will be supported, acknowledging that open innovation and protection of intellectual property (IP) assets are not mutually exclusive, but can complement each other in strengthening the NSI and then commits incentivise the involvement of the business sector, civil society and academia in support of learning and innovation.

This White Paper claims to have a strong focus on addressing the needs of the business sector and thus has an increasing demand-side focus, all the while noting that innovation may result from a combination of both demand- and supply-side driven activities. Innovation for inclusive development and frugal innovation are essential to meet societal needs at grassroots level and the DST will continue to champion innovation for inclusive development, especially in the context of developing and empowering both urban and rural communities.

Specifically with regard to Innovation, the white paper aims to:

- Enhance the innovation culture in society and government (adopting a whole-of society approach to innovation);
- Involve business and other NSI partners in government STI planning;
- Use local procurement to support South African innovators, especially SMEs;
- Develop local and provincial innovation ecosystems;
- Support social and grassroots innovation;
- Encourage entrepreneurship;
- Use STI to modernise existing industries and to respond to the Fourth Industrial Revolution; and
- Support the greening of the economy via STI.

Assessment

The White paper commits to support and incentivise innovation and its uptake but does not propose any specific measures regarding this.

1.20 NATIONAL WATER AND SANITATION MASTER PLAN, 2019

The National Water and Sanitation Master Plan (NWSMP) has one of the seven enabling chapters as water research, development and innovation (RDI), which notes that:

> "*Whilst there is a rich institutional and skills environment to draw from; water research, development and innovation continues to face a range of challenges including:*
>
> - *Poor coordination and synergising of activities between institutions,*
> - *A weak understanding of the role of all water sector organisations in driving innovation and shifting solutions to practise,*
> - *Challenges in scaling up of solutions to be ready for the market, and highly limited funding for innovation (particularly in its scale up/deployment stages).*
>
> *This results in many solutions that emerge from the research and development space not being implemented in practise. For South Africa to be ready for the future we must be able to address the innovation chasm where emerging solutions fail to be tested at scale or developed into viable business that are able to engage with different public and private sector role players*."

It further notes that to better synergise South African institutions involved in water innovation around the different gaps and opportunities of the sector, the Department of Science and Technology (DST) has collaborated with the Department of Water and Sanitation (DWS) and the Water Research Commission (WRC) to develop a Water Research, Development and Innovation Roadmap, which identifies RDI gaps and opportunities and orientates the sector towards addressing these opportunities in a more coordinated way through investments in research, high end skills development and actions that shift new solutions into practise. The plan focuses across six themes:

i. Unlocking alternative sources of water (including reuse, improved groundwater utilization, desalination and harnessing of storm water);

ii. Exploring ecological and built water infrastructure opportunities in relation to climate resilience (including supporting the alternative and water-less sanitation revolution);

iii. Ensuring greater water efficiency and reduced losses;

iv. Water governance, planning and management for supply and demand;

v. Orientating the water sector towards more business savvy and bankable solutions; and

vi. Supporting monitoring, metering and water data innovation.

A Water RDI Roadmap Implementation Unit has been put in place in partnership between DST and WRC to support intelligence gathering, sector tracking and facilitate aspects of coordinating the role players of the water innovation landscape. The table below provides an overview of the actions proposed in the roadmap.

Table B-3: Key actions from Water RDI Roadmap

Action	Responsibility	Completion Date
Implement and regularly review/revise Research, Development and Innovation Policies, Plans and Roadmaps across the sector **(Volume 3, Action 2.6.1)**	DWS, DST, WRC, CSIR	2021
Unlock investment, procurement and other localisation barriers to reposition the sector to implement new/niche solutions and approaches and roadmap the NMIU **(2.6.2)**	DWS, NT, CoGTA, DST, NMIU	Ongoing
Coordinate, and where needed establish new platforms, to enable a synergised set of institutions that enable the shifting of innovations into the market (including business development and SME support) **(2.6.3)**	DWS, the DTI, Dept Small Business, EDD	2019
Strengthen partnerships with key water sector institutions to accelerate research and solutions into practice **(2.6.4)**	DWS, WRC, CSIR, DST, CoGTA, SALGA, the DTI, DAFF	2020
Structure test bed partners with key water sector institutions in order to accelerate innovations to the market/public sector **(2.6.5)**	WRC, CSIR, DWS, DST, SALGA, Municipalities	Ongoing
Fund research into new models to better understand implementation approaches for water allocation reform, and equity issues **(2.6.6)**	DWS, WRC, CSIR, DST	Ongoing
Develop technologies, guidelines and implementation support tools that enable SA to use alternative and appropriate sources as part of water supply **(2.6.7)**	DWS, WRC, CSIR, DST, SALGA, CoGTA, WSAs	2023
Apply the concepts of water sensitive urban design to a robust city-wide case study to demonstrate and learn how a city can transition to a sustainable city **(2.6.8)**	DWS, SALGA, Metros, District Municipalities	2027
Tools for agriculture early warning systems need to be developed and tested at scale **(2.6.9)**	WRC, CSIR, DWS, DAFF, ARC	Ongoing
Scan and sort the innovation sector for solutions that are ready for application and invest in their implementation **(2.6.10)**	WRC, CSIR, DST, DWS	2021

Action	Responsibility	Completion Date
Alternative Sanitation: Develop and demonstrate and validate appropriate alternative, water-less and off grid sanitation solutions (Current-2025) **(2.6.11)**	DWS, WRC, CSIR, DST, BMGF, the DTI, Municipalities	Ongoing
Domestic and industrial Wastewater: Develop and Demonstrate appropriate wastewater technologies for cost effectiveness, energy efficiency and beneficiation **(2.6.12)**	DWS, TCTA, WRC, CSIR, the DTI, DST, TIA, MINTEK	Ongoing
Scan and sort the innovation sector for solutions that are ready for application and invest in their implementation **(2.6.13)**	WRC, CSIR, DST, DWS	2021
Drinking Water Treatment: Develop and Demonstrate solutions that allow for the use of alternative sources of water for safe human consumption and water security **(2.6.14)**	DWS, WRC, CSIR, Municipalities	Ongoing
Continue to invest in understanding emerging contaminants (detection and treatment) in order to improve our transition to reuse, reclamation and recycling of water **(2.6.15)**	DWS, WRC, CSIR, Municipalities	Ongoing
Improving raw water quality: Invest in Communities of practise that bring together built and ecological infrastructure experts and solutions **(2.6.16)**	DWS, DEA, SANBI, WRC, CSIR, DST	Ongoing
Link the Global Environment Fund 6 project on Water Pricing and Ecosystems to Water Master Plan implementation and position DWS to be closely involved in this process **(2.6.17)**	DWS, DEA, SANBI, WRC, CSIR	2024
Continue to do research on land use impact on water linked ecosystems **(2.6.18)**	WRC, CSIR, DEA, DWS, DAFF, ARC	Ongoing
Ongoing research, modelling and planning around climate change and its impacts on water security and water infrastructure needs to be conducted **(2.6.19)**	DWS, DEA, DST WRC, CSIR	Ongoing
Initiate a hydrological monitoring centre for South Africa in order to re-establish a robust data, monitoring and information capability for more effective water resources planning and climate change forecasting in future **(2.6.20)**	DWS, DEA, ARC, DAFF, WRC, CSIR, DST, SAWS, CSIR, Stats SA	2021

Action	Responsibility	Completion Date
Test a suit of ICT and citizen science tools for data sourcing **(2.6.21)**	WRC, CSIR, DWS, DST, CoGTA, SALGA, the DTI, DAFF	Ongoing
Partner with institutions to fund training of water sector practitioners in the curation, management and use of data as well as the associated technologies **(2.6.22)**	DWS, EWSETA	Ongoing
Review all relevant guidelines and R&D products to understand where training modules need to be developed around new knowledge **(2.6.23)**	DWS, WRC, CSIR, SETAs, WISA, DHET	

Assessment

The NWSMP does not specially address uptake of innovation or procurement of innovative technologies or solutions.

1.21 NATIONAL INFRASTRUCTURE PLAN 2050

The goal of the National Infrastructure Plan 2050 (NIP 2050) is to create a foundation for achieving the NDP's vision of inclusive growth. Prepared by Infrastructure South Africa (ISA), the NIP 2050 offers a strategic vision and plan that link top NDP objectives to actionable steps and intermediate outcomes. Its purpose is to promote dynamism in infrastructure delivery, address institutional blockages and weaknesses that hinder success over the longer term, as well as guide the way towards building stronger institutions that can deliver on NDP aspirations. The NIP2050 identifies the most critical actions needed for sustained improvement in public infrastructure delivery. The current phase of NIP2050 focuses on four critical network sectors that provide a platform: energy, freight transport, water and digital infrastructure. A second phase will focus on distributed infrastructure and related municipal services, as well as approaches to strengthening coordination through DDMs.

Regarding water infrastructure, it states that "there will be universal and reliable access to water of an acceptable quality and quantity in support of a strong inclusive economy and a healthy environment. The institutions involved in managing water resources and services will be effective in achieving this objective. To achieve the vision for water infrastructure, the NIP 2050 says that:

- Decision-making will be accountable, and the institutions involved in managing water made effective;
- Water resource planning will become proactive, robust, responsive and guided by evidence;
- There will be coherence in water sector policy and support for implementation at the municipal level;
- Capacity to finance and deliver water projects will be strengthened, with the private sector being used effectively – the water sector will become financially sustainable;
- Existing water infrastructure will be rehabilitated and maintained, and water use efficiencies improve;
- Ecological infrastructure will be rehabilitated and protected;

- Regulatory oversight and licensing regimes will become more robust, addressing both water quantity and quality, as well as pricing and the technical performance and financial sustainability institutions; and
- Roles and responsibilities will be aligned, and consultation should be meaningful."

NIP2050 identifies certain key priorities:

- Establishment of the National Water Resources Infrastructure Agency by 2023/4;
- Establishment of a national water regulator in 2022/3;
- Establishment of a National Water Programme (NWP) project management office to support municipalities in water management and project development in 2021/2;
- Creating a plan for ensuring the viability of municipal wastewater plants;
- Finalising a policy for water use in agriculture in 2022/3;
- Finalising reconciliation strategies for all water systems by 2022/3;
- Initiation of irrigated agricultural projects aimed at food production by 2023/4; and
- Reviewing the viability of the water SIPs and developing other specific SIP projects will be added – such as dam-raising projects for augmentation of various water supply systems.

Assessment

The NIP2050 does not specially mention innovation or address uptake of innovation or procurement of innovative technologies or solutions.

1.22 CONCLUSION

1.22.1 Summary of the regulatory environment

The table below contains a summary of the legislative and regulatory assessment that was completed

Legislation/regulations/guidelines	Purpose	Conclusion
Constitution, Act 108 of 1996	Supreme law of the Country, defines founding principles and basis of society and government	Neither encourage nor prohibit uptake of innovation. Spirit of Act seems to encourage innovation
Municipal Structures Act, Act 117 of 1998	Establishes municipalities & defines their internal structures	Does not address procurement/SCM
Municipal Systems Act, Act 32 of 2000	Defines internal systems & administration of municipalities; regulates municipal services delivery	Defines decision making process for appointment of external service delivery mechanisms with strong preference for internal. Neither encourage nor prohibit uptake of innovation
National Water Act, Act 36 of 1998	Defines how the nation's scarce water resources are protected, used, developed, conserved & managed	Neither encourage nor prohibit uptake of innovation. Spirit of Act seems to encourage innovation
Water Services Act, Act 108 of 1997	Legislates the local government water and sanitation services function as defined in the Constitution	Neither encourage nor prohibit uptake of innovation. Spirit and aims of Act seems to encourage innovation

Legislation/regulations/guidelines	Purpose	Conclusion
Public Finance Management Act (Act 1 of 1999)	Regulates financial management for national and provincial government to ensure their revenue, expenditure, assets and liabilities are managed efficiently & effectively	Neither encourage nor prohibit uptake of innovation. Spirit of Act seems to encourage innovation. Each public institution should develop SCM guidelines and system, which should plan and budget for innovation to encourage uptake.
Municipal Financial Management Act (Act 56 of 2003)	Regulates financial affairs of municipalities & municipal entities; establishes treasury norms and standards for budgets, reporting & financial controls	Spirit and aim of Act seem to encourage innovation, though this depends on interpretation of Act by practitioners and willingness to take risks
Municipal Fiscal Powers and Functions Act (Act 12 of 2007)	Legislates the exercise of municipal fiscal powers & functions for municipal surcharges & taxes as per section 229 of the Constitution	Does not address procurement/SCM
Preferential Procurement Policy Framework Act (Act 5 of 2000)	Provides framework to implement preferential procurement policy and specific goals such as contracting with historically disadvantaged persons	Spirit and aim of Act seem to encourage innovation, though this depends on interpretation of Act by practitioners and willingness to take risks.
Public Procurement Bill, 2023	Regulate public procurement and prescribe a framework within which preferential procurement must be implemented by introducing uniform treasury norms and standards for all procuring institutions.	Neither encourages nor prohibit uptake of innovation, though the requirements mentioned is opportunity for institutions to address uptake of innovations.
Construction Industry Development Board (CIDB) Act (Act 38 of 2000)	Establish CIDB to implement a strategy for reconstruction, growth and development of construction industry	Part of CIDB ‘s function is to encourage innovation and best practices
Public Private Partnerships (PPPs)	Regulations by NT provides framework for PPPs	Water Sector reluctant to implement PPPs
General Procurement Guidelines	Defines procurement based on value for money, open & effective competition, ethics & fair dealing, accountability & reporting and equity	Does not specifically encourage innovation update, though could discourage due to accountability and associated risk
Municipal Supply Chain Management Regulations	Defines bids' specifications including standards, performance, points system and contract requirements	SCM policy and system critical to enable innovation uptake; should specifically allow for it

Legislation/regulations/guidelines	Purpose	Conclusion
Supply Chain Management: A guide for Accounting Officers	Defines basis for integrated SCM management across government and associated responsibilities	Updated to enable and encourage innovation uptake by defining mechanisms & criteria to evaluate new innovations and compare to existing practices
National Treasury Practice Note No 11 of 2008/2009 – Unsolicited Proposals	Defines unsolicited proposal/concept for innovative, unique and sole supplier products and services; and provides mechanism for consideration of these	Unsolicited bids aimed at innovative technologies and solutions, therefor useful tool for public sector institutions for uptake of innovation
National Water Services Improvement Programme (WISP)	Improving use of resources – both capital and operating – including revenue and collection).	Could encourage uptake of innovation through its content and implementation
Municipal bidding process	Defines usual municipal bidding process	Only address innovations provided by sole supplier. Innovation uptake depends on interpretation and willingness to take risk
White Paper on Science, Technology and Innovation (STI)	Sets medium- to long-term policy direction for government to ensure a growing role for STI in a prosperous and inclusive society	Commits to support and incentivise innovation and uptake, but does not propose any specific measures
National Water and Sanitation Master Plan (NWSMP)	One of seven enabling chapters as water research, development and innovation (RDI)	Does not specially address uptake of innovation or procurement of innovative technologies or solutions
National Infrastructure Plan (NIP) 2050	Create foundation for achieving the NDP's vision of inclusive growth	Does not mention innovation or the uptake thereof.

APPENDIX C: STRATEGIC PROCUREMENT PROCESS

CHAPTER 1

1.1 PROCESS STEP DETAILS

The Strategic Procurement Process is a collaborative, structured approach to analysing governments spending and using the information from the analysis to acquire commodities and services effectively. Strategic Procurement assists supply chain managers to plan, manage and develop the supply base to achieve governments service delivery objectives. (OPCO - NT, 2016)

National Treasury (2016) indicated that the strategic sourcing process provides a structured approach to the development and implementation of sourcing strategies. This approach is outlined in the diagram below.

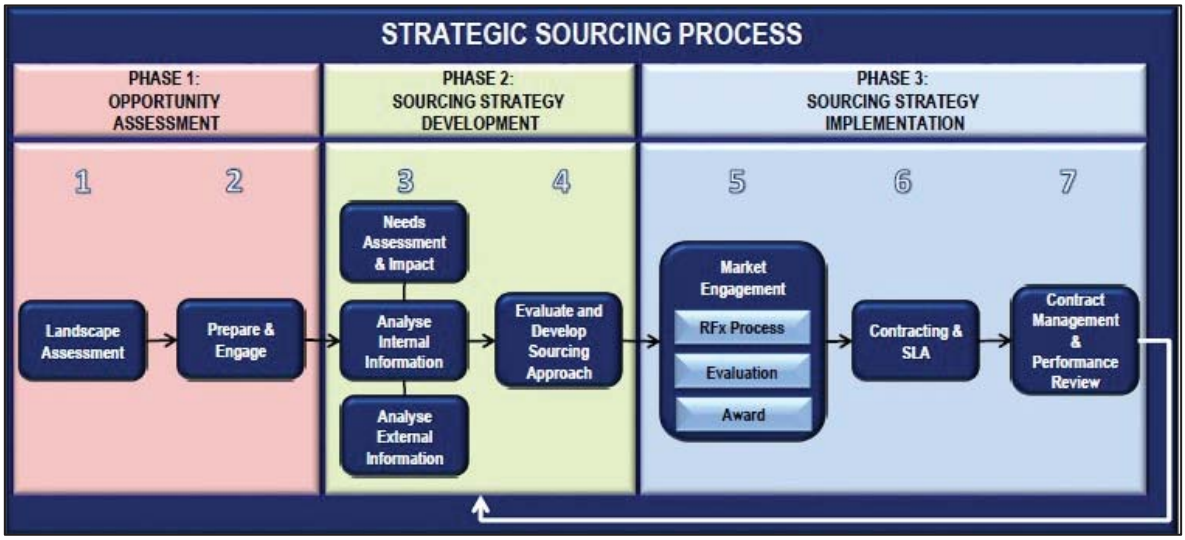


Figure C-1: Strategic Sourcing Process

Strategic Procurement is not intended for the purchase of goods and services on a day-to day basis. Rather, it is a long-term and all-encompassing means of achieving procurement and strategic business goals (OPCO - NT, 2016). The uptake of innovation within the water sector is a strategic objective and is therefore aligned to the Strategic Procurement Process.

The subsequent sections of this chapter of the report provides an overview of the process as outlined by NT to identify the linkages for the uptake of innovation in the water sector.

1.2 PHASE 1: OPPORTUNITY ASSESSMENT

The objective of Phase 1 of the strategic sourcing process is to obtain an understanding of the organisations spend profile for strategic planning and procurement processes, as well as, establishing the cross functional team required to execute the project. This requires the historic spend profile of the organisation to be analysed and categorised.

1.2.1 Landscape assessment

The identified commodities items from the analysis phase will need to be prioritised according to their strategic importance and complexity of the supply market as indicated in the diagram below.

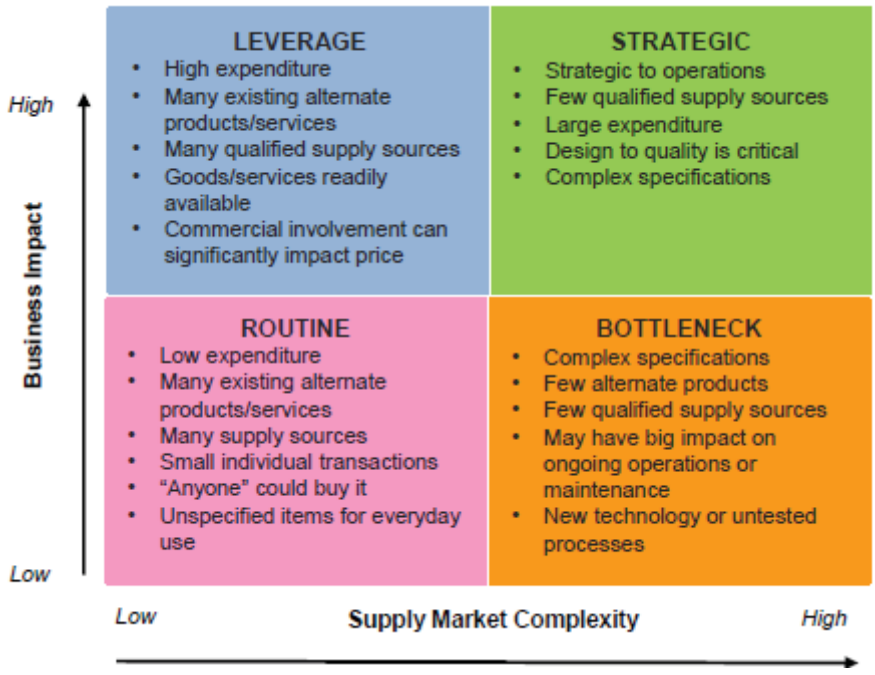


Figure C-2: Commodity positioning

Business impact is high when the item adds significant value to the organisation. Complexity is high when the item is scarce, when delivery logistics are difficult and could be easily disrupted or if there are few suppliers. The objective of prioritising commodities is to develop a procurement plan over a 3-5 year period. The outcome from the landscape assessment is the development of project proposal outline the proposed scope, benefits and risks associated with the project.

1.2.2 Prepare and engage

The objective of this component of the study is to establish the project team, identifying stakeholders, and further development of the project scope and project charter. The stakeholders that are identified should include individuals that have a mandate to make decisions on behalf of their respective functions and are responsible to work as a team to improve sourcing practices. Team members should usually be sourced from the following functions:

- Procurement;
- End User;
- Technical;
- Legal; and
- Financial.

Stakeholders should be managed based on the manner in which they are affected by or by influencing the strategic sourcing process.

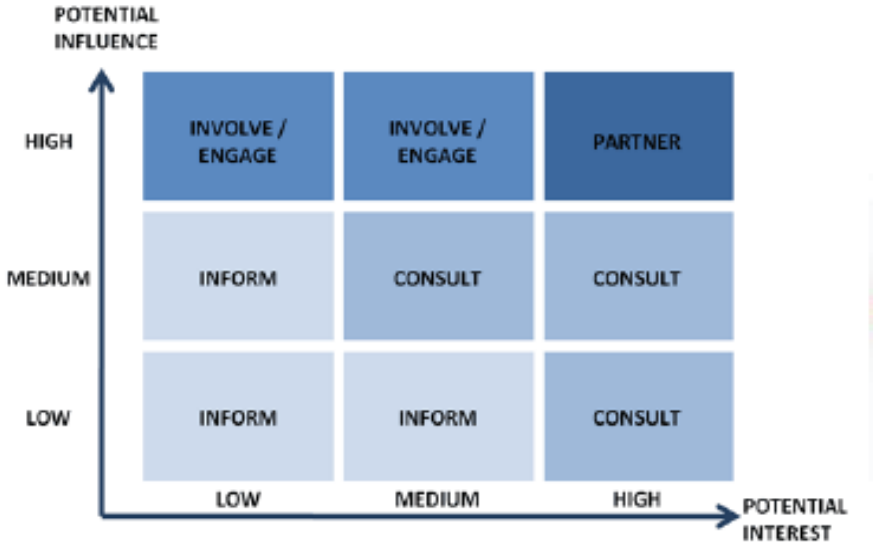


Figure C-3: Stakeholder management

Different stakeholders may have competing expectations that might create conflict within the project and this will need to be understood and managed. The development of a problem statement, the specific boundaries of the project and responsibilities of all stakeholders should assist in managing any challenges that may arise. The problem statement is a clear concise description of the issues that need to be addressed by the problem-solving team.

The final output from this stage of the Strategic Procurement Process is a Project Plan and Charter. The project charter should contain the scope, objective and participants involved in the study and serves as a reference of authority for the future of the project and its management. The Project Plan outlines the duration of activities and the major milestones to be achieved.

1.3 PHASE 2: SOURCING STRATEGY DEVELOPMENT

The diagram below provides an indication of the activities to be completed during the Phase 2 of the Strategic Sourcing Process.

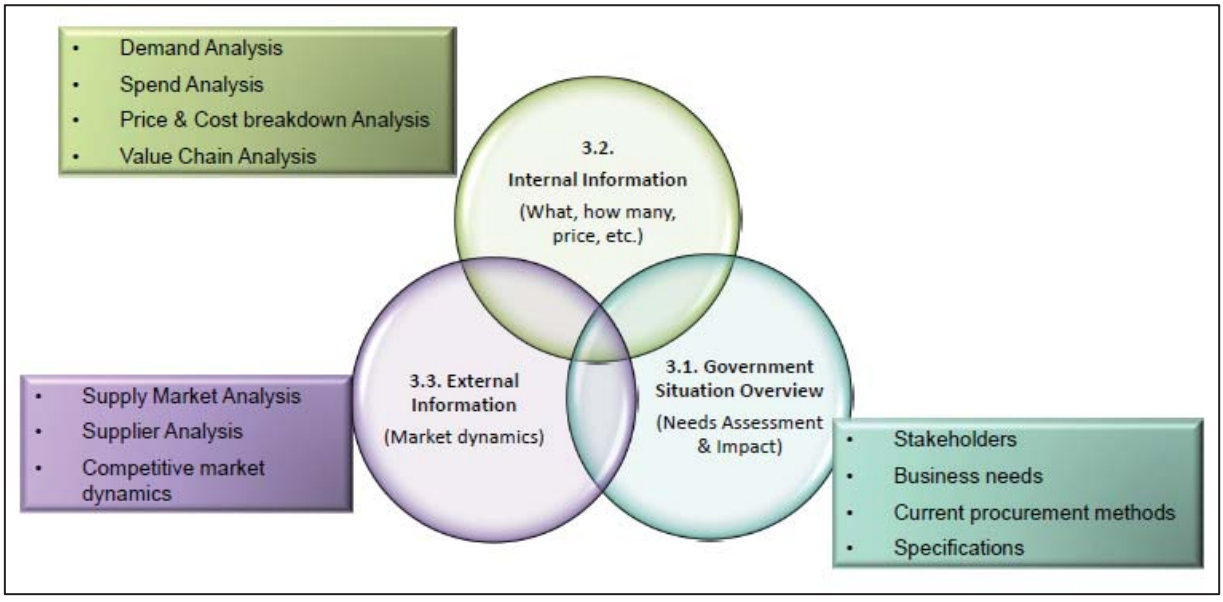


Figure C-4: Processes involved in Sourcing Strategy Development

1.3.1 Needs assessment and Impact analysis

The objective is to obtain an overall view of the business impact the commodity has on the organisation. This involves a complete business needs assessment based on historical and future requirements. The assessment should include the risks associated with sourcing the commodity.

The overall impact of the commodity on the organisation should also be considered. This includes the value that the organisation attaches to the commodity and the relevance to the delivery of services. The impact to the organisation should the commodity not be procured should also be considered.

A review of procurement activity for the commodity should be considered. This includes supplier selection, performance and results. Consideration should be given to processes used and lessons learnt when procuring the same commodity.

This step of the Strategic Procurement Process includes the development of a specification that details the requirement of the procurement process. The specification should be clear and accurately defined. The specification should include functional, technical, and quality criteria.

1.3.2 Analyse internal information

The objective of this stage of the process is to obtain a clear understanding of the organisations historical spend pattern for the identified commodity in terms of the following:

- Rand value;
- Quantities;
- By whom;
- With whom; and
- Frequency.

It is also important to conduct a demand planning exercise in order to obtain a clear understanding of what the organisation’s forward-looking specification and volume requirements will be.

1.3.3 Analyse External information

The purpose of this component is to obtain a clear understanding of external factors that influence the purchasing of the commodity. This includes the analysis of the external supply chain, the market dynamics that shape the industry and the suppliers that are involved in the industry.

A supply analysis is required and used in the sourcing process to establish and maintain a competitive advantage while also reducing supply risk. Supply market analysis includes developing a commodity profile, examining cost structures, researching suppliers and identifying key market indicators.

It is also important to identify potential suppliers of the commodity. This can include historic suppliers, current suppliers and potentially new suppliers. It may be easier to source suppliers for some commodities than others, but effort should be placed in using multiple methods to source suppliers.

1.3.4 Evaluate and Develop Sourcing Approach

The objective of this component is to:

- Consolidate all the information gathered to date;
- To identify the potential risks associated with the project;
- Calculate the total cost of the project;
- Identify opportunities for improvement; and
- Generating ideas to improve opportunities.

The items listed above can then be used to develop a strategy suitability assessment that will determine the sourcing option that will deliver the required result for the institution that is aligned with government procurement and other legislation. The Business Case can then be finalised and submitted for approval. The structure of the Business Case is presented in the diagram below.

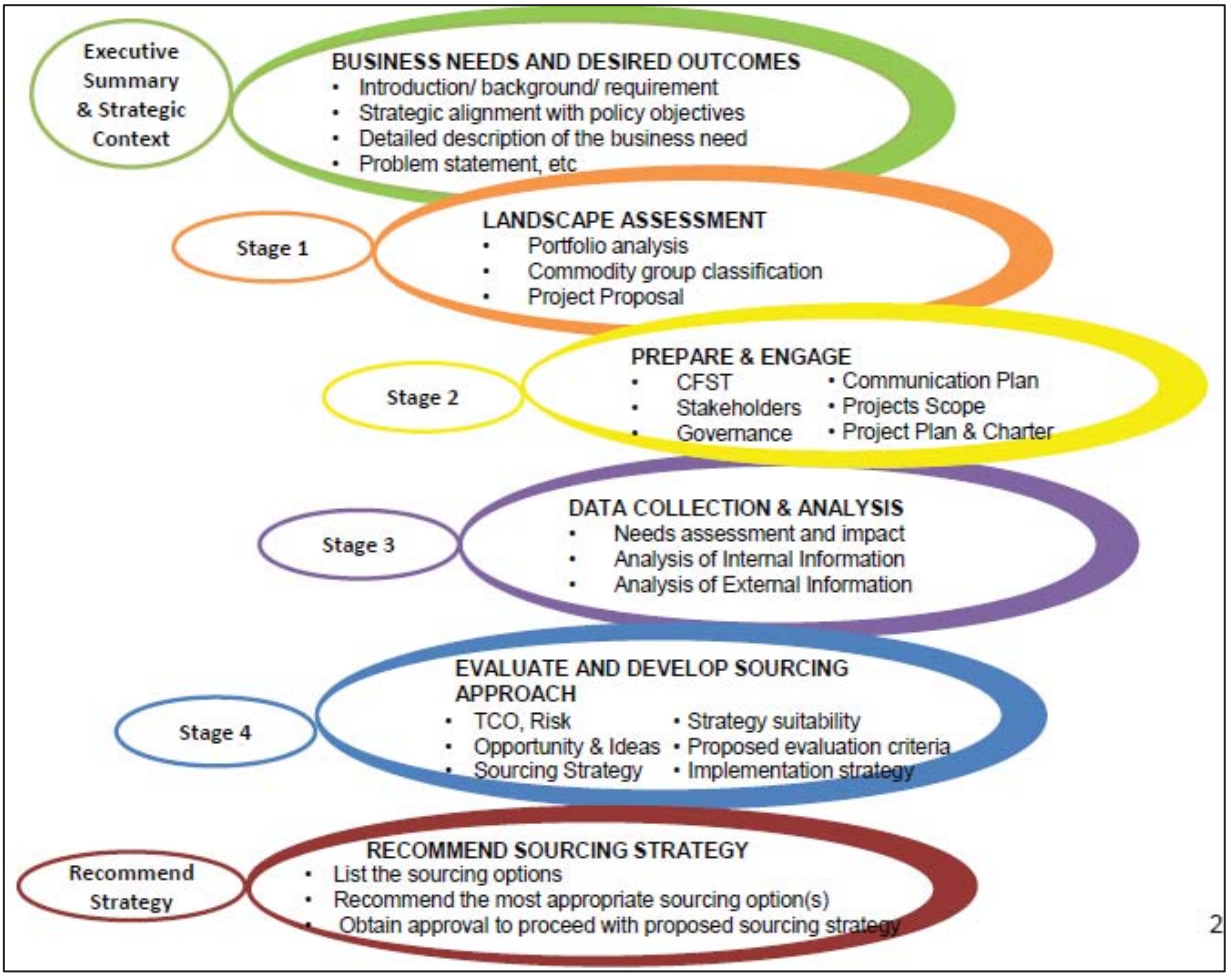


Figure C-5: Structure of the Business Case

The diagram above indicates the manner in which the information gathered and analysed can be used to inform the business case and the market engagement strategy.

1.4 PHASE 3: SOURCING STRATEGY IMPLEMENTATION

1.4.1 Market Engagement, Evaluation and Award

This involves the execution of the preferred market engagement approach, application of the evaluation methodology and appointment of the most appropriate supplier. The are several market engagement options that could be utilised:

- Pre-tender supplier engagement such as Expression of Interest (EoI) or Request for Information (RFI);
- Pre-qualification of suppliers through a Request for Proposals (RFP) in which suppliers will be evaluated on capability and functionality;
- Open or closed tender;
- Single stage of multi-stage tender;
- One or two envelope system;

- Type of RFx document required (RFI, RFP, RFQ or Request for Bids (RFB));
- Departure from current procurement policy with compelling justification;
- Consideration of alternate proposals.

The table below provides an indication of the RFx documents and when they should be used.

Table C-1: Types of RFx documents

Document type	Comment
RFI	Generally used when the solution to a business problem is not immediately evident or clearly defined. Used to gather information, not to make a selection or an award. The SCM unit should work with the Customer to clearly describe the problem, solicit external expertise regarding how the problem can be solved.
RFP	The customer understands the business problem and the requirements to solving the problem. Price is usually not the determining factor in the evaluation of an RFP. Factors such as quality, service and reputation are also taken into consideration.
RFQ/RFB	Generally used to obtain pricing, delivery information, terms and conditions from suppliers. Requestors have a clear understanding of what is needed, including requirements and specifications. The Customer provides the SCM unit with as much information as possible to procure the exact product required. This includes complete specifications, quantities and delivery schedule.

The diagram below provides an indication of the tender process flow chart and estimated timetable.

Figure C-6: Tender Process

The time required to complete the overall process should not be underestimated. Treasury Regulations require that bids must be advertised for a minimum period of 21 days before closing, except in urgent cases as the Accounting Officer or Accounting Authority may determine.

Bid evaluation, negotiation and award are important complementary processes that underpin selection of the most appropriate submission in response to a procurement requirement. The structure of this process should reflect the complexity and scope of the procurement requirement.

1.4.2 Contracting and Service Level Agreement

This stage involves setting up the contract and/or Service Level Agreement (SLA) and ensuring a smooth transition to the new contractor and deciding on the most appropriate Key Performance Indicators (KPI). The Transition Plan should include the process on handing over the contract management to the contract manager and publishing the final contract award information on the e-tender portal.

KPI are management tools designed to monitor supplier performance and help meet the goals, objectives and service levels of the contract. These KPI should be relevant to the department and be simple to use. KPIs can be separated into the five main categories as follows:

- Receive savings (Cost);
- Improve Delivery (Delivery);
- Timeliness of actions (Time);
- Improve Transparency (Integrity); and
- Improved productivity (Systems Productivity).

A SLA is the part of the contract which defines exactly what services a service provide will provide and the required level of standard for those services. The SLA should contain the following key elements:

- Overall objectives of the services to be provided;
- Detailed description of services to be provided;
- Expected standards of performance;
- Consequences for the failure to achieve desired to achieved required service levels; and
- Level of critical service level failure that allows for termination of the contract.

1.4.3 Contract management and Performance Review

This stage includes continuous supplier performance monitoring and the tracking of benefits. This the conclusion of the Strategic Sourcing Process and includes a revision of the review of the sourcing strategy to determine the successes and lessons learnt.

Contract management covers all the activities at the commencement of, during and after the contract period. It is the process that ensures both parties to a contract fully meet their respective obligations as effectively as possible, in order to continually deliver both the business and operational objectives required from the contract.

Appropriate records must be established and maintained to ensure an audit trail, and to ensure that others involved in the contracts are able to track the progress of the contract. The maintenance of comprehensive and accurate records will also assist with reporting requirements to the relevant treasury departments.

Managing and monitoring a supplier's performance is one the tools that can be used in meeting the principles of Government's procurement objectives. Effective supplier performance monitoring and management requires the contract manager to, amongst others, check that all conditions and clauses in the contract are acted upon and act immediately if a problem occurs.

The sources and impacts of savings and benefits during the Strategic Procurement Process should be assessed using the diagram below.

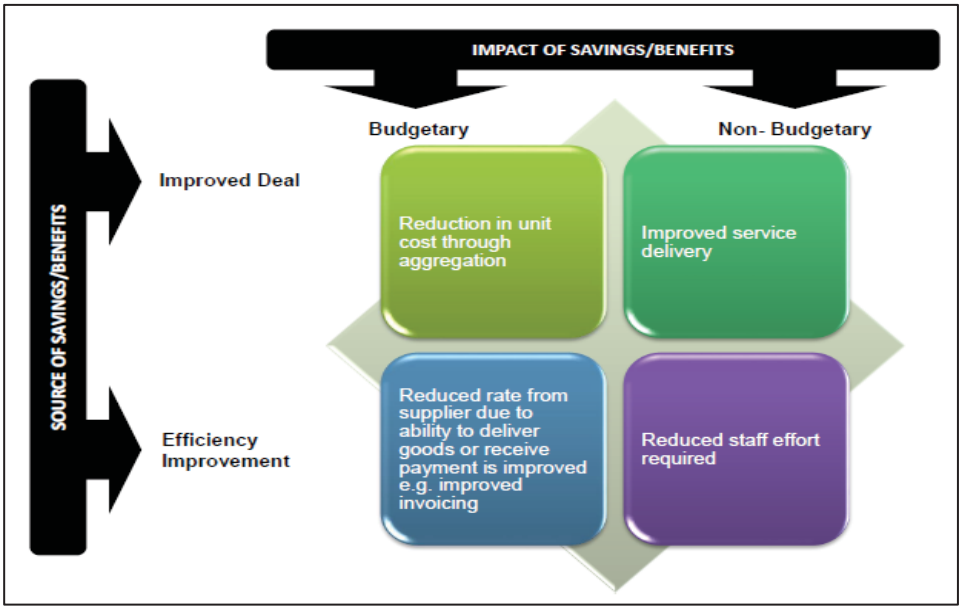


Figure C-7: Savings and benefits

The diagram above indicates that savings and benefits can be financial and non-financial.

Annexure D – Survey instruments

Final Evaluations and Recommendations – Appendix D: Survey Instruments and Stakeholder List

1 INTRODUCTION

This document presents the stakeholders identified for the various components of the stakeholder engagement phase of the project.

2 ONLINE SURVEY

This section of the report indicates the key components of the online survey utilised in the stakeholder engagement phase of the study.

2.1 Online survey

Questionnaire: Supporting the Enabling Environment for Public Sector Uptake of Emerging Water and Sanitation Innovations (Technology and Process Solutions)

Questionnaire Introduction

We would like to invite you to participate in an online questionnaire that is part of a Water Research Commission (WRC) study aimed at supporting the enabling environment for public sector uptake of emerging water and sanitation innovations in South Africa. The study focuses on exploring the challenges associated with procuring and implementing emerging solutions, technologies, and processes that can improve water and sanitation service delivery and livelihoods for the poor.

The purpose of this questionnaire is to gather your insights on the current procurement framework, the challenges you may have encountered, and your perceptions on how public institutions can be enabled to procure and implement emerging solutions more effectively.

Objectives of this Questionnaire

- SECTION 1: Stakeholder Identification Group
- SECTION 2: To test the definition of innovations utilised in the context of public procurement;
- SECTION 3: To test the barriers to the uptake of innovation that emerged from the first phase of the research study (desktop study);
- SECTION 4: To test the proposed enablers and changes/amendments that would promote the uptake of innovation that emerged from the first phase of the research study (desktop study); and
- SECTION 5: To test the contractual modalities/business models that have been successful in supporting water and sanitation innovation uptake in the public sector in South Africa.

Participation and Personal/Organisational Information

Your expertise and experience within the water sector have led us to personally select you for participation in this study. Your feedback will be highly valuable in shaping the outcomes of this research. This questionnaire will take 10-15 minutes to complete.

By participating in this study and completing this questionnaire, you are aware that your information will remain anonymous, and no personal or organizational identifiers will be utilized in its presentation or sharing of results. Results will be shared by categorizing broad stakeholder groups.

SECTION 1: Stakeholder Group Identification
This section will help us understand which stakeholder group you represent. It will not require any personal or organizational information. By agreeing to participate below,

you are also aware that you may opt-out of the questionnaire at any point should you feel unable to complete it.

I AGREE ☐

SECTION 1: Demographics

1.1. Please select the STAKEHOLDER GROUP that you represent:

National Government	Local Government	Provincial Government	Other
Consultant	Academic institutions	Industry/trade associations	
Investors and Financiers	Public Entity/State Owned Enterprise	Innovators	

1.2. Which sub-sector of the selected stakeholder group are you positioned in?

<open ended non-compulsory>

SECTION 2: Defining Innovation

For the purposes of this study, the definition of "innovations" as provided by DSI in 2022 is used. The definition encompasses new and existing technologies, processes, and methods that are used for managing and utilising water resources. It includes external innovations that can be adopted within the South African context to enhance the efficiency, effectiveness, and sustainability of water and wastewater management and use.

2.1. Do you agree with the selected definition?

"Strongly Agree", "Agree", "Neutral", "Disagree", and "Strongly Disagree"

2.2. Please provide reasoning for your response to the previous question (2.1.)

<open ended non-compulsory>

2.3. Please specify the Technology Readiness Level (TRL) that your organisation is interested in procuring innovative solutions at.

<List selection>

- 1 to 3
- 3 to 4
- 5 to 9
- 9+

SECTION 3: Barriers to the Uptake of Innovation

3.1. Do you think the South African public procurement framework allows for the uptake of innovation?

Yes / No / Neither

3.2. Please provide a reasoning for your response to the previous question (3.1)

<open ended non-compulsory >

3.3. Please rank the top five barriers to the procurement of innovative solutions in order of importance from the list provided below.

<Ranking list >

- Limited financing and investment in research and development.
- Inadequate scope and budget to procure innovative solutions.
- Limited expertise and capacity among stakeholders to effectively identify, evaluate, and procure innovative solutions.
- Lack of supportive regulatory frameworks and policies that encourage the procurement of innovative solutions.
- Resistance to change or reluctance of procurement officers, stakeholders, and other decision-makers to adopt new and innovative procurement methods and solutions.
- Risk aversion to invest in new innovative solutions.
- Lack of incentives for the public sector to invest in innovative solutions.
- Limited evidence of the positive impact from the successful implementation of innovations.
- Limited knowledge of available innovations and ability to assess appropriate options.
- Inflexible procurement and contracting procedures.

- Political considerations or agendas take precedence over sound procurement principles and practices.
- Fraud and corruption.
- New innovations are not compatible with existing systems.
- Lack of operational and maintenance capacity.

3.4 Please expand on/explain your ranking in the previous question (3.3).

<open ended non-compulsory >

3.4. Are there any other barriers that you have identified that do not appear on the list above (3.3)? Please indicate these barriers in the text box below.

<open ended non-compulsory >

SECTION 4: Solutions to Promote the Uptake of Innovation

4.1. Please rank the following interventions/actions in order of importance (list provided below):

< Ranking >

- Increasing capability of resources at all levels within public sector institutions
- Be deliberate in planning for and budgeting for the procurement of innovations at an institutional level.
- Increase accountability in the execution of the institutions mandate, as well as the execution of job functions within the institutions.
- Promoting greater transparency in the procurement process.
- Establishment of innovation fund/ programme that promotes the uptake of innovation.
- Incentivisation for procurement officers to prioritize innovative procurement, or for suppliers to offer innovative solutions.
- Increasing the awareness about the rules of the public procurement process.
- Establishing a pre-approved listing of designated innovations by DSI and DTIC that are relevant to policy objectives.
- Building the procurement of innovations into the planning processes of government institutions
- Support in assessing and reviewing the appropriateness of innovations for different contexts.

4.2. Please expand on/explain your ranking on the list above (4.1.)

<open ended non-compulsory >

4.3. Are there any other solutions that will enhance the procurement of innovations in the public sector?

<open ended non-compulsory >

4.4. Which specific area(s) of public sector organisations do you believe capacity support interventions would be most effective in facilitating the adoption of innovative solutions?

<List selection >

- Planning
- Design
- Procurement
- Operations
- Maintenance
- Top management
- Middle management
- Operational staff

SECTION 5: Current Contractual Modalities / Business Models

5.1. Which of the following procurement modalities does your organisation use?

< List to be ticked >

- Request for Quotations (RFQs)
- Request for Proposals (RFPs)
- Research Grant Contracts
- Transversal procurement / contract
- Limited or closed bidding
- Unsolicited bids
- Memorandum of Understanding (MoUs)
- Service level Agreements (SLAs)
- Request for Information (RFI)
- Expression of Interest (EOI)
- Collaboration Agreements
- Memorandum of Agreements (MoA)
- Public-Private Collaborations (PPC)
- Public Private Partnerships (PPPs)
- Other
- N/A

5.2. Please indicate your level of understanding, or level of comfort for each of the following models in procuring innovations.

<List with selection “none” “poor” “moderate” “good” “excellent” for each model> >

- Request for Quotations (RFQs)
- Request for Proposals (RFPs)
- Research Grant Contracts
- Transversal procurement / contract
- Limited or closed bidding
- Unsolicited bids
- Memorandum of Understanding (MoUs)
- Service level Agreements (SLAs)
- Request for Information (RFI)
- Expression of Interest (EOI)
- Collaboration Agreements
- Memorandum of Agreements (MoA)
- Public-Private Collaborations (PPC)
- Public Private Partnerships (PPPs)

5.3. Is there anything missing or anything you would like to add to the list of models (5.2)?

<open ended non-compulsory >

5.4. Please rank the top five contract modalities in terms of the effectiveness in supporting the uptake of innovative solutions.

<Ranking >

- Request for Quotations (RFQs)
- Request for Proposals (RFPs)
- Research Grant Contracts
- Transversal procurement / contract
- Limited or closed bidding
- Unsolicited bids
- Memorandum of Understanding (MoUs)
- Service level Agreements (SLAs)
- Request for Information (RFI)
- Expression of Interest (EOI)
- Collaboration Agreements
- Memorandum of Agreements (MoA)
- Public-Private Collaborations (PPC)
- Public Private Partnerships (PPPs)

5.5. What has been your experience of the financial, legal and due diligence processes used in supporting the uptake of innovative solutions?

<open ended non-compulsory >

5.6. Does your institution have a particular case study/example of successfully shifting an innovation from demonstration phase into full scale operation? Please share this story and the contracting models that unlocked this opportunity.

<open ended non-compulsory >

CLOSE

Thank you for taking the time to participate in this study. Your input is valuable in helping us to identify and address the challenges faced by public institutions in procuring and implementing emerging water and sanitation solutions.

If you are interested in providing further input, please indicate below and provide your contact information so that our research team can reach out to you for a more in-depth follow-up interview.

☐ Yes, I am interested in participating in a follow-up interview and providing further input.

Name:

Email:

Phone Number:

3 IN-DEPTH INTERVIEWS

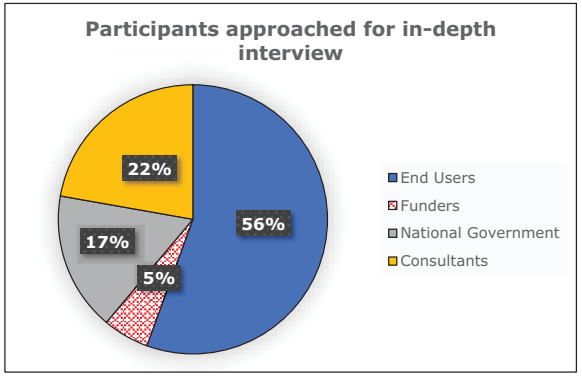
This section of the report indicates the key component for the in-depth interviews utilised in the stakeholder engagement phase of the study.

3.1 Stakeholder List for In-Depth Interview

15 Semi Structured interviews

	Name	Institution	E - mail	Comment	Action - 19 May	
1		Auditor General		Mentioned by William at Stakeholder reference group. However, it was not possible to identify a suitable contact.	DRS to contact William	4
2	Ms Phiwengesihle Mashabane	NT	phiwengesihle.mashabane@treasury.gov.z	Scheduled for 13th April		4
3	Daya Naidoo	TIA	dayanandan.naidoo@tia.org.za	Mentioned by Val. Need input on tech demo level procurement strategy.	DRS to follow up	4
4	Valerie Naidoo	WRC	valerien@wrc.org.za	Input on tech demonstration level procurement strategy. What are the current practice and how can this be improved.		2
5	Bhavna Soni	eThekwini Water and Sanitatior	Bhavna.Soni@durban.gov.za	Completed by Jason Holder.		2
6	Johann Lubbe	DBSA	JohannL@dbsa.org	Completed by Denim Southgate and Abri Vermuelen	DRS to follow up	3
7	Derek Thomas	Letsema	derek.thomas@letsema.co.za	Completed by project team		5
8	Marissa Moore	Independent consultant	mmoore@pfcs.co.za	Completed by project team		5
9	Zakhele Khuzwayo	Jo'burg Water	zakhele.khuzwayo@jwater.co.za		DRS to follow up. LJK has cell phone no.	2
10	Nyiko Khosa	ERWAT	nyiko.khosa@erwat.co.za	James Topkin as possible replacement	James as replacement.	2
11	Mogan Padayachee	Rand Water	mpadayac@randwater.co.za	RW have innovation framework and currently rolling out techs that have been proven at demonstration phase	DRS to chat to Ranish	2
12	Peter Thompson	uMgeni Water	peter.thompson@umgeni.co.za	Umgeni Water has trialled innovations from demonstration to rollout		2
13	Teddy Gounden	UKZN WASH	goundented@gmail.com	Planned session on 30/04/2023 - Done. Follow up session on contracting modalities.	Follow up session after workshop.	5
14	Richard Holden	TCTA		Shared a perspective on the survey that innovations do not meet the needs of the End User. Test the experience of the roll-out of the AMD project. Potential case studies where TCTA have implemented innovations.		2
15	Mike Muller	Wits	mikemuller1949@gmail.com	Completed	To confirm in June	5
16	James Topkin	ERWAT		Completed	DRS to follow up	2
17	Shyam Mishra	Siza Water		Completed	Attend meeting	2
18	Ntsapokazi Deppa	uMgeni Water	ntsapokazi.deppa@umgeni.co.za	Completed		2

1	Innovators	0	0%
2	End Users	10	56%
3	Funders	1	6%
4	National Government	3	17%
5	Consultants	4	22%
6	Other	0	0%
		18	



3.2 Stakeholder Questionnaire

In-depth Interview Semi-Structured Interview Draft

Study objectives:

The overarching objective of the project is to develop an evaluation and recommendations report that will support public sector uptake of emerging water and sanitation innovations (technology and process solutions).

The objective this interview phase aims to achieve is to document the interpretations that different public institutions have of their 'rules of the game' and how this impacts the way they think about working with new solutions and technologies. This phase should unlock an understanding of what ideal model(s) would enable the public sector to become a first adopter of new innovations.

1. What has been your experience with public procurement and the innovation development process in terms of transferring innovation in your space?
    a. (If negative) In your experience, what is preventing the uptake of innovations within public utilities? (probe with further questions depending on response)
        i. Please provide examples of how these weaknesses have impacted on your procurement of innovation (any case studies?)
        ii. What would you do to improve the process?
        iii. Have you put processes in place that actually enhances uptake?
    b. (If positive) Has your organisation been involved in the successful navigation of the procurement framework and subsequent demonstration and rollout of a particular innovation(s)?
        i. Please provide an example(s) of how the MFMA has allowed you to bring the innovation into your organisation.

2. What contracting modalities has your organisation used in the procurement of innovations?
    a. What model, which TRL, strengths/weaknesses?
    b. What have you done and with who? (who is the contract with?)

Contracting Model	TRL	Strengths	Weaknesses	Who was the contract with? (Solution developer, innovation partner, etc)

3. In your experience, what is your opinion on the adoption of established external (international) as opposed to local innovation development?

a. Would the uptake of innovations be enhanced by developing new technologies within SA, or looking at bringing in already established technologies that have been proven externally (other regions of the world)?

b. Why would this be the case? (Depending on interviewee response we can guide the conversation towards the real issue of the procurement framework and uptake being more an institutional or policy/legislation issue? – Does the challenge lie in skills, knowledge and capacity of procurement officials rather than in the regulations and legislation?)

4. In your opinion, what would be the top five interventions/steps to take that would support uptake? (e.g. if you could change anything in the MFMA, what would it be?)

4 STAKEHOLDER WORKSHOP

4.1 Stakeholder Workshop Participants

Enhancing the public procurement and enabling environment for innovation uptake

13 July 2023

No	Name	Company	Attendance	Signature
1	Denim Southgate	Isle Utilities	Yes	
2	Tsitso Mocumi	Isle Utilities	Yes	TCM
3	Rajiv Paladh	Bosch Holdings	Yes	
4	Jason Holder	Bosch Projects	Yes	
5	Abri Vermeulen	Bosch Holdings	Yes	
6	Mishqah Hussain	Bosch Projects	Yes	
7 ✓	Shanna Nienaber	WRC	Yes	
8 ✓	Valerie Naidoo	WRC	Yes	
9 ✓	Phillip Majeke	WRC	Yes	
10 ✓	Sudhir Pillay	WRC	Yes	
11	Akin Akinsete	WRC	Yes	
12	William Moraka	SALGA	Yes	
13	Lubabalo Luyaba	SALGA	Tentative	
14	James Topkin	ERWAT	Yes	
15	Faith Ramatsoele	Johannesburg Water	Yes	
16	Dr. Rembu Magoba	CSIR Water Centre	Yes	
17	Sipho Nxasane	City of Tshwane	Yes	
18	Zamaswazi Nkuna	City of Ekurhuleni	Yes	
19	Ms Lorato Mabula	City of Ekurhuleni	Yes	
20	Ranish Singh	Rand Water	Yes	
21	Vhahangwele Masindi	Magalies Water	Yes	
22	Peter Thompson	Umgeni Water	Yes	
23	~~Coralie van Reenen~~	CSIR Water Centre	Yes	
24	Bongani Mtshali	Municipal Infrastructure Support Agent (MISA)	Yes	
25	Zaid Ahmed	JW	Yes	
26	Almar	DFFE	Yes	
27	Thabang Molefi	CSIR	yes	

4.2 Meeting Notes

Supporting the enabling environment for public sector uptake of emerging water and sanitation innovations (technology and process solutions)

13 July 2023

Stakeholder Workshop – Meeting notes

Attendees and organisations represented

Present in the venue

Project staff

Rajiv Paladh	*Bosch Capital*
Jason Holder	*Bosch Projects*
Abri Vermeulen	*Bosch Capital*
Denim-Reece Southgate	*Isle Utilities*
Tsitso Mocumi	*Isle Utilities*

Workshop attendees

Sudhir Pillay	*WRC*
Shanna Nienaber	*WRC*
Valerie Naidoo	*WRC*
Phillip Majeke	*WRC*
Zakhele Khuzwayo	*Johannesburg Water*
William Moraka	*SALGA*
Zamaswazi Nkuna	*City of Ekurhuleni*
Thebang Molefi	*CSIR*
Bongani Mtshali	*MISA*
Alinah Mthembu	*DFFE*

Virtual attendees

Mogan Padayachee	*Rand Water*
Ranish Singh	*Rand Water*
Peter Thompson	*Umgeni Water*
Sibusisiwe Nxumalo	*AECOM*

The Workshop was opened by Dr Valerie Naidoo from the Water Research Commission (WRC) who shared the objectives of the session. The project is expected to provide practical recommendations that will assist in enhancing the uptake of innovations in the public sector. The items presented below were discussed at the Workshop that was held in Pretoria.

1. Survey response

   It was noted that the of the 86 practitioners contacted, only 23 responded and completed the online survey. The response rate was discussed, and the following was noted that:

   - The timing of the surveys are important as public sector officials may be busy with year processes and other planning activities.
   - The breakdown of respondents should be presented at the Reference Group to confirm that the responses are representative of the sector and not skewed towards a particular stakeholder category.

     Action: Project team
   - It was important that the stakeholder engagement process has reached a point of saturation as additional engagements are mentioning points that have already been raised in earlier engagements.
   - Surveys conducted in other projects were sometimes as low as 16% and the 27% response rate in this survey may be considered an appropriate response rate.
   - The survey questionnaire may have been too broad. It was not mentioned at the workshop but should be noted that the stakeholder methodology was designed to allow for the survey to be quite broad and the in depth engagements would provide the necessary depth on the emerging themes.

2. Barriers

   Organisational Policy

   It was noted that the identified barriers do not apply to Jhb Water as there is an organisational policy that has entrenched the identification, selection and use of innovations within the businesses operating processes.

   It was also noted the various Bid Committees in Jhb Water focused solely on water and sanitation projects as Jhb Water is not responsible for other infrastructure. The committees also include the Head: Innovation and can identify projects in which innovation could be included. This provides the opportunity to be involved in the decision-making process and undertaking projects that are aligned to the innovation policy.

   Action: Jhb Water to share information on innovation policy

   The link to municipal strategy

   Decision makers in municipalities (Councilors and Senior Management) are sometimes less interested in innovations and more on benefits such as communities benefitting from job creation. Motivations for procuring innovations should therefore highlight all relevant benefits.

Perceived job losses

It is often misconstrued that the introduction of innovations may lead to the loss of jobs within the public sector. However, this does not appear to be valid as the introduction of innovative practices has seen to increase the creation of new jobs and also affords the opportunity to upskill existing employees.

The purpose of innovation is to reduce costs, enhance revenue and improve efficiency. Jobs have not been lost in the instances that this purpose has been achieved.

Organisational capacity

Municipalities are intricate and complex, and in some cases, organisational processes and capacity may not be sufficiently focussed on procuring innovations. As an indication, it is important to consider how many municipalities actually have a dedicated Research, Development and Innovation (RDI) office or resource that can drive the uptake of innovation.

Municipalities capability and capacity to promote the uptake of innovation are at varying levels of readiness. Jhb Water and ERWAT are good examples of institutions that have well developed capacity and policies, however other organisations do not have the policy instruments in place to drive the uptake to drive the uptake of innovation.

There is sufficient funding available for innovation activities but these will not be identified or accessed if a resource within a municipality has not been mandated to drive the uptake of innovation.

Supply side concerns

On some occasions, sufficient consideration is not given to the ability and capacity of the supplier market to deliver a particular innovation (goods or services). This includes examples in which the supplier may not have adequate production capacity to meet the increased demands of the customer.

3. Interventions

The link to municipal strategy

Municipalities should consider the development of customized innovation policies that promote the uptake of innovation. Strategic evaluation criteria (e.g. Job creation) that will be used to evaluate bids should also be included in the policy so that these can be included in the Terms of References that are issued.

The consideration of change management within the municipal environment will assist in reducing the existing aversion to risk and continuing with current practices. As an example, the operational team should be involved in the identification and piloting of the innovation so that they are better placed to implement the solution once the performance has been confirmed.

Incentivisation of employees

The incentivisation of employees is a positive concept in theory but this may be difficult to implement in practice. This is due to the collaborative manner in which projects are

completed and the difficulty in determine the criteria to be used to identify the person that should be rewarded. There is a concern that this could also be exploited whilst not directly impacting on the uptake of innovation.

Supplier database

The identification of suppliers that provide innovative goods or service would assist with the uptake of innovation. These suppliers could be consolidated on a supplier database that could then be used by other organisations for the procurement of the required goods or services.

Outputs from SALGA and DWS

SALGA and DWS have developed a Standard Operating Procedure for the planning and selection of projects to be funded. This includes the development of a decision matrix and evaluation criteria that can be used and applied across all municipalities.

Performance plans

The current performance plans often do not include criteria for the introduction of innovation. Therefore, this may not a direct focus of the individual that is more inclined to focus on the criteria included in the plan, such as the delivery of services and improving access to services.

Potential outputs from the study

There is a need to identify the key (2-3) critical practical interventions that will assist the public sector with enhancing the uptake of innovation. It would appear that a major amendment to regulations is not required, but rather the introduction of practical interventions that could be included within the current policy framework.

Jhb Water could be considered as an outlier within the innovation system as there are mature innovation policies and processes in place. There are many other water services institutions that are not as mature and benefit from the development of a Road Map that could provide an indication to improve maturity as related to the uptake of innovation.

4. Outcomes from the prioritisation exercise

The table below summarises the outcome of the prioritisation exercise held at the workshop. Each attendee was provided with four categories of stickers and was requested to prioritise the barriers to the uptake of innovations and interventions that would enhance the uptake of innovation.

Table 1: Prioritisation of Barriers

Barriers	High priority	Medium Priority	Low Priority	No Priority	Total	K/E
Insufficient accountability mechanisms		1			1	E
Contract extension limitations		1		1	2	K
Lack of transparency			1	1	2	K & E
Lack of understanding and awareness	1				1	K
Disconnect between knowledge development and solutions			1		1	K
Organisational rediness and capacity	2				2	E
Municipal policy misalignment	3				3	K & E
Inadequate planning and preparation	1				1	K & E
Limited integration of innovative technologies		1			1	K & E
Absence of meaningful testing and evaluation	2	1			3	K
Inadequate Differentiation in Procurement Processes				1	1	K & E
Price-centric approach	3				3	K & E
Perceived bias and concerns about fairness	1				1	E
Learning from successful and unsuccessful experiences	1				1	K & E
Disconnect Between Knowledge Development and Solution-Seeking		1	1		2	K & E
Reluctance to share innovation due to competition.				1	1	E
Risk Aversion	1				1	K & E
Limited Implementation and Exploration of Innovations	1	1			2	K &E
Policing vs. support	1				1	K & E
Adoption of conventional solutions due to urgency	2				2	E
Skills and Capacity Mismatch	2				2	K & E
Inconsistent application of SCM policies		1	1		2	K
Risks Associated with Engineers' Inclination to not adopt new technology			2		2	K & E
Bureaucratic challenges and entrenched interests	3				3	K & E
Limited Knowledge in the Market				1	1	K
Resistance to change	3				3	E
Inadequate Budget Management	2				2	K & E
Additional Barrier Comments						
Lack of Integration of innovation and knowledge between organisational departments						K & E

The table above highlighted the five barriers that attendees identified as the key limitations to the uptake of innovation. An analysis of the barriers reflect that the key issues are related to knowledge (K) and effort (E). Knowledge relates understanding of the 'rules of the game', as well as, how this can be applies within an institution. Effort relates to the willingness, ability and perseverance to achieve an outcome that is in the best interests of the organisation.

The table below provides an indication of the interventions presented and prioritised at the workshop.

Table 2: Prioritisation of Interventions

Intervention	High priority	Medium Priority	Low Priority	No Priority	Total
Transparency through technology-enabled reporting	1				1
Promoting Employee Innovation	3				3
Set Standards and Develop Central Procurement Strategy	3		1	1	5
Introduce Blockchain Technology in SCM			2		2
Develop Pre-Approved Listing of Innovations	1				1
Clear guidelines for achieving specific goals.				1	1
Consider Managed Competition and Long-term Contracts	1	2			3
Integration of Innovation Policies in SCM	2				2
Dedicated Fund or Program for Innovations	2		2		4
Foster Collaboration and Communication	3				3
Increasing accountability in promoting innovation	5		1		6
Enhancing of innovation incubators	3	1			4
Participation of external independent third party			1		1
Increase Capability of Human Resources	1	1			2
Consideration of innovative-related criteria in evaluation	3				3
Identify Suppliers for Common Commodities		1	1		2
Independent pre-screening of technologies	2				2
Additional Intervention Comments					
Multidiciplinary approach to innovations (Across departments within organisations)					
Decision Matrix					
Economic Considerations					
Project Planning SOP					
Resolve 'day-to-day' issues to create space to innovate	1				

The table above indicates that increasing accountability in promoting innovation is the highest ranked intervention whilst the development of standards and a centralised procurement strategy was the second highest ranked option. Additional comments included the development of a project planning Standard Operating Procedure (SOP) and the solution of 'day-to-day' issues to create space to innovate. This speaks to the inability of practitioners to innovate given the other operational matters that need to be dealt with, as well as, the lack of knowledge around the planning of projects in a public sector environment.

5. Way forward

This section is based on the discussions that followed and will not be included in the meeting notes shared with the WRC and stakeholders.

- Update Stakeholder Engagement report with meeting notes and additional stakeholder engagements
- Determine strategy to engage National Treasury and Reference Group. This includes the sequence and timing of meetings.
- Determine structure and authors for the full evaluation and recommendations report. It would be useful if the recommendations were presented as Annexures that could be separated and shared with identified stakeholders.
- Determine structure of policy briefs.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

The notes presented below were used to inform the write up and should be used to confirm that key discussion points have not been omitted.

6. Barriers – Zac doesn't agree
7. Simplify procurement process?
8. Policies in place (Ekurhuleni) – how to convince politicians; many committees, community benefit concerns (job creation, etc)
9. Zac (JNB water)
    - Munis are intricate / complex, do we have maturity to implement innovation uptake?
    - "blank cheque" for research
    - In JNB water they can decide how to proceed
    - Which munis has RDI office?
    - Resources should be dedicated for RDI
    - SCM system must accommodate innovation
    - Teach people in institutions
10. SALGA
    - Readiness at different levels
    - JNB water and ERWAT focussed
    - Instruments and tools for digital and innovation uptake – some munis don't have policy instruments in place
    - Some munis taking initiative to innovate – tool and instruments
11. Valerie
    - JNB water is outlier - Define approach for different levels of maturity
    - NT rules has much delegations to accounting officers
        - **Innovation is developmental process** – state intension to scale up in initial EOI
12. Philip
    - Can industry respond to demand?
    - Many questions and concerns – self imposed barriers, when don't have act together
13. Bongani
    - Legislation – munis should customize policies to address innovation uptake
    - Awareness of reforms, e.g. NT campaign after MFMA regulations
    - Success depends on TOR – including political priorities, eg job creation
14. Valerie – job creation
    - RDI cost increasing – do we really understand sustainability – fixated on labour force
    - Consequence management often only adding more layers of approval

- Lack of empirical data to prove innovation's contribution to job creation, etc
- SALGA purpose of innovation – reduce costs, enhance revenue, improve efficiency – all include job creation. So far indication is that jobs have not been lost
- Zac – change management critical for upskilling / redeployment - jobs have not been lost

15. EMM
    - Fear of job losses – demonstrate improvement; know your audience
16. Jason – many new innovations create more jobs

Interventions

- Zac – Innovation unit (IU) part of bid specification committee (BSC) – IU can find new technology and include in spec
- Lady on my left
    - Incentivise employees?
    - Develop list of suppliers: ID supplier – who must be registered on database.
        - Awareness of innovations's cost and pricing
    - Green procurement?
- CSIR – practical way fwd – not yet

Procurement framework

- Shanna: What are key (2-3) "tipping" point practical interventions that will assist munis
    - Amendments to legislation is not required
- Cannot use poor planning to deviate from SCM process
- William: SALGA with DWS identified:
    - standardize operating procedures for planning
    - decision matrix
    - economic considerations for innovative projects
    - R100bn (RBIG, WSIG, etc) from which innovation can be funded
- Rajiv - How to motivate innovation to meet needs of decision makers?
- Thokozani (EMM) – KPISs for munis don't include innovation, priorities is functionality of services. How do we et innovation to be priority in munis – most come from national
- Zac – define innovation as part of everything a muni does
- William: Peer to peer learning ("Peer pressure"), e.g CWMF
    - How to hand over innovation to the ops team
    - ZAC – ops team must be part of innovation, must own innovation; OPS has the budget – plan for innovation

    - Valerie – JNB water is case study for innovation. Umgeni challenge was non integration with OPS team
- Zac – various units/dpts become part of project. Pilot provides required information. Must provide reason why tings fail (if it fails), since pilot showed promise.
- CSIR – JNB water's approach is also innovation
- Jason – JNB's process addresses risks and fear of failure, due to ownership through process?
    - ZAC – RDI is octopus with tenticles in all units – addresses risk, and failure therefor not based on negligence. Various sign offs. Compliance and risk office also involved