TRADE & INDUSTRIAL POLICY STRATEGIES

WATER AND SANITATION INDUSTRY MASTER PLAN POLICY REPORT

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OVERVIEW

Water and sanitation are essential for human existence and economic development. There are, however, major challenges (domestically, regionally and globally) in relation to water and sanitation. There are also historical inequalities. Challenges include water security; water access; increased health and environmental regulation; aging infrastructure; and financial sustainability. Systemic responses include demand management; transitions towards more smart and sustainable technologies; sector restructuration; and tariff (as well as wider financing) reforms. Emerging solutions encompass infrastructural, technological and managerial responses.

The global water and sanitation market was estimated to be US$862 billion in 2016. This includes both capital and operational expenditure, the latter accounting for 64%. The market is expected to reach close to US$900 billion by 2022, growing by +3.7% a year over the 2015-2022 period. South Africa, ranked 16th, accounted for 1.3% of the global market. In South Africa, government has committed R115 billion until 2024 to water and sanitation infrastructure. Projects have been designed to "crowd in" private sector investment and private sector initiatives are independently investing in transitioning risk management of their asset base toward smarter and more sustainable solutions. Yet these significant investments (and those projected to follow) fall short of the projected needs. Improving efficiencies is therefore a key focus of many efforts.

This Policy Report, along with the associated Research Report (TIPS, 2022), provides the 'first draft' of a proposed Water and Sanitation Industry Master Plan. It puts forward a vision and associated interventions, forming the foundation of a Water and Sanitation Industry Master Plan for South Africa. The reports complement the 2018 Department of Water and Sanitation (DWS) National Water and Sanitation Master Plan, by focusing on the emergence and growth of locally designed, competitive manufactured products and services. They are also drafted to work jointly with other industrial development master plans, such as those for the plastics, steel and chemicals value chains.

It is proposed that the Water and Sanitation Industry Master Plan builds on this work through a set of six key pillars:

- Developing and retaining skills.
- Improving industry competitiveness and capacity utilisation.
- Reducing cheap and sub-standard imports.
- Promoting export of local products.
- Strengthening research and development (R&D), standards and certification.
- Improving expenditure and procurement.

The Policy Report summarises key issues from the literature and stakeholder engagement for each of the six proposed pillars and formulates a series of policy interventions to address them. It builds on the Research Report, which provides the available evidence related to the development of the Water and Sanitation Industry Master Plan. It puts forward a detailed analysis of the water and sanitation industrial value chains to suggest that South Africa is well-positioned to leverage the expenditure to grow a domestic manufacturing base which would simultaneously address domestic priorities, sustain and grow existing businesses and jobs, develop export potential, and transform and transition local industries.

Combined, the two reports analyse the value chain as well as key issues (based on the six pillars mentioned above) and provide a line of sight towards addressing these more coherently by highlighting key policy implications and recommendation policy interventions. Together with the Research Report, this Policy Report summarises an 18-month process, including desktop research, interviews, a set of national stakeholder dialogues, and a series of sub-dialogues.

ACRONYMS AND ABBREVIATIONS

AfCFTA	African Continental Free Trade Area
AEO	Authorised Economic Operator (programme)
BCO	Building Control Officer
BFI	Budget Facility for Infrastructure
CVBE	Council for the Built Environment
CIDB	Construction Industry Development Board
CoGTA	Department of Cooperative Governance and Traditional Affairs
CWP	Community Work Programme
DBSA	Development Bank of Southern Africa
DEAL	Department of Employment and Labour
DHET	Department of Higher Education and Training
DMRE	Department of Mineral Resources and Energy
DPSA	Department of Public Service and Administration
DPWI	Department of Public Works and Infrastructure
DSI	Department of Science and Innovation
dtic (the)	Department of Trade, Industry and Competition
DWS	Department of Water and Sanitation
ECPM	Engineering, Procurement, Construction and Management
EPWP	Expanded Public Works Programme
ESSA	Employment and Services System
EWSETA	Energy and Water Sector Education and Training Authority
GDP	Gross Domestic Product
HEI	Higher Education Institution
IDC	Industrial Development Corporation
IOPSA	Institute of Plumbers South Africa
IPAP	Industrial Policy Action Plan
ITAC	International Trade Administration Commission of South Africa
LGSETA	Local Government Education and Training Authority
merSETA	Metals, Engineering and Related Services Education and Training Authority
MFMA	Municipal Finance Management Act
MISA	Municipal Infrastructure Support Agent
NBI	National Business Initiative
NRCA	National Regulator for Compulsory Specifications
PFMA	Public Finance Management Act

PIRB	Plumbing Industry Registration Board
PPP	Public Private Partnership
R&D	Research and Development
RDI	Research, Development and Innovation
RoI	Return on Investment
SABS	South African Bureau of Standards
SACAP	South African Council for Architectural Professions
SAICE	South African Institution of Civil Engineering
SANS	South African National Standards
SANAS	South African National Accreditation System
SARS	South African Revenue Service
SCM	Supply Chain Management
SETA	Sector Education and Training Authority
SEZ	Special Economic Zone
SOE	State-Owned Enterprise
US	United States
WRC	Water Research Commission

1. INTRODUCTION

Water, much like electricity, underpins economic development and social progress. In turn, the inability to ensure water security has dramatic consequences on businesses and households. In addition, the lack of access to modern water and sanitation services entrenches poverty and inequality.

Since 1994, South Africa has made significant progress in rectifying an unequal system inherited from the apartheid era, materially expanding water and sanitation services in the country. However, the country, like many others worldwide, still faces challenges with water security, access to water and sanitation services, water quality, infrastructure development and financial sustainability.

Indeed, much more remains to be done to redress past inequalities in this respect (Mudombi, 2020). While access to water and sanitation services is relatively high in the country compared to other countries in the region, the challenge relates to the quality of access to adequate services (Mudombi, 2020; Stats SA, 2017). Lack of access to adequate services has negative socio-economic

consequences as it impacts on people's health and socio-economic well-being.

As a water-scarce country, South Africa still struggles to ensure water security. Climate change impacts, notably the increasing occurrence and strength of droughts, further complicates this situation. Already 98% of South Africa's available water is allocated to users at a high assurance of supply, leaving little room to manoeuvre. Furthermore, water demand is forecast to keep growing, leading to severe gaps in core industrial areas (Gauteng, KwaZulu-Natal, Mpumalanga and Western Cape) and an overall 17% gap by 2030 (WRG, 2009). The expansion of services has also come at the expense of maintaining existing infrastructure.

In addition to challenges associated with poor water availability, the water quality is also increasingly problematic. The quality of South Africa's water resources is an area of great concern. Poor water quality is not only a socio-economic issue but also leads to a reduction in water availability. The more water is polluted, the more water is required to dilute those pollutants. Poor water quality therefore places additional stress on our water availability. In 2011, 65% of South Africa's 792 wetland ecosystems were considered threatened and 48% critically endangered. 60% of South Africa's 223 river ecosystems were considered threatened with 25% classified as critically endangered (DWA, 2013).

In addition, a society-wide behaviour change towards proper valuing and use of water is needed. The country, from households to communities to businesses, needs a new water paradigm that embeds water sustainability and resilience in day-to-day practices (Taing et al, 2019). The average domestic water use (including industrial water use) in South Africa is around 237 litres per person per day, compared to a world average of 173 litres per person per day (DWS, 2018). This is a combination of crumbling infrastructure, leading to high losses, as well as huge inefficiencies in the system, with high levels of wastage.

A combination of these factors brings significant risks and exacerbates the vulnerability of the economy. Approximately 9.5 million jobs are significantly dependent on water in South Africa, including the quasi-totality of agricultural jobs and a third of industrial employment. Urgent, radical interventions are required to ensure water security in South Africa as well as widen the access to services. The COVID-19 crisis has shed light on the country's lack of water and sanitation services.

The 2018 National Water and Sanitation Master Plan constitutes the overall framework for the sector, setting out short-, medium- and long-term plans until 2030 to ensure water security and equitable access to water and sanitation services for all in South Africa. As South Africa rolls out an economic

recovery stimulus package, the crisis also offers an opportunity to address many of the country's water and sanitation problems (see Mudombi and Montmasson-Clair, 2020, for more details on this).

From a trade and industry perspective, the scale of the challenges and interventions required to address them brings substantial opportunities. Water and sanitation are intertwined with technology, and industrial and economic development. Water security and access to modern water and sanitation services rely on technology and industrial development, while industrial development, and more broadly, economic development, depend on water security and modern water and sanitation services.

The centrality of water and sanitation drives a spectrum of activities to provide safe, affordable and modern access to water and sanitation services to all. This includes the development, storage and transport of water resources; the collection, treatment and beneficiation of wastewater; and the management of water consumption.

The water and sanitation sector has been identified by the South Africa's Industrial Policy Action Plan (IPAP) as a potential driver of industrial development, notably through the emergence and growth of locally-designed and manufactured products and services (the dti, 2018). Subsequently, the development of a Water and Sanitation Industry Master Plan has been initiated under the leadership of the Department of Trade, Industry and Competition (the dtic)[1].

The core aim of Master Plan is to ensure that local industries grow rapidly while upgrading their technological base and competitiveness. The plan should also support socio-economic aims, such as large-scale job creation; small business support; increased black ownership, including by workers/communities; more equitable remuneration and career mobility; and technology upgrading and spillovers. Importantly, this Master Plan focuses on the industrialisation aspects of the water and sanitation industry, and a distinction needs to be drawn between this work and the 2018 National Water and Sanitation Master Plan by the DWS, which is a comprehensive plan for the development of the water and sanitation sector. The Industry Master Plan, led by the dtic, aims to complement and enhance (rather than duplicate or reinvent) the 2018 DWS plan.

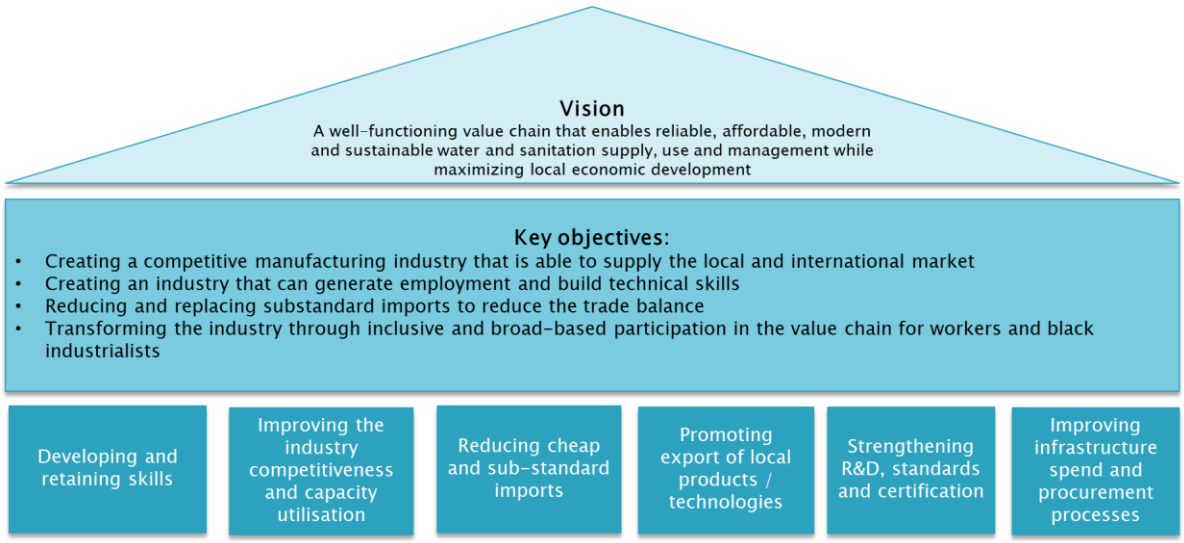
This document is an input into the development of the Water and Sanitation Industry Master Plan. Based on extensive desktop research and engagement with local stakeholders in the value chain, it provides important foundations for the design and implementation of the Master Plan. Building on the associated Research Report which provides a detailed analysis of the value chain and the proposed six key focus areas, this report detailed key policy issues and recommended interventions. Section 2 provides the overall (proposed) structure of the Master Plan, including its vision, objectives and key pillars. Subsequent sections (3 to 8) detail key policy issues and recommended policy interventions for the six proposed pillars: developing and retaining skills; improving industry competitiveness and capacity utilisation; reducing cheap and sub-standard imports; promoting export of local products; strengthening R&D, standards and certification; and improving expenditure and procurement. Section 9 concludes.

[1] The Department of Trade, Industry and Competition was established in June 2019 with the merger of the Department of Economic Development and the Department of Trade and Industry.

2. VISION, KEY OBJECTIVES AND PILLARS

The proposed structure for the overall industrial policy framework for the Water and Sanitation Industry Master Plan is reflected in Figure 1. This has been discussed and debated in a series of national dialogues as well as (sometimes multiple) sub-dialogues for each pillar. The national dialogues incrementally brought key stakeholders on board in negotiating objectives. The sub-dialogues convened and coalesced relevant stakeholders behind assessing the challenges, then proposing (and assuming responsibility for) interventions. Sub-dialogue outputs were taken back into the national dialogues.

Figure 1: Proposed structure of the Water and Sanitation Industry Master Plan



Source: Authors

The proposed vision for the Master Plan is:

A well-functioning value chain that enables reliable, affordable, modern and sustainable water and sanitation supply, use and management while maximising local economic development.

The key objectives would be to:

- Create a competitive manufacturing industry that is able to supply the local and international market;
- Create an industry that can generate employment and build technical skills;
- Reduce and replace sub-standard imports to reduce the trade balance;
- Transform the industry through inclusive and broad-based participation in the value chain for workers and black industrialists.

The proposed six key pillars are elaborated in the following sections.

3. DEVELOPING AND RETAINING SKILLS

In addition to national dialogue sessions, stakeholder sub-dialogues on the skills pillar were held with:

- Relevant Sector Education and Training Authorities (SETAs) (Energy and Water Sector Education and Training Authority – EWSETA; Local Government Education and Training authority – LGSETA; Metals, Engineering and Related Services Education and Training Authority – merSETA).
- The Construction Industry Development Board, the Council for the Built Environment (CBE), the South African Institute for Civil Engineering and the South African Council for Architectural Professions.
- Municipal Infrastructure Support Agent (MISA) and Department of Cooperative Governance and Traditional Affairs (CoGTA).
- Water Research Commission (WRC).
- Department of Higher Education and Training (DHET).

DHET has assumed overall leadership of the skills pillar, integrating the water and sanitation infrastructure discussion into a wider Infrastructure Skills Workstream which meets monthly. This includes participation from the National Business Initiative (NBI), the Presidential Youth Employment Scheme, the Department of Education and Labour as well as other parties detailed above. The Infrastructure Skills Workstream is scheduled to propose an overall Infrastructure Skills Plan (including water and sanitation) in July 2022. Some agreed interventions are already being implemented.

Central to DHET's process has been to identify the "demand-side" more specifically. How many people need to be trained? Where? For which jobs? What upskilling or reskilling is required? In this respect, the skills issues reported in relation to the other pillars provide the demand side against which DHET is coordinating supply-side (education and training) responses.

These include the following:

- Many of the jobs that can be created represent "latent demand" and depend on the developmental approach taken at municipal level.
- The 20 000 jobs that will be created through the R115 billion committed to water infrastructure projects are actual demand side. NBI is also working with industrial development zones and Special Economic Zones (SEZs) to identify the jobs and skills required, then deliver these through partnerships between employers and providers.
- MISA, CoGTA and the South African Institution of Civil Engineering (SAICE) have been in discussion with EWSETA to strengthen state professional and technical Engineering, Procurement, Construction and Management (ECPM) capabilities. SAICE has already begun a mentoring programme for engineering graduates, in partnership with EWSETA.
- CBE has engaged all its professional councils to review the 13 policy instruments they have at their disposal to support professional development.
- The South African Council for Architectural Professionals has taken forward a strategy to professionalise Building Control Officers; and to extend their mandate to include water and sanitation. This aims to strengthen compliance with localised procurement and prevent dumping of cheap and non-standard products.

- WRC have engaged with the Bill and Melinda Gates Foundation to establish a Toilet Accelerator Programme. This will provide business development support to small enterprises taking innovations to market.
- merSETA has initiated a project which is identifying the challenges manufacturers have from product development, patenting and certification through to market access. This is also intended to impact on support and skills development for start-up companies.
- The Construction Industry Development Board, through the infrastructure skills standard, generates revenue from all construction projects, which it is using to develop and transform the construction industry.

Many of the skills challenges reported above are relative rather than absolute scarcities. The solution is not always to train more people through foundational education. Rather, the solutions lie in providing better pathways for (current or unemployed) graduates into workplace experience, professional registration and structured on-the-job professional development opportunities. In addition, the Department of Employment and Labour (DEAL) Employment and Services System (ESSA) has spent two decades building databases of unemployed graduates, and linking these to internships, the National Youth Employment Scheme, the Expanded Public Works Programme (EPWP) and the Community Work Programme (CWP). Both these two pathway interventions are included in the proposed interventions

Table 1: Possible interventions to address skills development needs

ISSUE	INTERVENTION	TIMEFRAME	LEAD ENTITY (+SUPPORT)
PROVIDE STRATEGIC DIRECTION AND COORDINATION			
Inadequate coordination	Establish forum of partners to plan, coordinate and implement the skills pillar *Infrastructure Skills Plan (including Water and Sanitation) in place by July 2022*	Immediate	DHET *Department of Public Works and Infrastructure (DPWI)/ Construction Industry Development Board (CIDB)* *NBI* *DTIC* *SETAs* *WRC* *CBE* *MISA/COGTA*
DEMAND-SIDE INTERVENTIONS			
Inadequate information on how many people need training, where and for what	Coordinate analysis and information on employment and skills needs for existing or planned infrastructure projects Engage SETAs on better ways of identifying emerging needs	Immediate, then ongoing	DHET *NBI* *DPWI* *Infrastructure South Africa* *CIDB*
Weak technical and professional capabilities	Strengthen water and sanitation infrastructure planning, delivery and management	Immediate to medium term	MISA/COGTA/ Department of Public Service and Administration (DPSA) *SAICE/CBE*

	Linked to the strategy to rebuild state technical and professional capabilities.		*NBI* *State-Owned Enterprises (SOEs)* *Higher Education Institutions (HEIs)*
Looming replacement demand challenges in some industries	SETAs to agree on specific strategies to address identified scarce and replacement demand needs through skills planning and grants	Medium term	DHET SETAs
Major gaps in the skills pipelines for digital skills	Build provider capacity for delivering digital skills *Detailed analysis is defined in the digital skills strategy*	Short term	DHET
Inadequate links between employers and providers	Establish local partnerships between employers and providers within Special Economic Zones *Already being implemented, goal is to expand this nationally.*	Immediate, then ongoing	NBI The dtic / SEZs/ Industrial Parks
SUPPLY-SIDE INTERVENTIONS			
RDI capabilities are inadequately coordinated and inefficiently resourced	Strengthen and expand water and sanitation research, development and innovation (RDI) capabilities across higher education institutions (through bursaries; research funding; and other mechanisms). *A Water and Sanitation RDI Roadmap is already in place under DSI/WRC. This is being implemented currently, including bursary allocations.*	Immediate, Ongoing	WRC/Department of Science and Innovation (DSI) *DHET Higher Education Branch* *CIDB* *DPWI* *Professional bodies* *HEIs*
Much of the potential is "latent demand"	Support localisation, industrial diversification and transformation of industry through skills development initiatives embedded within enterprise development initiatives (including interfacing state/private sector capabilities with community capabilities to further develop "township economies").	Medium term	COGTA/MISA *Industry bodies* *SETAs*
Weak capacity to police cheap and non-standard imports	Improve state capabilities in relation to enforcement *Establish regulatory basis for professionalisation of Building Control Officers (BCOs). Train and register BCOs. Support municipalities to put enabling policies and capabilities in place.*	Medium term	Plumbing Industry Registration Board (PIRB)/ Institute of Plumbers South Africa (IOPSA) South African Council for Architectural Professions *(SACAP)*

			MISA/CBE
PATHWAY INTERVENTIONS			
Unemployed graduates are not finding their way into employment	Use the DEAL ESSA system to recruit unemployed graduates EPWP and CWP training to become pipelines for further training and employment	Short term	Youth Employment Services; Harambee; DEAL ESSA system; EPWP/CWP
Graduates in scarce skill priority areas not finding their way into professional registration	Use mentorship, continuous professional development, communities of practice to support career progression	Short term	SAICE/EWSETA *MISA/COGTA*

Source: Authors

4. IMPROVING INDUSTRY COMPETITIVENESS AND CAPACITY UTILISATION

The data, interviews, analysis and stakeholder engagements suggest there is a general reduction in capacity utilisation and competitiveness in the industries. Besides expanding and building on key issues already identified in existing Master Plans, key concerns specific to the water and sanitation industry include:

1. Unreliable and high electricity costs. This uncertainty is an important input in all industrial activity and affects capacity utilisation and competitiveness. The increase in current loadshedding and forecasted increase in its occurrence affects investment confidence and output levels. The Steel Master Plan reports that some industries reduce their capacity during winter, because of the high cost of the winter tariff.
2. Shortage of water supply. This reduces local products' competitiveness against foreign products that have more reliable water supplies.
3. High cost of inputs has resulted in some firms in steel, chemicals and plastics closing down or resorting to reselling cheap imports rather than manufacturing.
4. Inefficient and costly ports and infrastructure. Manufacturers are constrained by the high freight charges and supply of trains from Transnet, and general inefficiencies of the transport system. Anecdotal evidence revealed that it is more expensive to transport products from Gauteng to Durban port than to import from foreign countries such as China to Durban.
5. Low investment rates where many firms are sweating their assets and not investing in new plants and equipment or upgrading their technologies. There are also plant closures and lack of new entrants, in turn reducing production capacity. Reduced investment in technologies means inefficient production capacities. Reduced R&D spending means reduced innovation.

Table 2: Possible Interventions to Address Industry Competitiveness and Capacity Utilisation

ISSUE	INTERVENTION	TIMEFRAME	LEAD ENTITY (+SUPPORT)
Inefficient port facilities	Government to expedite its road to rail strategy to improve efficiency. The Competition Commission is currently investigating Transnet's prices.	Short term	Transnet *Operation Vulindlela* *Competition Commission*

			through the Steel and Chemicals Master Plans
Low demand	Designate and encourage value chain localisation. Determine price bands and acceptable margins for products Trade unions to facilitate a national drive for Proudly SA and buying South African to secure jobs. Brand owners and retailers to identify product ranges where locally manufactured products can replace existing imports and to enter into off-take agreements for locally produced products.	Short term Short term Short term Short term	the dtic Infrastructure South Africa through the Steel Master Plan, the dtic Trade unions through the Steel and Chemicals Master Plans Private sector innovators, retailers
Unreliable supply of water and electricity	Critical infrastructure programme which supports manufacturers with products that would lessen reliance on water or electricity. Consider alternative tariff arrangements for energy-intensive manufacturers Move to alternative sources of energy (e.g. solar, wind) by relaxing / expediting licencing requirements	Short term Short term Short term	the dtic Eskom, NERSA, Department of Mineral Resources and energy (DMRE) through the Steel Master Plan DMRE, NERSA, Eskom, the dtic
High input costs	Negotiate with key suppliers to review input costs	Short term	For plastics: Sasol through the Master Plans Steel Masterplan Chemicals Masterplan
Low investment	Increase investment in local competitiveness and capacity, and impose time bound tariffs to protect local industries, and avoid fostering inefficient local industries.	Medium term	the dtic, Development Bank of Southern Africa (DBSA), Industrial Development Corporation (IDC), African Development Bank, Banks

Source: Authors

5. REDUCING CHEAP AND SUB-STANDARD IMPORTS

Water and sanitation goods utilise steel, plastics, chemicals and cement as inputs. Some interventions detailed here are largely being driven by the already existing master plans in addition to interventions that can be led by DWS.

Overall, South Africa has a negative trade balance in both water and sanitation goods. The following table provides a quick snapshot of the type of goods imported and the contribution to overall imports of water and sanitation goods.

Table 3: Water and sanitation goods imported by South Africa

AGGREGATE GOODS	SPECIFIC TYPE OF GOODS	CONTRIBUTION TO IMPORTS OF WATER AND SANITATION GOODS	VALUE AS OF 2020-2021
Water abstraction, conveyance and collection	Plastic pipes; iron and steel pipes; valves; pumps	54%	US$895 million
Water and Wastewater Purification	Chemicals; filtering and purification	37%	US$605 million
Liquid meters &Measurement instruments	Instruments and apparatus for measuring or checking the flow, level, pressure; liquid meters	6%	US$104 million
Sanitation Ware	Iron and steel basins, baths; plastics lavatory seats, covers, bidets, lavatory pans, flushing cisterns, shower baths, wash basins; ceramic sinks, washbasins, washbasin pedestals, baths, bidets, water closet pans, flushing cisterns, urinals and similar sanitary fixtures	2%	US$35 million
Water storage	Plastics reservoirs and tanks; iron and steel reservoirs and tanks	1%	US$10.3 million

Source: Authors, based on TradeMap, 2021

The key issues in relation to imports from the research, stakeholder engagements and the sub-dialogue were the following:

- Cheap imports, under-invoicing, mis-declaration and dumping are eroding the local market and posing a threat to local firms (firm closures across plastics and steel). For example, borehole pumps manufacturers have reduced from 12 to two as the industry has become dominated by imports.
- Increasing imports have been identified in the following water and sanitation goods. The brackets are main exporters to South Africa:
    - Plastic tubes, piping, fittings (China)
    - Various Steel tubes and piping - seamless, open seam or cast iron (China, Germany, India, United Arab Emirates) and an investigation of Grade Q345 imported steel tube from China which do not conform to the local grade S355
    - Valves and appliances for pipes, tanks and vats (China)
    - Centrifugal, reciprocal, rotary positive displacement pump (China, US, Germany)
    - Liquid meters and measuring flow, level, pressure equipment (Germany, US, India)
    - Chemicals i.e. lime, caustic soda, ammonia anhydrous (EU, US, Asia)
    - Apparatus for water purification and filtering (Germany, US, China)
    - Iron and steel reservoirs, tanks, vats (European Union, Malaysia and China)
    - Plastic reservoirs, tanks and vats (Germany, Botswana)
    - Iron and steel sanitary ware i.e. basins and baths (China)
    - Plastics sanitary i.e. lavatory seats, covers, bidets, lavatory pans, flushing cisterns, shower baths, wash basins (China)
    - Ceramic sanitary ware, i.e. sinks, washbasins, washbasin pedestals, baths, bidets, water closet pans, flushing cisterns, urinals and similar sanitary fixtures (China)

- At a macro level, the South African Revenue Service (SARS) needs to be capacitated to investigate and check mis-invoicing, mis-declaration, and undervaluing of water and sanitation goods.
- Poor monitoring and policing of municipal procurement, further exacerbated by poor enforcement of Broad-Based Black Economic empowerment (BBBEE). Some level 1 candidates are still importing both designated goods and regular goods and providing these to municipalities, in essence bypassing local content requirements.
- To exacerbate the above, imports are often sub-standard and contribute to poor service delivery due to breakdowns and constant repairs – depleting already constrained financial resources of municipalities and this becomes a vicious cycle.
- Imports are also exacerbated by the lack of support for technology and innovation in products such as membranes.
- There was a call for retailers or wholesalers to support and work with local manufacturers to identify imported goods that can be replaced and produced locally. In this case, goods such as plastic sanitary ware or tubes and pipes.
- There was a call to monitor import rebates on steel products. Unless security of supply can be assured, only then can rebates be considered.

Table 4: Possible interventions to reduce cheap and sub-standard imports

ISSUE	INTERVENTION	TIMEFRAME	LEAD ENTITY (+SUPPORT)
Cheap imports, under-invoicing, mis-declaration & dumping	The International Trade Administration Commission of South Africa (ITAC) has asked (associations or firms) for affected tariff codes to be sent through for further investigation and policy analysis Designation is an independent process from trade policy. However, if complaints are provided by companies, ITAC can investigate and try to protect the market through a tariff or another part of ITAC that investigates dumping. There are quarterly meetings between the steel industry and SARS (SARS Steel Downstream Forum) where reports on mis-invoicing, mis-declaration, undervaluing or rise in imports are unpacked and SARS investigates (it is heavily dependent on SARS capacity, however). Platform set by Plastics Master Plan to deal with sub-standard imports through industry and government by identifying products that are being under-invoiced, mis-declaration and dumping	Immediate	Plastic and Steel Associations, the dtic, ITAC, SARS, PIRB, IOPSA

Need to capacitate SARS to monitor imports	National drive in place for all Master Plans	Immediate	The dtic, ITAC, National Treasury, Industry SARS, South African Police
Appeals for Low tariffs and unwarranted import rebates	ITAC has asked for affected tariff codes to be sent through for further investigation and policy analysis From the Steel Master Plan, strong motivations were made for ITAC to approve import rebates only when security of supply can be assured	Immediate	Plastic and Steel Associations, the dtic, ITAC, PIRB, IOPSA
Reducing imports	Continued drive by steel industry and the dtic to get products designated. Currently, large bore spiral pipes are designated and the steel industry has managed to get imports of ductile iron pipes excluded from designations Steel industry part of Local Content Compliance and Verification Unit (local manufacturers are audited and given certificate of compliance that are shared with state-owned entities for public capital projects) but programme is still nascent The Steel Master Plan set up a Compliance Investigation Unit to enforce the trade measures on imports	Immediate	The dtic, all relevant public sector procurers
Poor monitoring and policing of municipality procurement processes	Macroeconomic intervention to be explored and implemented by government	Immediate to long term	National Treasury, the dtic, DWS, SARS, CoGTA
Leveraging market through local procurement from retail and wholesalers to replace imports	The Plastics Master Plan has been able to identify goods and get commitments from retailers to purchase more locally produced goods	Immediate to long term	The dtic, retailers, wholesalers, Proudly South Africa

Source: Authors

6. PROMOTING EXPORT OF LOCAL PRODUCTS/TECHNOLOGIES

Water and sanitation goods utilise steel, plastics, chemicals and cement as inputs. Many of the interventions identified by Master Plans for these industries have therefore been adopted here. Overall, South Africa has a negative trade balance in both water and sanitation goods. The following table provides a quick snapshot of type of goods exported and their contribution to overall exports of water and sanitation goods and value.

Table 5: Water and sanitation goods exported by South Africa

AGGREGATE GOODS	SPECIFIC TYPE OF GOODS	CONTRIBUTION TO EXPORTS OF WATER AND SANITATION GOODS 2020-2021	VALUE AS OF 2019-2020	VALUE 2020-2021
Water abstraction, conveyance and collection	Plastic pipes; iron and steel pipes; valves; pumps	81%	US$716 million	US$621 million
Water and Wastewater Purification	Chemicals; filtering and purification	6%	US$52 million	US$47 million
Sanitation Ware	Iron and steel basins, baths; plastics lavatory seats, covers, bidets, lavatory pans, flushing cisterns, shower baths, wash basins; ceramic sinks, washbasins, washbasin pedestals, baths, bidets, water closet pans, flushing cisterns, urinals and similar sanitary fixtures	6%	US$47 million	US$44 million
Liquid meters and Measurement instruments	Instruments and apparatus for measuring or checking the flow, level, pressure; liquid meters	4%	US$37 million	US$30 million
Water storage	Plastics reservoirs and tanks; iron and steel reservoirs and tanks	3%	US$32 million	US$27 million

Source: Authors, based on TradeMap, 2021

The key issues in relation to exports from the research, stakeholder engagements and the sub-dialogue were the following:

- Industry needs assistance to become accredited with the international Authorised Economic Operator (AEO) programme. An AEO programme is built and based on a Customs-Private Partnership under the international principle (SAFE Framework of Standards) to secure and facilitate global trade, which was adopted unanimously at the Council Session of the World Customs Organization in June 2005. The programme aims to enhance international supply chain security and facilitate movement of legitimate goods. It covers economic operators authorised for customs simplification (AEOC), security and safety (AEOS) or a combination of the two.
- Industry needs assistance to pay for rising international/foreign certifications to foster amplified trade. This issue is addressed in the section on RDI, Standards and Certification.
- Industry needs facilitation by government to reach and explore new export markets and opportunities in Africa and across the globe. For example, facilitating information to also trickle to industry, such as knowledge on the United States (US) steel import increased quota that benefits exporters such as South Africa.

- Industry needs facilitation of export rebates and credits to foster amplified trade.
- Generally, all industry needs access to cheaper transport systems such as rail and better trade facilitation at boarders and ports.

Table 6: Possible interventions to promote exports

ISSUE	INTERVENTION	TIMEFRAME	LEAD ENTITY (+SUPPORT)
Need for accreditation with the international AEOC and AEOS programme	1. Facilitate awareness and understanding of the SARS Authorized Economic Operator Programme. SARS links industry with companies that are involved in the international movement of goods and approved by SARS Customs as complying with World Customs Organisation or equivalent compliance and supply chain security standards. 2. AEOs may include manufacturers, importers, exporters, brokers, carriers, consolidators, intermediaries, ports, airports, terminal operators, integrated operators, warehouses, distributors and freight forwarders.	Immediate and long term	The dtic *SARS* *Associations or industry captains* *ITAC*
Bearing costs of international and foreign certification to facilitate trade	*Refer to section on Strengthening R&D, standards and certification*	Immediate too long term	South African bureau of Standards (SABS), WRC, DWS, the dtic, DSI, IDC
Facilitation in identifying or negotiating new export markets or opportunities	Awareness, drive and facilitation for industry to take advantage of platforms such as the US Department of Commerce, which granted product exemptions for imports of 161 aluminium and 36 steel products from the Section 232 duties that the US imposed against foreign imports Establish detailed import requirements for exporting and taking advantage of the African Continental Free Trade Area (AfCFTA) The dtic, by means of their Foreign Economic Representatives, to compile a database the health and safety regulations in targeted countries for South Africa Continued awareness of export incentives from the dtic (Export Marketing and Investment Assistance Scheme and National Exporter Development Programme)	Immediate too long term	

ISSUE	INTERVENTION	TIMEFRAME	LEAD ENTITY (+SUPPORT)
Export rebates	Current drive for provision of tax rebates on exports to assist in reducing cost of export to international customers Current discussions (IDC/the dtic) on export credit insurance and encouraging financiers like banks to restore export insurance	Immediate too long term	The dtic, National Treasury, IDC, financial institutions

Source: Authors

7. STRENGTHENING R&D, STANDARDS AND CERTIFICATION

7.1. Research and Development

South Africa already has world-class R&D capabilities, customs authority, testing bodies and accreditation services. However, the following constraints were noted during stakeholder engagements:

- Greater need for an R&D focus on efficient supply and security of water and sanitation services, because of the increase in water stressed areas due to climate changes, ageing infrastructure, population increase and the rural to urban migration.
- RDI investment in South Africa is low, at 0.78% of the gross domestic product (GDP). Optimally, it should be at least 3%-4% of GDP to function at a high level.
- No handover of knowledge, products and services transfer to other partners to commercialise innovation. There is a need for a seamless flow that links all the partners.
- Partners are operating in silos and there is inadequate coordination of efforts. There is a need for coordination of the different RDI partners to coalesce resources and funding to upscale new innovations.
- Reluctance to take South African water and sanitation technologies to the market. A key gap is between the funding available for skills development and the funding needed to develop the high-level skills needed in local government and EPCM gaps. This requires intensive on-the-job training, and this is not something that the SETAs can adequately fund.

A set of possible interventions were developed and discussed in stakeholder sub-dialogues, in relation to R&D. These are detailed in the Table below.

Table 7: Possible interventions to strengthen R&D, standards and certification

ISSUE	INTERVENTION	TIMEFRAME	LEAD ENTITY (+SUPPORT)
Coordinate partners, programmes and available funding to upscaling and take emerging solutions to market	Mature the coordination capacity of the National Forum for Water Innovator and Entrepreneur support initiatives. Streamline processes among long-term innovation system investors to improve handover point for technology development (e.g. allow innovators to access aligned funding through SEZs, for instance via sectoral National System of Innovation partner referrals)	Medium term	WRC, DSI, Council for Scientific and Industrial Research, Technology Innovation Agency, IDC, the dtic

ISSUE	INTERVENTION	TIMEFRAME	LEAD ENTITY (+SUPPORT)
	Develop innovation infrastructure and optimisation support to niche experiments at universities and science councils with coordinated funding Manage Auditor-General compliance culture to balance short- vs long-term programme investments and sufficient implementation flexibility for innovation projects Hold multilateral and bilateral continued engagement on all the above.		
Establish shared risk funding consortiums to fund, resource and implement transformative, niche projects (experiments) that test new possibilities and solutions for the industry of water security (solution commercialisation, deployment and associated industrial development	Funding consortiums would need to be a mixture of grant funding and return on investment (RoI) mechanisms Unlock funding to test niche ideas and derisk future investments from existing investment pools (e.g. smart linking of innovation requirements to the tenders and planning associated with existing infrastructure grants and funds). DSI is looking at preferential procurement programme for public funded innovations, where the government buys these innovations. Key thematic areas to focus on in developing this Transformative Niche Projects/Experiments: - Desalination sub-industry development (diversification of water sources) - Groundwater sub-industry development - Next generation sanitation (already funded) Circular and green solutions (off-grid settlement solutions, decentralised/ modular/packaged treatment solutions) - Water reuse and reclamation – acid mine drainage treatment sub-industry development - Ecological protection and water security around dams and jobs programme - Fourth Industrial Revolution (4IR) and water quality monitoring for water security - Water efficiency and demand management - Pricing and revenue collection improvement to support revenue recovery and efficiency to pay for operation and maintenance, and infrastructure	Short term	WRC *DSI, the dtic, Black Management Forum, DBSA, Department of Agriculture, Forestry and Fisheries*

ISSUE	INTERVENTION	TIMEFRAME	LEAD ENTITY (+SUPPORT)
	- Agricultural industry development for water efficient crops and techniques to support food security and export and water allocation reform (transformation) - Pollution remediation in large water bodies – developing toolbox of options to be used nationally in prescribed interventions, the solutions could be used in other partner countries. Create a water reuse advisory group for coordination, taking into consideration municipal capacity.		
Shift innovative technology linked to solutions into the market/full scale operation in the sector	Formalise a technology evaluation process, governance arrangement and repository in the sector Grow the network of testbeds to test imported solutions alongside an independent technology validation assessment to help support quality where imports happen Grant funding for engineering field testing of innovations Start-up capital for standards authority for emerging industries, e.g. SABS and other partners which could partner to provide a mark scheme and certify products and services Scale up, derisk and optimise Water Innovation Technical Readiness Funding for bulk (TRL 6 to 8), leveraging support and budgets from municipalities as testbed partners Develop catalytic funding to test innovations in multiple operational environments for market readiness	Short term	WRC Refer to SABS, Agrément
Support and develop businesses that transition new innovations to market and grow new industrial niches	Grant funding for grassroots innovators, start-ups and small to microenterprises to certify new products and services Grant funding and/or support to grassroots innovators, start-ups and small to microenterprises to establish manufacturing and optimisation in manufacturing to produce viable and high-quality products according to design for excellence set of services	Short term	Small Enterprise Development Agency, MerSETA, the dtic, LGSETA, DSI

ISSUE	INTERVENTION	TIMEFRAME	LEAD ENTITY (+SUPPORT)
	Grants to support entrepreneurs to improve business readiness, market access and investment preparation Strong tender call specifications to encourage well-established consultants in the sector to 1) partner with new water businesses and 2) bring innovative technology solutions into their proposals Balance investment in domestic and international technology to ensure sufficient traction for local solutions in the market. Also, more effort in encouraging user acceptance and engagement to ensure uptake of innovative sanitation technologies DSI, with the innovation bridge portal, are match making business funding with innovation.		
Position government to become a strong adopter of emerging technologies for water	Engage National Treasury to ensure Public Procurement rules and interpretation thereof accommodate uptake of new technologies where properly motivated. This will require addressing interpretations around tender processes linked to single source solutions and also scale up of technologies beyond initial pilot investments Top level leadership in government needs to signal the importance of government as a strong adopter of new technology and solutions	Short term	WRC/National Treasury *SALGA, CoGTA, Municipalities, Water boards*
Resource and synergise the high end skills ecosystem for water	Enable better future skills planning through investment into the skills research base, and methodologies for skills needs tracking Engineer skills build and support programmes need to be put in place, with a focus on retention and development in more remote municipalities through smart twinning and mentorship programmes Align funding to develop high-end/specialist skills aligned to niche areas through a range of mechanisms (e.g. investment in research chairs, research institutes, specialised postgraduate bursary and expanded professional development support) Connect practitioners (municipalities, utilities, planners) with niche innovation learning and outputs through targeted training and practical exposure to sites	Short term	Refer to the skills section. SETAs, National Research Foundation

ISSUE	INTERVENTION	TIMEFRAME	LEAD ENTITY (+SUPPORT)
	Align funding to develop skills linked to niche experiments to support artisanal skills via Technical and Vocational Education and Training colleges, SETAs and associations Align funding to community of practice platforms to transfer industry skills linked to niche experiments from university centres to innovators, small businesses and operators to align to policy and institutional environments Grant funding and/or support to grassroots innovators, start-ups and small to microenterprises to provide skills development for new skills and future skills to support water and sanitation sector – align to accepted material developed through research on emerging water sector focus areas Ensure uptake of graduates by implementing: 1) effective skills demand scanning; 2) upskilling students in workplace skills and readiness (expanded professional development); and 3) resourcing effective graduate and internship employment programmes that have sustainable employment prospects post the contract period.		

Source: Authors

7.2. Standards and Certification

Interviews with different stakeholders in the water and sanitation industry elaborated on issues raised in stakeholder dialogues, and highlighted the following constraints:

- Some standards are incoherent, while others are not fit for purpose. A review of the standards is needed, to analyse if they are too high or too low and what the impact of this is.
- There are some gaps (and some regulatory incoherence) between the Water Act, the National Building Standards Act and the National Regulator for Compulsory Specifications (NRCS Act). The supply and quality of water is captured in the Water Act. The Water Act mandates local authorities to develop by-laws regulating water in their areas. However, there is no legislation or capabilities for policing the regulation of water. For example, water installations are not regulated. Building Control Officers only inspect installations covered by the regulations. Therefore, they are not inspecting water installations. Inspection is limited to water supplies in the buildings. Also, not all municipalities employ Building Control Officers.
- The National Building Standards Act, which is housed in the dtic, does not have specifications for water supply to buildings (including water installations). There are sewer regulations but no water supply regulations. In addition, there is an incoherence with the NRCS Act. A single regulatory framework is required (or at least regulatory coherence).
- Enforcement is low. There are no legal requirements on how plumbing compliance needs to be verified. The NRCS is not authorised to take action against non-compliant products other than geysers. Therefore, no one is regulating compliance. This is one factor contributing to cheap and

sub-standard imports finding their way into the local market. Some retailers admit to stocking sub-standard products to stay in business since there is no regulation. Consumers bear the cost and risk because they cannot tell whether a product is sub-standard or not.

- There is a need for institutional collaboration, within the public sector and with the private sector. There is insufficient testing and certification capacity. There are not enough laboratories to conduct these tests in South Africa, yet some standards are mandatory. Laboratories are accredited based on test methods. A single standard usually has multiple test methods. For example, South African National Standards (SANS) 226 (standard for metal taps) has 12 tests, of which the available laboratories have the following tests: SABS is accredited for eight of the 12 tests (67% of the tests); ATL is accredited for 7 of the 12 tests (58% of the tests); and OMEGA is accredited for 11 of the 12 tests (92% of the tests). For most standards, only partially accredited tests are offered. There is a significant gap between the standards and the available tests. This frustrates manufacturers that cannot take their products to market without certification, while delays in certification push some out of business.
- Innovative systems do not have standards that they can be tested against. There are no accredited schemes for unique products. SANS 3500 is challenging to certify since it houses innovations and unique products. It is time-consuming and costly to get accreditation from the South African National Accreditation System (SANAS).
- From the regulators side, new and amended standards require costly investment in laboratories, equipment and training to test. When the number of manufacturers is very small, they sometimes argue that there is no business case.
- The cost of SANAS accreditation is expensive both for acquiring and maintaining accreditation. This is a barrier to entry. Sometimes, there is also no full understanding of the total cost of certification, especially for new products.
- Product testing takes too long. A typical certification process takes at least 32 days and field testing spans 30 to 50 days.
- Non-compliance of skills standards for engineering and construction contracts by tender bidders affects the quality of work done, as well as the long-range revenue base for addressing job creation, skills development and enterprise development.

Table 8: Possible interventions to strengthen standards and certification

ISSUE	INTERVENTION	TIMEFRAME	LEAD ENTITY (+SUPPORT)
Incoherent standards	Review issues arising from incoherent standards. There are processes available where stakeholders can propose changes to the SABS committee	Short term	SABS Agrément
Inadequate testing and certification capacity in the full market	Certification capabilities need to be expanded through strategic collaboration with universities, agencies and donors that have testing capacity. Accredit the private sector capabilities. Increase funding towards capacitating the gap within the market	Medium term Short term	SANAS, SABS, Agrément, private sector and Universities WRC the dtic

Low enforcement due to incoherent legislation	Review the Water Act, Building Standards Act and the NRCS Act, through the PIRB/IOPSA via SALGA, CoGTA and MISA	Short term	PIRB, IOPSA, SALGA, CoGTA, MISA, NRCS
High cost of accreditation and certification	Production improvement incentive to assist companies with technical compliance in terms of export products	Short term	the dtic
No regulation of compliance leading to sub-standards products on the market	NRCS to increase its capacity by employing the right skills to do product specification. Industry to provide the non-compliant products on the market, and submit to NRCS for purposes of specification. The SA watermark was developed, and it aids in validating product compliance. This can be used as a complement or short-term alternative to state capabilities.	Short term Short term Short term	NRCS PIRB, IOPSA SA Watermark
There are no accredited schemes for unique products	Agrément to consult with SANAS to fill this gap. WRC has developed three accreditation protocols that relate to sanitation products. These protocols will be housed within Agrément, such that the protocols can be used to accredit technologies that fall within their scope. For non-sewer sanitation, WRC is working with industry stakeholders to develop a mark scheme to assist with SANS 3500	Short term Short term Short term	Agrément, SANAS WRC WRC

Source: Authors

8. IMPROVING INFRASTRUCTURE SPEND AND PROCUREMENT PROCESSES

Improving infrastructure spend and procurement requires a multi-faceted approach. Key themes raised during stakeholder engagements are clustered below.

Policy coordination

Several stakeholder dialogues suggested that stronger policy coordination is necessary, including:

- The strategic alignment between global and national policies and commitments related to environmental sustainability; provincial and departmental strategies; and water and sanitation infrastructure planning and budgeting.
- Alignment between the provincial and departmental strategies, particularly water and sanitation components, and the specifications for goods and services.

Funding water and sanitation

Major shifts in the funding of water and sanitation have been underway. These include a review of tariffs (to address water pricing) and efforts to crowd in private sector investment.

The National Infrastructure Development Plan (2050) includes establishing an independent water regulator (during the 2022/23 financial year) to regulate tariffs, standards and performance in the water services sector.

Due to inadequate water and sanitation infrastructure funding, public-private partnerships (PPPs) have become a focus in efforts to crowd in private sector funding. The 2022 Budget Review reports that the value of PPPs has declined in recent years, from R10.7 billion in 2011/12 to R5.6 billion in 2019/20. This is partly due to onerous approval processes, poor capacity of departments to estimate risk-sharing, and a lack of clarity regarding the user-pays principle. National Treasury concluded a review of the PPP framework in 2021 and emphasised the need to simplify approval and compliance requirements. One recommendation was that government create a PPP Centre of Excellence and an expedited approval process for projects below R1 billion in value.

Water and sanitation infrastructure has multi-faceted impacts, which should be taken into consideration in infrastructure budgeting. It impacts on households and businesses, health, employment and the environment. As such, multi-criteria approaches to water and sanitation infrastructure budgeting are required when estimating the RoI (TIPS, 2017). National Treasury aims to pilot a Climate Budget Tagging System (2022 Budget Review) to take this forward.

Infrastructure planning, development and maintenance

Weak state technical and professional capabilities are a central constraint in infrastructure planning, development and maintenance. This leads to the current low rate of projects progressing from feasibility to bankability. National Treasury, through the Budget Facility for Infrastructure (BFI) and partnerships with the DBSA and Infrastructure South Africa, is building a pipeline of viable projects. National Treasury, DPWI, Infrastructure South Africa and the Infrastructure Fund have undertaken complementary reforms to strengthen the infrastructure value chain: DPWI has developed the National Infrastructure Plan; Infrastructure South Africa has worked to unblock policy and regulatory obstacles to build a bankable pipeline of projects; BFI has increased the rigour of project planning and appraisal; and the Infrastructure Fund has increased skills and capacity in structuring blended finance projects (NT, 2022).

Procurement

Challenges in procurement featured centrally in various stakeholder dialogues. Issues discussed in meetings between National Treasury and the built environment professions include the need for the revisions to the Municipal Finance Management Act (MFMA). Due to a pending Constitutional Court judgement in a dispute between the Minister of Finance and Agribusiness', National Treasury has been unable to take decisions on proposed revisions to the Public Finance Management Act (PFMA)/MFMA. As of June 2022, the issues still under discussion are as follows:

- Clear definitions and guidelines on application that clarify irregular expenditure, including the terms "malicious", "corruption" and "good for the state"

- Regulate the 30-day payment rule more effectively
- Contract amendment process
- The current MFMA Section 33 process that limits contract periods to three years only is too onerous and takes too long to operate
- Increase the current R200 000 limit for procurement using three quotations
- Abuse and misuse of MFMA Regulation 32
- The new public sector infrastructure procurement bill requires revision to take account of industry comments
- Transparency in tender adjudication process
- Allow built environment professionals and technical staff to undertake the adjudication of the functionality of a bid
- Abuse of sole supplier clause
- Abuse of panels
- Increase the ratio of tenders awarded compared to tenders advertised from one in four to a higher ratio.

Localisation/designation

Many of the water and sanitation goods and services are not designated or are inadequately designated. The IOPSA and PIRB have committed to undertaking a process with ITAC/NRCS to review and elaborate water and sanitation-related product designations.

Strengthening enforcement

It is legal to import cheap and non-standard products. It is also legal to sell them. But it is illegal to install them and no one is checking. Strategies discussed to address this include expanding the pre-surveillance systems for imports (from the Steel Master Plan) to include other goods. Another strategy would be to extend the mandate of BCOs to include water and sanitation, and to professionalise BCOs. This intervention has been under discussion between PIRB/IOPSA and SACAP. Municipalities are required to have BCOs in place, but not all of them do. BCOs are not legally required to register with SACAP. There is also no framework of qualifications required or adherence to codes of practice. SACAP has worked to establish the regulatory framework and required professional development. In the interim, IOPSA has worked to support individual municipalities to strengthen the BCO function.

Strategic sourcing

Strategic sourcing is the mechanism to convert designations into localisation. Key issues include:

- The need to build supply chain management (SCM) understanding of strategic sourcing and how this can be leveraged to support provincial and departmental environmental and sustainable development strategies.
- Enhancing SCM information generation and use to support the monitoring and evaluation of environmental performance of green SCM (PSETA, 2015).

Table 9: Possible interventions to improve infrastructure spend and procurement

ISSUE	INTERVENTION	TIMEFRAME	LEAD ENTITY (*+SUPPORT*)
Poor policy coordination	Improve and coordinate state capabilities in relation to water and sanitation policy and strategy	Long term	DWS/MISA/CoGTA *DHET* *SOEs* *NBI* *CBE/SAICE (and other professional bodies)*

ISSUE	INTERVENTION	TIMEFRAME	LEAD ENTITY (*+SUPPORT*)
Significant gap between water and sanitation needs/funding	Establish Independent Water Regulator Revise PPP regulatory framework to crowd in private sector funding	Short term	National Treasury
Estimating RoI for water and sanitation requires multi-criteria approaches	Pilot the climate tagging system	Short term	National Treasury
Weak infrastructure planning, delivery and maintenance results in many projects not moving past feasibility	Build a pipeline of viable projects through supporting infrastructure planning	Short term	National Treasury *DPWI* *Infrastructure South Africa* *Infrastructure Fund*
Provisions in the PFMA/MFMA constrain delivery	Review PFMA/MFMA to address issues raised	Medium term	CBE/National Treasury
Smart and sustainable innovations (including those funded by South Africa) are not being procured	Incorporate new technologies/processes into building regulations and procurement	Medium term	WRC/SABS/Agrément *CIDB* *DPWI* *Professional bodies*
Many water and sanitation goods are not designated	Designate water and sanitation goods more strategically and comprehensively	Short term	The dtic *IOPSA* *Manufacturers*
No enforcement of standards for imported water and sanitation goods	Improve state capabilities in relation to enforcement (by professionalising BOCs	Medium term	IOPSA/PIRB/SACAP *CBE (and other professional bodies)* *MISA/CoGTA*
Water and sanitation infrastructure projects seldom strategically sourced	Improve strategic sourcing of water and sanitation goods in public procurement	Medium term	IOPSA *Treasury/Office of the Chief Procurement Officer* *MISA* *COGTA* *DPSA*
It is legal to import and sell sub-standard goods	Strengthen import regulation	Medium term	ITAC *DHET* *SOEs* *NBI* *CBE/SAICE (and other professional bodies)*

Source: Authors

9. CONCLUSION

This Policy Report, building on the associated Research Report (TIPS, 2022), provides the "first draft" of a proposed Water and Sanitation Industry Master Plan It puts forward a vision and associated interventions, forming the foundation of a Water and Sanitation Industry Master Plan for South Africa.

It is proposed that the Water and Sanitation Industry Master Plan builds on these through a set of six key pillars:

- Developing and retaining skills.
- Improving industry competitiveness and capacity utilisation.
- Reducing cheap and sub-standard imports.
- Promoting export of local products.
- Strengthening R&D, Standards and Certification.
- Improving expenditure and procurement.

The Policy Report summarises key issues from the literature and stakeholder engagement for each of the six proposed pillars and formulates a series of policy interventions to address them.

It builds on the Research Report, which provides the available evidence related to the development of the Water and Sanitation Industry Master Plan. It provides a detailed analysis of the water and sanitation industrial value chains to suggest that South Africa is well-positioned to leverage the expenditure to grow a domestic manufacturing base which will simultaneously address domestic priorities; sustain and grow existing businesses and jobs; develop export potential; and transform and transition local industries. Economic data reported in the reports reflect a bumpy, uneven but mostly upward trajectory in the production and sales of raw materials and equipment used in water and sanitation.

Combined, the two reports analyse the value chain as well as key issues (based on the six pillars) and provide a line of sight toward addressing these more coherently by highlighting key policy implications and recommendation policy interventions.

Together with the Research Report, this Policy Report summarises an 18-month process, including desktop research, interviews, a set of national stakeholder dialogues, and a series of sub-dialogues.

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