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FRAMEWORK TO GUIDE THE DEVELOPMENT OF MODEL BYLAWS FOR WATER EFFICIENT SANITATION SYSTEMS

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FRAMEWORK TO GUIDE THE DEVELOPMENT OF MODEL BYLAWS FOR WATER EFFICIENT SANITATION SYSTEMS (WESS)

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PREFACE

This framework is designed as a guideline to assist municipalities (metropolitan, district and local) with developing or updating their own bylaws, sanitation policy and / or implementation guide for **water-efficient sanitation** solutions or WESS, which manages (collects) and treats waste to the required design parameters for safe reuse on site. This includes sludge disposal or any other drainage or decanting from maintenance activities. WESS are a subset of non-sewered sanitation (i.e., there is no connection to trunk sewer or municipal reticulation system) that can be off-grid (in terms of water and energy supply) and decentralised with drainage from the front-end through a drainage network consisting of reduced pipe diameters (such as D 110 mm or D 160 mm). WESS are designed to recirculate the treated liquid fraction for toilet flushing or onsite for irrigation (up to 2ML/d). Some WESS may only treat blackwater or treat a combination of black and greywater.

This framework does not pertain to faecal sludge management or faecal sludge treatment plants.

Establishing a comprehensive framework for model bylaws (norms and standards), sanitation policy and implementation guide is essential to guide municipalities with the adoption, approval and regulation of WESS effectively. This framework contains sections that assist with providing clarity on legal requirements, technical specifications (adherence to certain product standards to ensure the systems are designed properly), operation and maintenance procedures, sanitation tariffs, community engagement, emergency procedures and address risks leading to the delivery of safely managed sanitation services, improved public health, environmental protection, and ultimately better socio-economic conditions.

NOTE 1: Blue text is proposed headings and texts to be inserted into model bylaws.



TABLE OF CONTENTS

| | |
|---|----|
| Preface | 3 |
| Table of Contents..... | 5 |
| Acronyms | 6 |
| 1 Introduction | 7 |
| 2 Developing Bylaws and Policy | 10 |
| 2.1 Development of Bylaws..... | 11 |
| 2.2 Rationale | 13 |
| 3 Institutional and Regulatory Framework for WESS Implementation..... | 14 |
| 4 General | 19 |
| 5 Definitions and Terminology..... | 19 |
| 6 Technical Norms and Standards for WESS | 21 |
| 7 Framework for WESS Management and Operation | 24 |
| 8 Monitoring, Evaluation and Reporting | 26 |
| 9 Tariffing and Revenue..... | 28 |
| 10 Penalties, Non-Compliance and Enforcement Management | 29 |
| 11 User Responsibilities | 30 |
| 12 Processes and Procedures for Application..... | 31 |
| 12.1 Application to the WSA | 31 |
| 12.2 Information to be submitted by the Professional Engineer / Professional Engineering Technologist with the Application | 31 |
| 13 Conclusion | 33 |
| 14 Schedules and Annexures | 33 |
| 15 References | 33 |

ACRONYMS

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| DWWTs | Decentralised wastewater treatment systems |
| DWS | Department of Water and Sanitation |
| DFFE | Department of Forestry, Fisheries, and the Environment |
| GHS | General Household Survey |
| MSA | Municipal Systems Act |
| NDP | National Development Plan |
| NSIP | National Sanitation Integrated Plan |
| NSS | Non-sewered sanitation |
| NSSS | Non-sewered sanitation systems (as prescribed by ISO/SANS 30500) |
| O&M | Operation and maintenance |
| SABS | South African Bureau of Standards |
| SANS | South African National Standards |
| SDGs | Sustainable Development Goals |
| VIP | Ventilated improved pit latrine |
| WASH | Water supply, Sanitation, and hygiene |
| WESS | Water efficient sanitation solutions |
| WSA | Water service authority |
| WSDP | Water Services Developmental Plan |
| WWTW | Wastewater treatment works |

INTRODUCTION

The 2024 General Household Survey (GHS) reported that 76,3% of the national population had access to safely managed sanitation services – that is defined by meeting ‘hygiene standards’ and ‘proper waste treatment’ (STATS, SA 2025). It is uncertain if this is a true representation of the performance or condition of the entire sanitation service, in other words, whether all human waste generated is actually safely treated for safe reuse or disposal. This is supported by the sanitation situational analysis presented in the National Sanitation Integrated Plan (NSIP) (DWS, 2025), which indicated that many water service authorities (WSAs) are underperforming across the sanitation service chain. Some of the main challenges relate to poorly constructed on-site sanitation systems that are not contained or left to overflow. This leads to sewage runoff and environmental pollution. Moreover, there are hydraulically overloaded, poorly operated, maintained, and managed conventional wastewater treatment works (WWTWs), directly resulting in poor performance and non-compliance. Ultimately, there remains a gap in achieving the United Nations Sustainable Development Goal (SDG) 6.2.1a target of universal access to safely managed sanitation.

Waterborne sanitation is still the most common sanitation provision in South Africa despite the country being water scarce. For new developments (low-cost and *in situ* formal upgrades of informal settlements as well as developed estates), access to bulk infrastructure is inherently limited by the fact that most WWTWs are operating above design capacity. This stalls development and/or results in illegal connections, especially in informal settlements that are densely populated across urban centres. Other contributors to sanitation backlogs are inward migration of rural populations into cities and population growth in metropolitan cities and the consumer expectations for a ‘flush toilet’, adding further pressure on already underperforming WSAs. Moreover, institutional challenges within WSAs with respect to lack of human resources and/or appropriate skilled staff, including poor communication and planning across departments, such as human settlements, housing, land use and developmental planning, as well as procurement with water and sanitation, often result in unsafe and inappropriate sanitation services being provided.

Over the last decade, there has been steady progress towards the innovation of safer and climate-resilient sanitation products and service options, with the integration of social acceptance in the technical evaluation of these systems. Pilot demonstrations have been undertaken in some municipalities in South Africa, even within areas where bulk infrastructure exists but requires repair due to generally poor maintenance, or has been damaged by climatic events. Some of these sanitation systems have been designed with novel evacuation and conveyance mechanisms and do not connect to municipal sewage disposal, i.e., are closed loop, providing the opportunity for resource recovery (water reuse, energy production and/or nutrient recycling). Furthermore, there is potential for cost savings since the volume demand of water for flushing as well as conveyance of waste, is significantly reduced compared to traditional flush toilets consuming 9 to 12L per flush. Lastly, since the system is installed on-site or near to the point source of generation, its operating needs reduce the need for dilution and conveyance to the treatment unit, and thus, the entire system is characterised as water efficient.

Based on the South African legislative review conducted by van der Merwe-Botha and Quilling (2024), the terminology introduced in the Revised Compulsory National Water and Sanitation Services Norms and Standards in terms of Section 9 (1) of the Water Services Act, Act No 108 of 1997 (gazetted on 6 June 2025) speaks to 'water efficient sanitation solutions (WESS) which means "sanitation systems which require low to no water, completely off-grid, non-sewered, on-site or are decentralised and utilise technologies that include using water saving devices, water-efficient processes and beneficial use of waste products." To expand on this definition, WESS, in this context, manage (collect) and treat waste to the required design parameters for safe reuse on site. This includes sludge disposal or any other drainage or decanting from maintenance activities. WESS are a subset of non-sewered sanitation (i.e., there is no connection to trunk sewer or municipal reticulation system) that can be off-grid (in terms of water and energy supply) and decentralised with drainage from the front-end through a drainage network consisting of reduced pipe diameters (such as D 110 mm or D 160 mm). WESS are designed to recirculate the treated liquid fraction for toilet flushing or onsite for irrigation (up to 2ML/d). Some WESS may only treat blackwater or treat a combination of black and greywater.

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Example of a WESS system at a school. Note the treatment unit to the right.

WESS has applications to service more than a single household, for example, low-cost housing schemes, informal settlements, schools, estates, hotels, green buildings, airports and other similar developments. By incorporating sustainability criteria such as water and energy efficiency, WESS will contribute to effective water demand management, safe and acceptable sanitation delivery, environmental and public health protection and potential cost benefits from operating and maintenance requirements compared to traditional forms of sanitation. Moreover, unlike bulk infrastructure, it is not vulnerable to climatic events such as flooding.

However, at present, the lack of localised regulations (i.e., alternative sanitation guidelines,

policies and bylaws) or incentives from the National Government to adopt alternative sanitation technologies has discouraged municipalities from adopting WESS to reduce their sanitation service delivery backlogs or eradicate open defaecation.

From a review of international literature, a number of key concepts and notes can be extracted to inform the development of model bylaws.

- The African Sanitation Policy Guidelines note that for WESS to function in high-density areas, elements, including a skilled workforce, effective and safely managed emptying, transportation, treatment, and disposal services are critical. The planning for decentralised systems requires a different viewpoint in terms of policy and institutional framework, finances, technology, and stakeholder engagement.¹
- In addition, some non-sewered systems have limited capacity for handling greywater and so require additional complementary greywater management systems. The development of policies or standards (or bylaws in this case) can specify that these elements need to be catered for where WESS are used. Non-sewered on-site sanitation is grouped into two categories, each with different technologies to ensure that human excreta is safely managed across the sanitation service chain:
- On-site sanitation with on-site treatment (such as those products designed under the specifications of ISO/SANS 30500: Non-sewered sanitation systems – Prefabricated integrated treatment units – General safety and performance requirements for design and testing) on-site systems with faecal sludge management and appropriate treatment infrastructure.

Effective regulation is noted as critical, including the need for clear guidelines that are adapted to the local institutional and political context. These regulations include elements such as oversight of pricing and tariff setting, service quality, performance imperatives, work safety, promotion of investment, and enforcement of compliance by service providers. In addition, it is critical to ensure compliance with prescribed laws, regulations, rules, bylaws, guidelines, and standards.²

Other factors to be included in the development of policies and related documentation include:

- The expected outcomes from sanitation systems and service levels for managing human excreta from various locations, stakeholder engagement needs (taking into consideration the specific needs of women and girls, and other vulnerable groups, including people living with disabilities), user preference, user education, dealing with non-compliance, and mitigation measures in case of WESS failure; and
- Permissible service levels for all types of settings.

Service levels, including:

- Considerations around incremental improvements, including shared sanitation, basic and safely managed services;
- Minimum standards for different settings and situations (e.g., humanitarian crises);
- Priority areas for improvement;

¹ National Institute of Urban Affairs, 2019
² African Sanitation Policy Guidelines

- Spatial limitations, including land ownership, particularly in informal settlements;
- Effective faecal sludge and wastewater management; and
- Institutional WASH priorities (for schools, health centres, etc.).

In the case of decentralised wastewater treatment, the 2017 *Handbook on Decentralised Wastewater Treatment Module* indicates that a typical decentralised wastewater treatment module should combine the following technical treatment steps in a modular manner:

- Pre-treatment (screen, grit chamber, oil and grease trap);
- Primary treatment (sedimentation ponds, settlers, septic tanks);
- Secondary treatment (anaerobic baffled reactors, anaerobic filters, or anaerobic and facultative pond systems);
- Tertiary aerobic/facultative treatment (horizontal gravel filters); and
- Tertiary treatment (aerobic polishing ponds or vertical gravel filters).

The selection of an appropriate technical configuration depends on the following:

- Wastewater volume;
- Wastewater quality and organic load;
- Local temperature;
- Soil conditions;
- Topography and availability of land;
- Costs (capital, operation and maintenance);
- Prescribed technical and/or management standards;
- User acceptability and behavioural characteristics / current sanitation practices; and
- End-use application of the treated outputs (primarily liquid) ³

These are some of the key issues that must be considered in the development of sanitation bylaws, policies and/or implementation guides.

2. DEVELOPING BYLAWS AND POLICY

To give effect to current legislation, municipalities can use two routes:

- Developing bylaws to give effect to municipal policies. Bylaws set out the relationship between the municipality, its service providers and/or consumers, and should provide clarity in respect of the rights and responsibilities of each of these stakeholders. Bylaws are also a regulatory instrument against which a municipality can monitor its own performance or that of its service providers and intermediaries.
- Developing procedures and processes through policy.

These instruments affect all departments and divisions within a municipality to operationalise, viz., water, sanitation, treasury, spatial planning, housing and building approval, roads, etc.

³ Adapted from Handbook on Decentralised Wastewater Treatment Module, 2017

2.1 Development of bylaws

The Municipal Council (at a full council meeting) approves bylaws. All clauses of the bylaws must adhere to National Regulations and the Constitution. The municipality (officials) or appointed service providers of the municipality implement bylaws.

The Municipal Systems Act (MSA) in Sections 12 and 13 sets out the processes that must be followed when a municipality develops bylaws. The following process is recommended in terms of Section 21 of the Act:

- The draft bylaws (and the official languages in which the notice calling for public comment should be published, if the Municipal Council has not done so already) should be approved for consultation by resolution of the Municipal Council;
- The notice calling for public comment is published in the official languages determined by the Municipal Council. The notice calling for public comment must include a statement:
 - Stating what is addressed in the bylaws published for comment.
 - Inviting the public to submit written comments in connection with the draft bylaws before or on a specified date or within a specified period.
 - To whom and how comments should be submitted (postal and physical address, fax number and e-mail address).
 - That copies of the draft bylaws may be obtained from the office of the Municipal Manager against payment of a nominal fee.
 - That the draft bylaws are available for inspection at the offices, the satellite offices and the library of the municipality every weekday between the hours of 8:00 and 16:00, and on the official website of the municipality.
 - The notice calling for public comment must be published for public comment in the Provincial Gazette for a period of at least 14 (fourteen) calendar days.
 - Radio broadcasts covering the area of the municipality inform the community of the proposed bylaws and provide information on where the bylaws are available for inspection, the public participation process embarked on by the municipality and how comments may be made.
- The municipality at this stage must embark on a public participation process involving all its communities.
- The draft bylaws with or without amendments must be submitted to the Municipal Council for adoption by council resolution and promulgation thereof;
- The final bylaws are published in terms of a Notice for public notice in the Provincial Gazette and take effect on the date of this publication or on a future date stated in the Notice.

The following should be addressed in terms of the content of WESS bylaws:

- **Application procedures and any relevant approvals** (licenses, permits and certifications) from the Department of Water and Sanitation (DWS), Department of Forestry, Fisheries, and the Environment (DFFE), South African Bureau of Standards (SABS), local government departments, and other authorities responsible for regulating and licensing technology design, performance and installation, effluent discharge, sludge disposal etc. This should include application forms and formats required by the municipality.
- **Technical standards and guidelines** for the design, construction, installation, and operation of off-grid, decentralised and non-sewered sanitation systems. Designs and installations should be done and approved by appropriately registered professional engineer(s) or professional engineering technologist(s).
- **Mechanisms for safeguarding public and environmental health** through monitoring by the water services authority – the performance and compliance of WESS to the established norms, standards, regulations and guidelines for safe waste storage, treatment, and disposal.
- **Clarifying the roles and responsibilities** of national and local government, municipal authorities, property owners and home owners' associations, body corporates, end-users, contractors, and technology/service providers in the implementation, operation, and maintenance of WESS, including ownership of WESS and who is liable for any non-compliance.
- WSA's **enforcement of compliance** through inspections, audits, and appropriate penalties or sanctions for non-compliance.
- **Building capacity** within WSAs to effectively regulate WESS.
- **Setting of sanitation tariffs** for WESS, including developmental charges, rates, availability charges, monitoring charges, etc.
- **Contractual agreements for operation and maintenance** as well as financial guarantees in case of non-compliance, case of emergency, or WESS failure, inclusive of arrangements for possible municipal intervention in such cases;
- **Engage with all relevant stakeholders** to ensure that the WESS provided demonstrates inclusivity and equitable access to safe sanitation.
- **Education of users** to increase community awareness and understanding of WESS to promote proper usage and maintenance practices, but also to establish user acceptance.

2.2 Rationale

The following sections describe the reasons for the development of bylaws for WESS.

South Africa must transition from greater reliance on waterborne sanitation systems to water-efficient sanitation in light of water scarcity from prolonged periods of drought, fast-growing cities, ageing infrastructure that is inadequately maintained, poor management and performance of WWTWs, water insecurity and mismanagement, and extreme climatic events such as flooding that destroy bulk infrastructure.

Shifting to this new approach to sanitation reduces water for flushing and conveyance, will contribute to the eradication of sanitation service delivery backlogs and open defaecation promoting public health and restoration of natural ecological bodies such as wetlands and rivers. In order to make this transition, an enabling regulatory framework through bylaws is essential to aid in the adoption and implementation of water-efficient sanitation solutions (WESS).

Van de Merwe-Botha and Quilling (2024) have propose three approaches for unlocking the implementation of WESS through regulation and policy:

- Short-term option (<5 years): Rapid adaptation and strengthening of existing DWS regulation by:
 - Identifying quick changes to existing regulation (adapt, change, or strengthen), to ensure that efficient water use, and where possible, off-grid services form part of the sanitation solutions being investigated for new greenfield developments.
- Medium-term option (5-10 years): Entrenching WESS in DWS regulation by:
 - Following on 1 – Identify more extensive changes to regulations & guidelines or develop new – require WESS as part of sanitation solutions for all developments (brownfield & greenfield).
- Long-term option (>10 years): Entrenching WESS in sectoral regulation by:
 - Following on 1 & 2 – Change or strengthen DWS & non-DWS regulations, guidelines and standards or develop new regulatory documentation, e.g., SANS, to facilitate enactment of WESS and WESS-related concepts.

DWS, the driver and leader in the sector, will require the involvement of various other departments and other government agencies. The Revised Compulsory National Water and Sanitation Services Norms and Standards (DWS, 2025) aims to foster innovation and drive implementation of alternative and sustainable sanitation options, but the lack of appropriate municipal bylaws has stifled WESS scale-out. At the same time, a number of water services authorities (WSAs) are in the process of developing bylaws to address contexts in which sewers and bulk services do not exist yet; however, these tend to be limited to larger Category C (metropolitan) municipalities. Thus, there is a need for model bylaws and sanitation policies that would provide all municipalities with a basis upon which they could amend their existing or develop a separate bylaw or policy catering to their needs and local contexts.

Until such model bylaws exist, this framework is designed to guide municipalities (metropolitan, district and local) with the approval, adoption, and regulation of WESS. Establishing a comprehensive framework for model bylaws (norms and standards) is essential to guide municipalities in implementing these WESS effectively. This framework contains sections that assist with providing clarity on legal requirements, technical specifications (adherence to certain product standards to ensure the systems are designed properly), operation and maintenance procedures, sanitation tariffs, community engagement, emergency procedures and address risks leading to the delivery of safely managed sanitation services, improved public health, environmental protection, and ultimately better socio-economic conditions.

3. INSTITUTIONAL AND REGULATORY FRAMEWORK FOR WESS IMPLEMENTATION

Regulation of WESS shall be governed by legislation, policies, bylaws, and South African National Standards (SANS) governing water and sanitation services and technologies.

The main legislation and policies relevant with respect to this model bylaw include:

- Water Services Act 108 of 1997;
- National Water Act 36 of 1998;
- Groundwater Strategy (2016);
- Municipal Systems Act (MSA) 32 of 2000;
- National Sanitation Policy, 2016;
- National Water and Sanitation Master Plan, 2018;
- National Water Security Framework for SA, 2020; and
- National Sanitation Framework, 2023.

Importantly, the key regulatory framework is described in both the Water Services Act (DWS, 2023) and the Revised Compulsory National Water and Sanitation Services Norms and Standards in terms of Section 9(1) of the Water Services Act (DWS, 2025). The Water Services Act (No 108 of 1997) governs the provision of services to consumers. Section 3 of the Act states that “everyone has a right of access to basic water supply and sanitation”. Basic sanitation is defined as: ***“the prescribed minimum standard of services necessary for the safe, hygienic and adequate collection, removal, disposal or purification of human excreta, domestic waste water and sewage from households, including informal households.”***

In terms of the Water Services Act, all WSAs must have an approved and up-to-date Water Services Development Plan (WSDP) and some of the details relevant to the planning for WESS include:

- (a) of the physical attributes of the area to which it applies;
- (b) of the size and distribution of the population within that area;
- (c) of a timeframe for the plan. including the implementation programme for the following five years;
- (d) of existing water services;
- (g) of the number- and location of persons within the area who are not being

- provided with a basic water supply and basic sanitation;
- (h) regarding the future provision of water services and water for industrial use and the future disposal of industrial effluent. Including:
 - (i) the water services providers which will provide those water services;
 - (ii) the contracts and proposed contracts with those water services providers;
 - (iii) the proposed infrastructure necessary;
 - (v) the estimated capital and operating costs of those water services and the financial arrangements for funding those water services, including the tariff structures;
 - (vi) any water services institution that will assist the water services authority;
 - (vii) the operation, maintenance, repair and replacement of existing and future infrastructure;
- (i) of the number and location of persons to whom water services cannot be provided within the next five years. setting out—
 - (i) the reasons therefor: and
 - (ii) the time frame within which it may reasonably be expected that a basic water supply and basic sanitation will be provided to those persons; and
- (j) of existing and proposed water conservation, recycling and environmental protection measures.

The Revised Compulsory National Water and Services Norms and Standards (DWS, 2025) provide guidance for WESS. In terms of WESS, WSAs are now required to consider the following requirements:

- 6(7)(b) Water efficient sanitation solutions;
- 6(8)(a)(II) Alternative water-efficient sanitation solutions instead of waterborne sewerage systems in areas of dense formal and medium settlement density where there is resource scarcity and or inadequate capacity or functionality in the sewer system and or the wastewater treatment works.
- 6(8)(b) in low-density or sparsely populated settlements: water-efficient sanitation solutions.
- 6(9) Water-efficient sanitation solutions in sub-regulation (7) must be shown to include off-grid, on-site sanitation options such as Non-sewered Sanitation Systems (NSSS) as well as Decentralised Wastewater Treatment Systems (DWWTS).
- 6(10) A Water Services Authority may not unreasonably decline a property development to have a water efficient sanitation solution that is not connected to the central system where development will manage the system as a Water Services Intermediary and where the water uses of the system is authorised under the National Water Act.
- 13(1)(b) plan for adequate sewer collection, wastewater treatment capacity and water efficient sanitation
- 16(10) WSAs must require greenfield developments or major brownfield redevelopments, prior to planning approval, to indicate the manner and extent in which water conservation and water demand management (WCWDM) and water efficient sanitation solutions (WESS) has been accommodated and accounted for in their selected technology options, in terms of efficient water use and off-grid sanitation.

- 26(2)(f) Water conservation and water demand management must include at least— (v) the progress made in the installation of water efficient devices.
- These regulations are critical in bringing WESS into the mainstream of sanitation solutions. This is particularly important given that there are over 4000 informal settlements without adequate sanitation in municipalities across South Africa.

In addition to the water and sanitation legislative environment, municipalities must also frame their WESS bylaws in ways that address other important legislation, such as the following:

- Acts framed under the umbrella of National Environmental Management Act (NEMA) 107 of 1998⁴ seek to protect certain focused aspects of the environment and have an important influence on planning and service delivery. The legal requirement for environmental authorisations in terms of development are outlined by Section 24⁵ of NEMA which states that *“the potential consequences for or impacts on the environment of listed activities or specified activities must be considered, investigated, assessed and reported on to the competent authority or the Minister of Minerals and Energy, as the case may be, except in respect of those activities that may commence without having to obtain an environmental authorisation in terms of this Act”*. It should be noted that some of these Acts have accompanying regulations.
- Housing is not a constitutionally-granted municipal function, however, the Housing Act 107 of 1997 has articulated the roles and responsibilities of all three spheres. The role of municipalities is generally subordinate to that of national and provincial government, even though the Act says that municipalities should ensure that:
 - The inhabitants of its area of jurisdiction have access to adequate housing on a progressive basis;
 - Conditions not conducive to the health and safety of the inhabitants of its area of jurisdiction are prevented or removed;
 - Services in respect of water, sanitation, electricity, roads, stormwater drainage and transport are provided in a manner which is economically efficient;
 - Section 11(1)(c) of the National Land Transport Act 5 of 2009 lists the responsibilities of municipalities in transport provision, and such would require municipalities to address the transport needs associated with WESS.
- The National Health Act 61 of 2003 notes that every metropolitan and district municipality must ensure that appropriate municipal health services are effectively and equitably provided in their respective areas. The Health Act defines ‘municipal health services’ as including: water quality monitoring; food control; waste management; health surveillance of premises; surveillance and prevention of communicable diseases, excluding immunisations; vector control; environmental pollution control; disposal of the dead; and chemical safety.
- The promulgation of the Disaster Management Act 57 of 2002 created roles and responsibilities

⁴ Environmental Conservation Act No 73 of 1989; National Environmental Management Act No 107 of 1998 and its regulations (NEMA); National Environmental Management Act: Air Quality Act No 39 of 2004; National Environmental Management: Biodiversity Act No 10 of 2004; National Environmental Management: Integrated Coastal Management Act No 24 of 2008; National Environmental Management: Protected Areas Act No 57 of 2003; National Environmental Management: Waste Act No 59 of 2008; National Forestry Act No. 84 of 1998; National Heritage Resources Act No 25 of 1999; National Water Act No 36 of 1998

⁵ Also refer to Sections 24(5) and 44 pertaining to Environmental Impact Assessments.

for Category A and C municipalities, who must develop the municipal disaster management framework to ensure an integrated and uniform approach to disaster management within the municipal area.

- In addition to being reflected in WSDPs, WESS also needs to take into account Spatial Planning and Land Use Management Act 16 of 2013⁶.

The following list covers all legislation of relevance in terms of the delivery of basic services in the built environment, and which has indirect or direct relevance to these model bylaws include:

General legislation and policy:

- The National Development Plan (NDP): Vision 2030;
- Broad-Based Black Economic Empowerment Act, 2003: Promotes economic inclusion in housing development;
- Expropriation Act, 13 of 2024: Mechanism for acquiring land for public purposes;
- Integrated Urban Development Framework (IUDF), 2016: Promotes sustainable and connected urban growth;
- Local Government: Municipal Systems Act, 2000: Strengthens municipal capacity to manage housing services;
- New Urban Agenda (2016): Promotes sustainable urban development globally; and
- Sustainable Development Goals (SDG 11): Focuses on inclusive and sustainable cities and housing.

Environmental, disaster and climate change legislation:

- Climate Act 2024: development of an effective climate change response;
- Disaster Management Act, 2002 (57 of 2002);
- Fire Brigade Services Act, 1987 (99 of 1987) (FBSA); and
- National Environmental Management Act (NEMA) (107 of 1998).

Financial legislation:

- Division of Revenue Act (DORA) (annual);
- Intergovernmental Fiscal Relations Act (97 of 1997);
- Municipal Finance Management Act, 2003 (56 of 2003); and
- Public Finance Management Act (PFMA).

Energy:

- Electricity Regulation Act (4 of 2006); and
- National Energy Act (34 of 2008).

Health:

- National Health Act, 2003;

⁶ Refer to S7 a (ii), S7 a (iv), S12 (1)h, Schedule 1 (g) and S53

Transport:

- National Land Transport Act (5 of 2009).

Planning:

- Spatial Planning and Land Use Management Act (SPLUMA), 2013; and
- Traditional leadership and communal areas: Traditional Leadership and Governance Framework Act, 2003.

Housing:

- Housing Act, 1997;
- Housing Consumer Protection Measures Act, 1998;
- Housing Development Agency Act, 2008; and
- Less Formal Township Establishment Act, 1991.

Waste:

- National Environmental Management: Waste Act 2008 (Act 59 of 2008) as amended by the National Environmental Management: Waste Amendment Act (26 of 2014) and the National Environmental Management Laws Amendment Act (25 of 2014).

The policy coordination of the various public organisations involved in the planning and delivery of basic services is essential. It is necessary to consider at least four mutually related factors that are required for bylaws development:

1. Physical infrastructure such as water supply, sanitation, roads, electricity and communications;
2. Social infrastructure, including schools, hospitals, clinics and welfare organisations;
3. Economic infrastructure, which is the employment, production and trading base, including access to markets and finance; and
4. Institutional infrastructure being organisational and civil administration structures at all levels. These should provide access to ordinary people to the processes of democratic local, regional and national government.



NOTE TO MUNICIPALITIES:

Relevant stakeholders should be identified by the municipality.

These could include:

- Traditional and Government authorities
- Community-based organisations such as churches, youth environmental groups, formalised non-governmental organisations
- Political leaders, e.g., ward councillors, MECs
- General members of the public
- Businesses and particularly sanitation service providers
- Industry associations
- Financial institutions and insurers
- Media

4. GENERAL

The Municipality of (“the municipality”) hereby publishes the Water Efficient Sanitation Solutions (WESS) Bylaws. They have been promulgated by the municipality in terms of section 156(2) of the Constitution of the Republic of South Africa, 1996, and in accordance with section 13(a) of the Local Government: Municipal Systems Act, 2000 (Act 32 of 2000).

These bylaws shall be operational from the date of their publication in the xx Notice.

5. DEFINITIONS AND TERMINOLOGY



NOTE TO MUNICIPALITIES:

These definitions have been extracted from the Revised Compulsory National Water and Sanitation Services Norms and Standards. Government Gazette 52814, No. 6292 gazetted on 6 June 2025.

Additional definitions can be included as required by each Municipality.

In this bylaw/sanitation policy, a word or expression to which a meaning has been assigned in the Act bears that meaning, and must be read in conjunction with the principal National Water Act, unless the context otherwise indicates.

‘Basic sanitation service’ means the provision of a basic sanitation facility which is environmentally sustainable, easily accessible and affordable to a household and a consumer, the sustainable operation and maintenance of the facility, including the safe removal of human waste, greywater and wastewater from the premises where this is appropriate and necessary, and communication and local monitoring of good sanitation, hygiene and related practices.

‘Consumer’ as defined in the Act.

‘Decentralised wastewater treatment system’ refers to various approaches for collection, treatment, and disposal/reuse of wastewater for individual dwellings, industrial or institutional facilities, clusters of homes or businesses, and entire communities. They provide a range of treatment options from simple, passive treatment with soil dispersal, commonly referred to as septic or on-site systems, to more complex and mechanized approaches such as advanced treatment units that collect and treat waste from multiple buildings and discharge to either surface waters or the soil. They are typically installed at or near the point where the wastewater is generated. These systems, when owned by the WSA and or its contracted Water Service Provider or Water Services Intermediary, as a part of their permanent infrastructure, can be managed as

stand-alone facilities. These systems, when privately owned, will need to be managed as stand-alone facilities by the infrastructure owners, operating as a Water Services Intermediaries with an SLA to the municipality and a water use authorisation in terms of the National Water Act.

'effluent' means human excreta, domestic sludge, domestic wastewater, greywater or wastewater resulting from the commercial or industrial use of water that has been treated to standards issued under the National Water Act prior to discharge.

'Front end' or user-interface means the toilet facility provided to or installed by the user.

'greywater' means wastewater resulting from the use of water for domestic purposes, but does not include human excreta.

'Off-grid wastewater treatment system' refers to a combination of sanitation technologies from the user-interface to the treatment unit that is not connected to any municipal water or electrical supply and reuses the treated liquid and/or solid output within the boundary of the property owner/body cooperation.

'Indigent households' are households lacking the necessities of life as defined by the Indigent Policy of the National Treasury.

'Informal settlement' means human settlement areas that do not comply with municipal town planning scheme requirements.

'Non-sewered sanitation system' refers to an ISO 30500 product that consists of a frontend (toilet facility) and backend (treatment unit) that collects, conveys, and fully treats the human excreta, flush water, anal cleaning material to allow for safe reuse or disposal of the generated solid and liquid outputs, and the safe emission of air, noise and odour outputs, and is designed to operate without being connected to a networked sewer or networked drainage systems.

'on-site sanitation' means a sanitation system in which excreta or wastewater is stored, collected and/or treated where they are generated in accordance with (e.g., on the property, community or in the household). This may include gravity sewers, settled sewers, or simplified sewer systems. 'Sanitation service chain' (or sanitation value chain) means human excreta captured, contained (pit or tank), emptied, transportation (of sludge), treatment, beneficial use or safe disposal of faecal sludge.

'SANS 30500' means the South African National Standard for non-sewered sanitation systems.

'the Act' means the Water Services Act, 1997 (Act No. 108 of 1997), as amended.

'the National Water Act' means the National Water Act, 1998 (Act No. 36 of 1998).

'User connection' means a connection through which a consumer can gain access to water

services or connect to sanitation services and includes a consumer installation and a bulk or communal connection.

'User sector' means the applicable category of users, being users categorised into at least either:

1. domestic.
2. industrial; or
3. commercial sectors.

'wastewater' means water from the domestic, commercial or industrial use of water containing waste or water that has been in contact with waste material.

'Water-efficient device' means a product that reduces the excessive use of water.

'Water-efficient sanitation solution' refers to sanitation systems that require low to no water, completely non-sewered, off-grid or decentralised and utilise technologies that include using water saving devices, water-efficient processes, and beneficial use of waste products.

"Water Services Authority" (WSA) as defined in the Act.

"Water Services Intermediary" as defined in the Act.

"Water Services Provider" as defined in the Act.

"Wastewater treatment system" means the pipes, sewers, pump stations and treatment work that collect, reticulate and treat wastewater from residents, businesses and industries before discharging or re-using the final treated effluent and biosolids.

"Wastewater treatment works" means a process, or combination of unit processes, undertaken to render effluent acceptable to return to the environment or for re-use. A wastewater treatment works includes, but is not limited to, conventional wastewater treatment works, oxidation ponds, package plants and reclamation plants.

6. TECHNICAL NORMS AND STANDARDS FOR WESS

As guided by the Revised Compulsory National Water and Services Norms and Standards (DWS, 2025).

1. In providing sanitation services to its citizens, a WSA must ensure that all users are provided with a safely managed sanitation service such that the treatment option selected facilitates full treatment of the specified input within the system to allow for safe reuse (recirculated water) or disposal of the outputs (effluent or ash).
2. The WSA must ensure that when selecting a WESS for high to medium density formal settlements and low density or sparsely populated settlements, population density and economies of scale are fully considered.

3. A signed application form must be submitted to the WSA by the WESS owner.
4. If the WESS is designed as a closed-loop system (i.e., not discharging but recirculating the treated effluent for toilet flushing), then that application is exempt from a water use licence.
5. If a WESS is reusing the treated effluent for irrigation onsite, then that system must at least adhere to and be monitored in accordance to the General Authorisations as listed in the Revised General Authorisations (DWS, 2013).⁷ All other reuse quality must adhere to the South African Water Quality Guidelines.⁸
6. A privately-owned WESS may only be installed on premises with the prior permission of the WSA. Installation of WESS must be done by a qualified plumber and/or electrician.
7. Whenever a WESS is installed at a single household, such systems must comply with the requirements of SANS 30500 for Class 1 or Class 2 NSSS. The WESS must be installed and maintained in accordance with the manufacturer's instructions, the National Building Regulations, as guided by SANS 10400 or any other relevant standard.
8. If permission for a privately-owned WESS for a premises (estate, green building or commercial building) is granted, the following conditions apply:
 - the developer must appoint a professional engineer or professional engineering technologist at the commencement of the project, and such professional engineer or professional engineering technologist –
 - is responsible for the design and selection of the WESS;
 - must supervise the construction, installation and commissioning of the WESS; and
 - is responsible for the operational control, monitoring and maintenance of the WESS for a period of five years in terms of a service contract to the satisfaction of the WSA.
 - the developer must lodge a financial guarantee with the WSA in an amount equal to 1.5 times the total cost of the WESS for a period of five years.
9. The WSA may prescribe additional requirements for privately-owned WESS.
10. If the WESS requires connection to the municipal electrical supply, then back-up power supply must be provided to ensure continuity of services.
11. A WESS operation must not be disturbed by any external source of electromagnetic field, nor must the electromagnetic field of the WESS disturb the operation of external electrical equipment.
12. If the WESS is connected to a municipal water supply, then backflow shall be prevented (installation of a non-return valve RPZ must be done). It is the responsibility of the owner of the WESS to ensure that alternative water storage devices such as rain water tanks are included in the system installation.
13. In the case where a WESS is a closed loop, then reuse pipes conveying treated effluent must be clearly marked.
14. End-user education must be done prior to and after each WESS installation to ensure safe use and operation of the system. Infographics and signs must be added to the system for alarms / when the system is not in operation due to maintenance or failure.
15. Maintenance activities must be in accordance with the manufacturer's instruction and the appropriate skill level and qualification must be employed in compliance to SANS 30500.

⁷ WSAs are allowed to enact stricter limits based on their local context.

⁸ South African Water Quality Guidelines (Volume 1: Domestic use. 1996); South African Water Quality Guidelines (Volume 2: Recreational Use. 1996); South African Water Quality Guidelines (Volume 3: Industrial Use. 1996).

16. Whenever a Water Services Provider or Intermediary is providing sanitation services using WESS that are outside the scope of a SANS 30500 product, then such systems must be managed by the guidelines provided in SANS 24521 or any other relevant standard.
17. If approved by the WSA, the developer of a new sectional title development or private township must, at his, her or its own cost, construct the WESS consisting of an approved sewage reticulation system, including any pump stations and rising mains, and wastewater treatment work which is adequate to serve all households and any common areas within the development as required.
18. Where the WSA's waterborne sewage collection network is available to serve the development, the developer must at his, her, or its own cost, connect the internal sewage reticulation system to the WSA's sewerage collection network.
19. Where the WSA's waterborne sewage collection network is not available to serve the development, the developer must install a suitable on-site privately-owned WESS.
20. The removal of waste sludge from the WESS should be arranged through a registered waste disposal contractor and disposed of in a manner that promotes sustainability (not into a sewer manhole or landfill) or in such a manner as approved by the Department of Water and Sanitation in consultation with the WSA Health Department. Sludge beneficiation options are encouraged. Adequate access to allow for the removal of waste sludge must be provided.



NOTE TO MUNICIPALITIES:

In addition to the municipality selecting through an open and transparent procurement process the specific water efficient products to be authorised for use in the municipality, the municipality must also authorise all public or private service providers undertaking maintenance activities to be undertaken in providing, maintaining and monitoring water efficient products.

Options available to the municipality:

- Full purchase and self-service
- Full purchase and service provider serviced
- Rental option for asset and service

7. FRAMEWORK FOR WESS MANAGEMENT AND OPERATION

The municipal bylaw should include guidelines for system use and maintenance by property owners and users that must be aligned with the National Building Regulations (NBR) and approval process.

As per the NBR, only SABS-approved products can be installed OR any technologies validated by the municipality in terms of the bylaws and regulations.

It must be stipulated that all WESS, household or communal sanitation on private property must receive Municipal approval in terms of building regulation statutes, as well as approvals from environmental health, water services and other key departments. This approval must also define regular monitoring and reporting to the municipality by the property owner or body corporation.



NOTE TO MUNICIPALITIES:

A WESS installation is considered an intermediary function – should follow the normal procurement processes. Such systems can be managed as Water Services Intermediaries.

The following elements must therefore be present before a person will be a water services intermediary:

- There must be an obligation to provide water services;
- The obligation must exist in terms of a contract, whether specifically agreed or implied; and
- The obligation to provide water services is not the main reason why a contract exists between the parties.

Examples of intermediaries are:

- Farm workers living on employers' farm: Employment contracts with farmers often state or imply that the farm worker may reside on the property, with such residence including provision of water services.
- Mines or other large industries' (e.g., Eskom, Transnet, Iscor, etc) workers living on employers' land usually located far from established settlements: Employment contracts often include housing with associated water services provision on the employer's land and housing compounds.
- Church-owned land (missionary towns developed and owned by churches): Employment contracts often include housing with associated water services provision on the employer's land and housing compounds.

- Property developers who develop and sell property services through WESS. Ownership of WESS can be transferred to body corporates after the development and sale of the estate.
- Body corporates of sectional title (flats and complexes including private residential estates), and lease agreements. Such contracts can state that the provision of water services to the leased property will be the responsibility of the lessor or lessee. Where the contract states that the lessee will be responsible for securing access to water services and such access can reasonably be secured, the lessor will not be a water services intermediary.

By its legal definition, intermediaries operate without a contract with the WSA by providing water services incidental to its main purpose and contract.

If the WESS is to be managed by the manufacturer or supplier of the WESS, then a Service Level Agreement must be in place for operation and maintenance of the WESS for a minimum of 3 years.



8. MONITORING, EVALUATION AND REPORTING



NOTE TO MUNICIPALITIES:

It must be decided where the regulatory responsibility for WESS should be located, i.e., in the building regulations division or the water services division. It is recommended that this should be established in water services department; however, whatever is chosen, the key requirement is that these units need to be well capacitated to execute these functions. If the WESS is located within the water services division and is reusing the treated liquid for irrigation, then it may be regarded as a water services works, in which case any organisation operating the WESS will need to comply with Regulation 3630 in terms of section 9 of the Water Services Act (Act 108 of 1997). If the WESS is a completely closed-loop system, then it may not be regarded as a water services works and compliance with Regulation 3630 may not apply.

According to Regulation 3630, any facility in South Africa that treats water and/ or wastewater – including non-municipal plants on mines, manufacturing sites, housing estates, etc. owned by the private sector – should comply with the following requirements:

- obtain a classification certificate (NB: this is not a water use licence) from the Department of Water and Sanitation (DWS)
- have process controller and operational & maintenance (O&M) support services in place, and
- employ or contract a registered professional process controller as supervisor.

The monitoring of WESS for compliance with the bylaw or policy shall adopt an adaptive management approach through an iterative process of decision-making in granting approvals and entering into agreements. Monitoring of a WESS must be conducted by a professional engineer or professional engineering technologist who is authorised by relevant authorities or the WSA, and will have overall responsibility for the control and monitoring of the WESS for compliance with relevant standards.

Samples must be analysed by a SANAS accredited laboratory. The results must be reported in writing by the laboratory directly to the WSA with a copy to the professional engineer / professional engineering technologist responsible for the operation and maintenance service contract for the WESS.

In the event of monitoring results reflecting non-compliance with effluent quality requirements, or in the event of specific incidents of plant or process failure or

malfunction having occurred, resulting in non-compliance, details of the steps taken to rectify the position shall be reported to the WSA immediately.

Financial Guarantees:

- The purpose of the financial guarantees through a bank is to hold the developer or other operator (for example the body corporate where they operate the system) responsible for the performance of the WESS, for at least a five-year period, for achieving compliance, at all material times. In the event that there is inadequate compliance with the GA the sum held under the bank guarantee may be used by the WSA to alter or replace all or part of the installed WESS.
- Single household installations will not require such a bank guarantee as it is the responsibility of the property owner / user of the WESS. The property owner or body corporate is responsible for insuring their WESS at the time of installation as part of their comprehensive homeowner’s insurance.
- The monitoring and compliance protocols to be applied to the Financial / bank guarantee will be based on a scientific assessment of both the WESS design and the performance of the system together with the risks to the receiving environment associated with any non-performance of the WESS. As such, the protocol might well vary from one situation to another taking into account the individual circumstances of a particular installation.

- For all WESS, performance monitoring must be conducted as per legislation or as stipulated by the WSA. Analysis needs to be done by accredited service provider. Data must be provided to the WSA within a month of sampling.
- Right of entry must be granted to the WSA for random inspection.
- An authorised official of the WSA may, when entering any property / premises–
 1. inspect, monitor or investigate any part of those premises relating to the installed WESS such as water supply, energy supply and / or drainage system as well as where chemicals of any nature are handled, stored or disposed of;
 2. question the owner or any occupier of the building;
 3. take photos of the premises;
 4. take samples;
 5. seize pertinent evidence relating to water quality; or
 6. do anything necessary to implement the provisions of this bylaw.
- The operation and maintenance of the WESS and all costs pertaining to it remain the responsibility of the owner of the premises, unless the WESS is subsidised as determined in accordance with the WSA’s bylaws relating to credit control and debt collection.
- All data must be uploaded on the WSA data management system within a month for performance tracking, compliance and scheduling of maintenance/repairs of individual systems.

- For safety compliance, the owner of the WESS must provide an annual compliance certificate to the WSA that is issued by an Independent Municipal Accredited Assessor.
- During the period of non-compliance, the WSA must be immediately informed and the mitigation measure must be communicated to the WSA within a week.
- If during a scheduled or unscheduled maintenance activity requires discharge from a privately-owned WESS and the quality does not comply with the General Limit Values as set by the Department of Water and Sanitation's General Authorisations in terms of Section 39 of the National Water Act, the WSA may instruct the owner of such plant to discharge into an approved WSA facility on such conditions as the WSA may prescribe.
- If it becomes apparent that a privately-owned WESS is not compliant with the water quality required for recirculation or reuse in irrigation set by the Department of Water and Sanitation General Authorisations in terms of Section 39 of the National Water Act, the WSA may instruct the owner of the plant to remove and replace the WESS at his or her own cost.
- If the owner fails to act within the required time, the WSA will remedy the situation and any costs incurred by the WSA in the course of remedying the contravention as contemplated in subsection (4), may be recoverable in terms of the Credit Control and Debt Collection Bylaw of the WSA, including use of the Bank guarantee and /or an additional fine deemed appropriate by the WSA.
- Impact of granted approvals will be evaluated and adjustment of such approvals will be implemented where necessary.
- The municipality's performance reporting system must be amended to include the monitoring of water-efficient sanitation and how this process would include municipal and non-municipal service providers in this process. Here, provision must be made for regular inspections and audits.

9. TARIFFING AND REVENUE

- Property owners serviced with WESS that is within the boundaries of their property and where there is no connection to the municipal sewer system must not be billed for sewage disposal tariffs. However, sewage disposal fees are applicable for greywater disposal if no on-site greywater treatment system is installed.
- Property owners serviced with WESS that is within the boundaries of their property and where there is a connection to the municipal sewer system, as an emergency, may be billed for availability charges related to sewage disposal tariffs but at a reduced rate as stipulated by the WSA.
- Property owners serviced with WESS that are connected to the municipal sewer system as an emergency are liable to pay the applicable sewage disposal fees.
- The municipality shall impose a fixed charge for monthly monitoring of every WESS to ensure regulatory compliance with relevant SANS product standards or irrigation limits.
- If the WESS is non-compliant, then it is the property owner's, body corporation's, or supplier, as per the agreement, who will be responsible for any penalties, fines, and remedial measures in terms of the bylaws for non-compliance and repair / replace the system as required.



NOTE TO MUNICIPALITIES:

The municipality's budgeting, tariffing and other financial bylaws or processes must include:

- Funding mechanisms for sanitation projects and validation testing, including subsidies and cost recovery.
- Tariff structures and user fees.
- Financial incentives for adopting sustainable sanitation solutions.
- Billing processes, such as for users or property owners serviced with water-efficient sanitation systems, are separate from the sewage disposal tariffs.

Fees can be charged according to licensing fees (service provider or owner of the product), monitoring fees (user for compliance) and penalties (if applicable). The WSA can decide on the bands for each category.

For new developments, fees can be costed based on value of the property.

10. PENALTIES, NON-COMPLIANCE AND ENFORCEMENT MANAGEMENT



NOTE TO MUNICIPALITIES:

Include mechanisms to address non-compliance; penalties for violations, such as improper waste disposal or unauthorised installations, and failed systems.

- The bylaw serves as an agreement between the WSA and its customers and may form the basis for legal enforcement should any of the parties not comply with the requirements of the bylaw.
- Non-compliance with this policy shall constitute an offense that will carry a penalty fine for WESS owners.
- Any person (user or owner of the WESS) who is convicted of an offence under this bylaw shall be liable to a fine of an amount not exceeding XX or to imprisonment for a period not exceeding three years, or to both such fine and imprisonment.

- Failure to comply with the terms of this bylaw or any terms of any condition or notice shall constitute a continuing offence, and a person failing to comply with the terms of such condition or notice shall be guilty of a separate offence for each hour during which he or she fails to comply with such terms.
- If a system is found to be in disrepair, the WSA will have the right to implement repairs and maintenance, and the WESS owner will be liable for the costs.
- The WSA will have the right to declare a site unsafe for use, in which case the owner will be liable for all costs associated with the decommissioning and provision of alternative sanitation services.

11. USER RESPONSIBILITIES

Ensuring standards and competency levels are met by service providers (such as plumbers and sampling and laboratory personnel) must be detailed in the bylaw. Provisions for reporting system failures or health hazards must be covered.

- For maintenance activities to be undertaken by the property owner or user, then such activities must be trained to the user through a user manual or engagement with the user upon installation of the WESS. The maintenance and user manuals must be available at the property at all times.
- The WESS owner must supply monthly reports to the municipality with respect to the WESS performance in terms of the Irrigation Limits (if reusing the treated effluent for irrigation on land up to 2 ML/d) or SANS 30500 (if recirculating the treated liquid for toilet flushing).



NOTE TO MUNICIPALITIES:

Municipalities need to make provision for a number of possible user groups. These would range from contexts where the facility is on private property and is owned, operated and maintained by a private sector company or individual. At the other end of the spectrum would be a publicly-owned facility, built, owned, operated and maintained by the municipality or other public sphere. In between these two areas where the user responsibilities are clear, there may be a range of possibilities, such as where a municipality may contract a private company to establish such a facility on state or even privately-owned land, such as in an informal settlement. In all of these contexts, the municipality would need to address the issues of who the users are who take responsibility for each step in the establishment, maintenance and renewal/upgrading of such a facility, including addressing establishment fees, servicing costs, tariffs, ongoing maintenance, monitoring and the like.

12 PROCESSES AND PROCEDURES FOR APPLICATION

The following implementation guide is proposed for a WSA to define requirements for implementation, management, oversight and regulation of WESS.

12.1 Application to the WSA

In the process of seeking planning permission and/or approval in terms of the NBR from the WSA in the case of a proposed development involving/requiring the provision of WESS or in the case of the proposed installation of a WESS on an existing (developed) property, an application must be made to the WSA for approval to install such a system.

Any approval that may be granted will be in writing and will be deemed to be subject to the conditions and minimum requirements detailed by the WSA, plus any other requirements that may be imposed in instances where special circumstances exist, as may be deemed necessary by the WSA.

If approved, the WSA will register the WESS and institute periodic inspection and sampling of the installed WESS for the purpose of effluent compliance auditing, for which a charge will be levied in accordance with the WSA's tariff of charges, including a fine as may be determined by the WSA. (Any further cost incurred by the WSA, such as additional audits due to non-compliance, will be at the rate based on the full cost for the service rendered, as required in the "Polluter Pays" principle of the National Environmental Management Act).

The development, together with all future extensions and/or alterations and/or sub-divisions, will be subject to the limitations imposed by the approval issued and the relevant bylaws.

12.2 Information to be submitted by the professional engineer / professional engineering technologist with the application

12.2.1 Relating to the developer and professional engineer / professional engineering technologist:

- Name and address of the developer;
- Name, Address and professional registration number of professional engineer / professional engineering technologist;
- Confirmation that his / her appointment covers the design/selection and supervision of the installation, construction and commissioning of the WESS;
- Confirmation that the developer agrees to issue the financial guarantee.
- Confirmation that the professional engineer / professional engineering technologist has been contracted to provide an operation and maintenance service for the first five years of

operation of the WESS; and

- Confirmation that the management rules of the Body Corporate in case of residential property, will incorporate a clause in this implementation guide, binding the Body Corporate for a service contract commitment not only for the first five years of operation but on an ongoing basis, for the life of the WESS.

12.2.2 Relating to the proposed development:

- Physical address of property/subdivision;
- Property description and size (area);
- Number of dwelling units proposed on the site;
- Description of dwelling unit type(s);
- Details of any industrial or commercial undertakings;
- Anticipated daily quantity of blackwater that will be generated on the development site;
- Anticipated daily quantity of greywater that will be generated on the development site;
- Estimated maximum instantaneous peak rate of inflow to the WESS;
- Plans to be submitted showing:
 - Position of all buildings; and
 - Position of the WESS and final discharge point/route of the treated effluent.

12.2.3 Relating to the proposed WESS:

- A clear description and/or illustration of the WESS, as well as descriptions/illustrations of the unit parts, including design capacity;
- A clear and detailed specification of the WESS intended purpose, its range of use, limiting factors, and operational criteria, which should include: geographic or geological conditions under which it may function; full application/design specifications in terms of hydraulic loading, biological loading, sizing of the units for applied loads and installation conditions.
- Names and addresses of the manufacturers/suppliers of the main components of the WESS;
- Estimated cost of design, supervision, installation, construction and commissioning of the WESS (the actual full cost is to be certified at time of commissioning);
- Measures to be taken to provide for mechanical, electrical, operational or process failure and malfunction of the WESS, including details of all back-up systems;
- Measures to be taken to avoid or mitigate nuisance or complaint arising from the operation of the WESS and to ensure protection of public health and safety, including the proposed method of disposal of WESS byproducts / waste materials (sludge, scum, membrane rejects);
- Measures to be taken to educate the users in order to ensure the optimal operations of the WESS. Flushing of pads and other materials (such as newspapers, anal cleaning cloth or plant leaves) that block and damage rotating equipment must be avoided, including biocidal materials such as detergents, unless otherwise accounted for in the WESS design and stated by the manufacturer.

13 CONCLUSION

South Africa's sanitation landscape is changing and the adoption of water-efficient sanitation solutions (WESS) offers the opportunity to provide sustainable sanitation delivery while also promoting resource recovery. This framework is intended to assist municipalities in managing such systems. However, this framework must undergo an extensive legal review to determine which sections can be translated into model bylaws.

14 SCHEDULES AND ANNEXURES

The bylaw must reference compliance with existing legislative and municipal regulations and policies in the following areas:

- Spatial planning and land-use – Planning for proper land-use for these technologies.
- Sanitation Tariffs – A framework for fair and affordable sanitation tariffs. - Proposed mechanisms for subsidising services for low-income communities and the provision of incentives (such as reduced sanitation charges) for middle to higher income communities/estates going off grid or who are adopting water-efficient processes.
- Templates for licensing applications, permits, and compliance checklists.
- Emergency Procedures and Risk Mitigation
- Outlined protocols for responding to sanitation-related emergencies.
- Assessment of potential risks and proposed measures to mitigate them.
- Rental and Service agreements
- Detailed technical specifications and guidelines.
- References to relevant national and international standards.

15 REFERENCES⁹

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⁹All relevant Acts and Regulations must be cited. These references are only limited to those cited in the text.







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