NYAHURURU WATER & SANITATION CO. LTD.

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METERING POLICY 2025

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Acronyms and Abbreviations

1.	NYAHUWASCO	-	Nyahururu Water and Sanitation Company
2.	WASREB	-	Water Services Regulatory Board
3.	NRW	-	Non Revenue Water
4.	JICA	-	Japan International Cooperation Agency
5.	DMA	-	District Metered Area
6.	CM	-	Commercial Manager
7.	TSM	-	Technical Services Manager

1. INTRODUCTION

1.1 Background

Nyahururu Water and Sanitation Co. Ltd was incorporated on 18th February, 2002 under the provisions of the then companies act later amended to companies Act, 2015.

1.2 **Mandate**

NYAHUWASCO is mandated to provide **safe, reliable, and sustainable water and sanitation services** within its **Service Provision Area (SPA)** in accordance with its **Service Provision License (SPL)** issued by the **Water Services Regulatory Board (WASREB)**. This mandate is derived from the following legal and regulatory frameworks:

1. **The Water Act, 2016** – Establishes the framework for water governance in Kenya, defining the roles of Water Service Providers (WSPs) and WASREB in ensuring efficient and sustainable water service delivery.
2. **Water Services Regulations, 2021** – Provides guidelines on licensing, service standards, and performance obligations for WSPs.
3. **Public Health Act (Cap 242)** – Mandates the provision of clean and safe water to prevent waterborne diseases and safeguard public health.
4. **Environmental Management and Coordination Act (EMCA), 1999** – Requires sustainable water resource management, pollution control, and environmental impact assessment for water and sanitation projects.
5. **WASREB Guidelines and Regulatory Notices** – Set standards for water quality, metering, billing, service delivery, and infrastructure development.
6. **County Governments Act, 2012** – Empowers County governments to oversee water service provision within their jurisdiction and ensure alignment with national policies.
7. **Kenya Standards (KEBS) for Water and Metering** – Prescribe the technical specifications for water meters, treatment processes, and service quality benchmarks.

In fulfilling this mandate, NYAHUWASCO is responsible for:

- **Water Supply & Distribution** – Ensuring efficient abstraction, treatment, and distribution of potable water.
- **Sanitation & Wastewater Management** – Providing proper collection, treatment, and disposal of wastewater.
- **Regulatory Compliance & Governance** – Adhering to WASREB performance standards and environmental regulations.
- **Customer Service & Public Engagement** – Ensuring accurate metering and billing, resolving customer issues, and promoting water conservation.
- **Infrastructure Development & Sustainability** – Expanding and maintaining water and sewer networks while integrating climate-resilient technologies.

By adhering to these laws and policies, NYAHUWASCO ensures sustainable service delivery, public health protection, and compliance with national and county government objectives.

1.3 **Vision: leading**

To be a World Class Utility Committed to Changing Livelihoods

1.4 **Mission:**

To provide clean and safe water, dignified sanitation and other related services in a socially, commercially, innovative and environmentally sustainable manner to the delight of our customers and other stakeholders

1.5 **Core Values:**

NYAHUWASCO is committed to efficient, transparent, and customer-centric metering services that enhance water resource management and ensure fair and accurate billing. The following core values underpin our metering policy, guiding our service delivery, stakeholder engagement, and operational excellence:

1. **Teamwork in Metering Services**
    - Fostering a collaborative approach among employees, customers, and stakeholders to enhance the efficiency of meter installation, reading, maintenance, and dispute resolution.
    - Promoting partnerships with regulatory bodies (WASREB, KEBS), suppliers, and enforcement agencies to uphold metering standards and best practices.
2. **Accountability & Transparency in Metering**
    - Ensuring openness in meter procurement, installation, maintenance, and billing processes to uphold integrity and public trust.
    - Providing customers with accurate consumption data and transparent billing procedures aligned with approved tariff structures and Service Charter commitments.
3. **Customer Focus in Metering Operations**
    - Delivering reliable, responsive, and customer-oriented metering services that promote fairness in billing and water consumption tracking.
    - Addressing customer concerns on meter accuracy, functionality, and reading disputes in a timely and professional manner.
    - Empowering customers with metering information and awareness to encourage responsible water use and compliance with metering policies.
4. **Innovation & Creativity in Metering Technologies**
    - Adopting modern metering technologies (e.g., smart meters, AMR systems) to improve accuracy, reduce Non-Revenue Water (NRW), and enhance real-time monitoring.
    - Continuously improving meter testing, calibration, and replacement strategies to optimize operational efficiency.
5. **Inclusivity & Diversity in Metering Services**
    - Ensuring equitable access to metering services across all customer segments, including low-income areas and informal settlements.
    - Promoting fair metering policies that accommodate differently-abled persons, institutions, and special consumer groups.

6. **Environmental Stewardship in Metering Practices**
    - Supporting water conservation initiatives by ensuring meters accurately track consumption and detect leaks.
    - Promoting metering solutions that reduce waste, such as prepaid meters and remote monitoring systems, to enhance sustainability.
7. **Resilience & Adaptability in Metering Management**
    - Proactively addressing challenges such as climate change impacts, vandalism, illegal connections, and regulatory changes to maintain service continuity.
    - Implementing adaptive strategies to upgrade and replace outdated meters, ensuring compliance with the Kenya Standard (KS) for water meters and other regulatory requirements.

By adhering to these core values, NYAHUWASCO ensures efficient, transparent, and customer-friendly metering services that promote accountability, sustainability, and fair water distribution.

The water supply area is within Nyahururu town and its environs, Rumuruti, Marmanet and Igwamiti schemes.

The Company acknowledges the importance of accuracy in quantifying Portable water produced and billing of water and sewerage services. The development of the **Policy Guidelines** is informed by the importance of efficient management of Water Meters which significantly impacts the Company's overall performance. The guidelines will form the basis of water meter procurement, usage and disposal.

The policy guidelines were developed with reference to WASPA guidelines on water meter management in Kenya (2015) and insights from JICA NRW project. The Company targets to ensure 100 % metering of all water connections in its area of supply.

1.6 Problem Statement

NYAHUWASCO is facing significant challenges in its metering processes, leading to inefficiencies, increased operational costs, and revenue losses. These challenges primarily stem from physical losses, inefficiencies in meter acquisition and installation, lack of customer awareness, undefined quality and standards for metering, limited awareness of procurement and disposal procedures, and the absence of a documented Standard Operating Procedure (SOP). Addressing these issues is critical to ensuring accurate water measurement, efficient service delivery, and financial sustainability.

1.6.1 Physical Losses and Commercial Losses

A considerable portion of Non-Revenue Water (NRW) results from both physical and commercial losses. Physical losses arise from improper meter installations, leading to leakages, while commercial losses stem from inaccurate readings caused by faulty installations, meter tampering, theft, and dead meters. Poor installation practices and lack of monitoring allow for continued undetected losses, impacting revenue collection and operational efficiency. Establishing

standardized installation procedures, regular meter audits, and a structured replacement plan is crucial to minimizing these losses.

1.6.2 Inefficiencies in Meter Acquisition and Installation

The process of acquiring and installing meters is often delayed due to lengthy procurement procedures, lack of prequalified suppliers, and inadequate stock management. These delays result in prolonged waiting times for new meter installations, replacements, and upgrades, affecting both service delivery and revenue collection. A structured procurement and installation framework is necessary to streamline these processes and ensure timely meter deployment.

1.6.3 Lack of Customer Awareness on Metering Rights and Obligations

Many customers lack adequate knowledge about their rights and responsibilities concerning metering. This has led to cases of unreported meter faults, unauthorized meter tampering, and disputes over billing accuracy. Without clear customer sensitization programs, the company struggles with compliance issues and increased NRW. Enhancing customer education on metering regulations, reporting mechanisms, and water conservation practices is essential to fostering accountability and trust.

1.6.4 Absence of Defined Metering Standards and Quality Control

The company lacks a comprehensive framework for defining the required standards and quality specifications for water meters. The absence of uniform guidelines on meter selection, calibration, and verification results in inconsistencies in accuracy, durability, and performance. Establishing clear metering standards, aligned with KEBS and WASREB regulations, will enhance reliability and ensure that only high-quality meters are deployed in the network.

1.6.5 Lack of Awareness of Procurement and Disposal Procedures

There is a limited understanding among relevant stakeholders regarding the procedures for procuring and disposing of water meters. This lack of awareness results in inefficiencies in meter lifecycle management, with obsolete and faulty meters remaining in circulation while new meters take too long to be procured and installed. Strengthening awareness of procurement and disposal procedures will ensure that metering infrastructure is properly managed, obsolete meters are phased out efficiently, and environmental considerations are upheld.

1.6.6 Absence of a Documented Standard Operating Procedure (SOP)

The lack of a documented Standard Operating Procedure (SOP) for metering processes has resulted in inconsistencies in meter installation, maintenance, and replacement practices. The absence of clear procedural guidelines affects operational efficiency, leads to errors in implementation, and

contributes to increased NRW. Developing a well-structured SOP will standardize metering activities, enhance accountability, and improve service quality.

Given these challenges, NYAHUWASCO requires a robust Metering Policy to standardize meter installation, streamline procurement, enhance customer awareness, enforce quality standards, improve awareness of procurement and disposal procedures, and document an SOP for all metering operations. By addressing these gaps, the company can improve operational efficiency, reduce NRW, and enhance service delivery to its customers.

1.7 Objective

This Policy aims to establish a structured framework for the management of meters and related accessories within the Company's service area. It provides a foundation for developing Standard Operating Procedures (SOPs) that define specifications, ensure the quality of equipment and workmanship, and uphold adherence to service timelines as outlined in the Service Charter.

The specific objectives of this Policy are:

1. **Standardization of Metering Practices** – Ensure that all water meters are installed, maintained, and replaced in compliance with industry standards and best practices.
2. **Quality Assurance and Compliance** – Define technical specifications and quality benchmarks for meters and accessories to guarantee accuracy, durability, and reliability.
3. **Fair and Transparent Billing** – Ensure that metering enables accurate measurement of water consumption, allowing customers to be billed fairly based on actual usage.
4. **Customer Rights and Responsibilities** – Outline the rights and obligations of both the company and its customers regarding meter ownership, maintenance, and data accuracy.
5. **Efficiency and Accountability** – Promote operational efficiency by reducing meter inaccuracies, minimizing water losses, and enhancing accountability in water consumption and billing.
6. **Service Commitment** – Reinforce the company's commitment to delivering timely and effective metering services in accordance with the Service Charter.
7. **Metering Policy Awareness** – Educate customers and stakeholders on the significance of metering, their roles in its maintenance, and the impact on water conservation and sustainability.

1.8 Scope

This Metering Policy applies to all aspects of water metering within NYAHUWASCO's service area. It provides a structured framework for the management, installation, maintenance, testing, and replacement of water meters, ensuring efficiency, accuracy, and compliance with regulatory requirements.

The policy covers:

1. **Meter Installation and Management:**
    - Guidelines for selecting and installing water meters for new and existing connections.
    - Standards for meter sizing, location, and protection.
2. **Meter Reading and Billing:**
    - Procedures for accurate and timely meter readings.
    - Mechanisms for handling disputed meter readings and billing complaints.
3. **Meter Maintenance and Replacement:**
    - Regular testing, servicing, and calibration of meters.
    - Replacement criteria for faulty or obsolete meters.
4. **Customer and Utility Responsibilities:**
    - Roles of NYAHUWASCO in ensuring metering integrity.
    - Customer obligations, including safeguarding meters and reporting faults.
5. **Compliance and Enforcement:**
    - Measures to prevent unauthorized meter tampering and illegal connections.
    - Enforcement actions against violations of metering regulations.

This policy applies to all domestic, commercial, industrial, and institutional customers served by NYAHUWASCO and aligns with national water sector regulations, industry best practices, and service level agreements.

1.9 Alignment with Strategic Objectives

NYAHUWASCO's Metering Policy is a fundamental pillar in achieving the company's long-term strategic objectives. By establishing clear guidelines for meter management, this policy ensures the efficiency, accuracy, and sustainability of water service delivery. It is designed to support the broader vision of increasing water access, reducing losses, improving revenue collection, and enhancing operational efficiency.

One of the company's core strategic goals is to increase access to clean and safe drinking water. The metering policy contributes to this by promoting the continuous mapping of low-income areas, enabling better service planning and targeted expansion of water infrastructure. Additionally, it facilitates the identification of unregistered customers through systematic customer surveys, ensuring that all potential consumers within the service area are accounted for and provided with reliable water connections.

A major challenge facing NYAHUWASCO is Non-Revenue Water (NRW), which the company aims to reduce from 38.4% to 29% by 2029. The metering policy plays a crucial role in this effort by emphasizing the replacement of faulty and aged meters, ensuring accurate billing, and minimizing losses due to leaks or theft. The adoption of GIS-based mapping of all customer meters is a key initiative under this policy, allowing for real-time monitoring of water distribution, quicker

identification of discrepancies, and enhanced enforcement against illegal connections and meter tampering. This proactive approach will significantly improve the integrity of the metering system and contribute to reducing NRW.

Financial sustainability is another critical focus area for NYAHUWASCO. The company seeks to enhance commercial and financial growth by improving meter reading efficiency. The metering policy supports this goal through the adoption of advanced metering technologies such as automated meter reading (AMR) and optical character recognition (OCR) systems. These technologies will not only improve the accuracy of meter readings but also enhance the efficiency of billing and revenue collection processes. Equipping meter readers with digital tools and ensuring regular updates of customer data will further streamline operations, reducing billing errors and improving customer trust in the metering system.

Beyond financial and operational improvements, the company recognizes the need for continuous organizational development and policy refinement. The metering policy aligns with NYAHUWASCO's commitment to best practices by advocating for regular reviews and updates of metering procedures. Benchmarking against industry standards and collaborating with relevant stakeholders will ensure that the company remains at the forefront of technological advancements and policy innovations in water metering.

By integrating these strategic objectives into its metering policy, NYAHUWASCO aims to enhance service delivery, strengthen financial sustainability, and improve overall efficiency in water management. The structured implementation of this policy will not only benefit the company but also ensure that customers receive reliable, accurately billed, and uninterrupted water services.

2. DEFINITIONS AND SPECIFICATIONS

2.1 Definition of Terms as used in this Policy

The following are definitions of devices and process referenced:

(i) **Water Meter** is a device used to measure the volume of water used in residential, commercial, institutional or industrial dwelling areas that are supplied with water by a public water supply system; or volume of raw water drawn from the source, volume of water produced in water treatment plant or volume of water supplied to a DMA (Zone)

(ii) **Water metering** is the process of measuring volume of water as explained in 2.1 (i).

(iii) **Bulk Water Meters** are used to measure amount of raw water drawn from the Source, amount of water produced at the water treatment plant and water supplied to District Metered Areas (DMAs) or water supplied to large consumers with water meters above DN 40mm.

(iv) **Non-Revenue Water (NRW)** refers to the portion of water that is produced by a utility but does not generate revenue because it is either lost before reaching customers or is supplied without proper billing. NRW includes physical losses (leakages, bursts), commercial losses (theft, unauthorized connections, inaccurate meters), and unbilled authorized consumption (such as water used for firefighting or public purposes).

(v) **District Metered Area (DMA)** is a defined and discrete section of a water distribution network that is isolated for monitoring and control purposes. By metering the flow of water into and out of the area, a utility can accurately monitor water usage, detect leaks, and manage water loss within that specific zone.

(vi) **Diameter Nominal (DN)** is a standardized term describing the nominal or approximate internal diameter of pipes, valves, or fittings in millimeters. It is a convenient reference used in engineering and piping systems to indicate the size of components without specifying exact measurements.

(vii) **Decommissioning of meters** refers to the formal process of removing water meters from active service due to reasons such as obsolescence, malfunction, end of operational life, or upgrades to newer systems. This process involves physically disconnecting the meter from the water network, assessing its condition, and determining whether it can be repaired, reused, or disposed of.

3. ROLES AND RESPONSIBILITIES IN WATER METER MANAGEMENT

Effective water service delivery is essential for ensuring sustainable access to clean and safe water, in line with the Water Act 2016 and the regulatory standards set by the Water Services Regulatory Board (WASREB). To achieve this, it is imperative to establish clear roles and responsibilities for both the Water Service Provider (WSP) and consumers in the management of water meters, as guided by the Kenya Standard (KS) for Water Meters and other relevant regulations. This document seeks to outline the specific duties of the water utility company and its customers to ensure the efficient operation, maintenance, and security of water meters.

The responsibilities outlined herein serve to promote accountability, reduce water losses, and enhance the accuracy of water billing. The water company is entrusted with the duty of ensuring that all authorized water connections are metered, that meters are regularly tested, serviced, and replaced when necessary, and that accurate meter readings are conducted in a timely manner. Furthermore, the company is required to maintain a comprehensive record of meter-related issues and uphold quality workmanship during installation and servicing.

On the other hand, customers play a crucial role in safeguarding their water meters, ensuring accessibility for maintenance and readings, and refraining from any tampering or unauthorized alterations. To protect the integrity of the water distribution system, strict measures are in place to address instances of meter tampering, illegal connections, and failure to comply with prescribed guidelines.

By adhering to these responsibilities, both the company and customers contribute to the efficient management of water resources, improved service delivery, and the sustainability of the water supply system.

3.1 Company's Responsibility

The Company must ensure:

(i) The rules listed in this policy are observed.
(ii) All authorized water connections within the supply area are metered.
(iii) Meter reading is carried out accurately and timely every month. Due consideration should be made to the meter reading schedule.
(iv) Meter testing is carried out both on regular and impromptu basis to ensure Meter accuracy is maintained. The regular testing schedule shall be as defined in the meter placement and maintenance standard operating procedure. Where a client doubts the accuracy of their Meter, tests shall be conducted upon a written request. A fee shall be prescribed for such activity.
(v) Meter servicing is carried out both on regular and impromptu basis to ensure that the Meter operates optimally. This frequency and procedure for this shall be defined in the standard operating procedure.
(vi) Meter replacement is carried out only by an authorized staff. If upon testing a Meter it is s found to be over-registering or under-registering, it shall be changed without additional

cost to the client. However, if a Meter is found to be within the acceptable error limits of + or – 5%, and the client demands for its replacement, the client shall pay for a new Meter. During the replacement, the artisan shall ensure Meter readings and serial numbers are updated in the Billing System to avoid errors.

(vii) All meter replacement to be undertaken by NRW /O&M units.

(viii) All staff are continuously trained on all issues appertaining to meter procurement, installation, maintenance and decommissioning

(ix) That a Meter issues register is maintained. This register shall include all issues noted to affect the proper functioning of all meters, customer and bulk water meters. Details to appear in the register shall be as prescribed in the standard operating procedure.

(x) The Company to contact customers 7 days post-installation to confirm there is no leakage.

(xi) The company will be required to provide company identification to its staff. The staff shall be required to provide the same identification to the customers.

(xii) The company shall be responsible for accurately geo-referencing all customer meters in its GIS database, integrating meter data with the billing system, ensuring regular updates and accuracy, enhancing network monitoring for efficient service delivery, supporting NRW reduction and infrastructure planning, improving customer engagement through spatial transparency, and complying with regulatory requirements to optimize water resource management.

3.1.1 Physical Alteration

Only authorized NYAHUWASCO staff has authority to physically alter an already installed water Meter to:

(a) Service
(b) Relocate
(c) Replace
(d) Test for accuracy
(e) Repair leaks at Meter connectors.
(f) Disconnection

The Company must ensure that workmanship during installation is as per standards prescribed in the Standard operating procedures. No leakage should be observed at the Meter after installation. This is to safeguard both the Company and Customer from water losses.

3.1.2 Physical Alteration of a Meter

Physical alteration of a Meter shall be conducted if:

(a) It fails a credibility test
(b) Accrued debts are unsettled. This is further elaborated in the Debt Recovery Policy
(c) A request for temporary disconnection is placed
(d) A request for permanent disconnection is placed.
(e) If a meter is beyond its life cycle or is unserviceable whichever comes first.

(f) The meter is observed to be improperly installed such that the installation may lead to Non-Revenue Water or the installation may lead to contamination of the water.

3.2 Responsibilities of a Customer

The customer shall ensure that:

(i) they have an authorized connection to the Company's water supply line.
(ii) The customer meter installation onto their property is done by authorized Company staff.
(iii) meter installation area is easily accessible to Company staff and kept clear to also facilitate easy reading.
(iv) a Metered standpipe is maintained if they have one.
(v) the security and costs thereof of the company staff within the customers premises shall be guaranteed by the owner of the premises.

3.2.1 Meter Security

It is the responsibility of the water account holder/property owner to ensure security of a Meter. If a Meter is stolen, the account shall be immediately disconnected. The account holder/property owner shall be required to settle any outstanding bill and pay for a new Meter before reconnection. Payment of the said new meter and its installation shall be at the prevailing market rate.

3.2.2 Safeguarding against tampering and damaging

(i) A customer must not tamper with an installed Meter. The following shall constitute meter tampering:
   (a) Removal of a Meter
   (b) Reversing of the direction of a Meter
   (c) Attaching magnetic devices on a Meter with magnetic transmission system and Willful damage of water Meter.
   (d) Or any other action that alters or limits the normal operation of the meter.

(ii) Any customer established to have tampered and/or deliberately damaged the Meter shall be surcharged. The amount charged shall be as prescribed in the approved tariff plus the estimated amount of water lost through the tampering. A committee comprising of members drawn from Billing, O&M and NRW sections, shall deliberate upon the estimated loss.

(iii) Where a customer is surcharged for Meter tampering, their water shall remain disconnected until the full amount is paid. If the customer fails to pay the charged amount within the stipulated time, other avenues of recovering the money shall be explored, including taking legal action.

(iv) Where a Meter is found to have been damaged, the account holder shall be required to pay for a replacement at the cost of a new Meter.

3.3 Illegal Connections

Illegal water and sewer connections pose a significant threat to the integrity of NYAHUWASCO's water supply and wastewater management system. Such connections lead to revenue losses, increased Non-Revenue Water (NRW), and potential contamination of the water supply network. To curb these practices and ensure compliance with legal and regulatory requirements, NYAHUWASCO shall enforce the following stringent measures, in alignment with the Water Services Regulations, 2021 and guidelines provided by the Water Services Regulatory Board (WASREB).

3.3.1 Identification and Immediate Disconnection

Whenever an illegal connection is discovered, NYAHUWASCO shall:

- Conduct immediate disconnection of the illegal supply, including any other water/sewer connections serving the same premises or homestead.
- Inspect the premises to assess the extent of unauthorized water usage and any possible damage to the water infrastructure.
- Document and report the incident, capturing photographic evidence and meter readings (if applicable) to support enforcement actions.

3.3.2 Penalties for Illegal Connections

Persons found guilty of making unauthorized water or sewer connections will face penalties as stipulated under WASREB guidelines and the applicable tariff regulations. The penalties include:

- **Domestic Users**:
    - A penalty of **KES 30,000** plus an estimate of the water consumed during the period of illegal connection.
    - Possible prosecution under applicable water service regulations.
- **Commercial, Industrial, or Construction Entities**:
    - A penalty of **KES 100,000** plus an estimate of the water consumed during the illegal connection period.
    - Immediate suspension of services until full settlement of penalties.
- **Sewer Connections**:
    - A penalty of **KES 100,000** shall be effected for Commercial, Industry and Construction.
    - For Domestic, Government, Schools, Universities & colleges penalty of **KES 30,000** shall be effected

3.3.3 Recovery of Unpaid Charges

If the culprit fails to settle the imposed penalties and estimated water consumption costs within the stipulated period:

- NYAHUWASCO shall escalate the matter through formal demand letters and, where necessary,
- Institute **legal proceedings** for the recovery of outstanding amounts.

- In cases involving fraudulent tampering of meters or bypassing of water supply infrastructure, the **Water Act, 2016** shall be invoked, leading to possible prosecution and additional penalties.

3.3.4 Preventive Measures and Public Sensitization

To prevent future cases of illegal connections, NYAHUWASCO will:

- Conduct public awareness campaigns to educate consumers on the dangers and legal implications of illegal connections.
- Strengthen enforcement units to regularly inspect, monitor, and investigate suspected cases of illegal usage.
- Enhance community engagement by encouraging whistleblowing and incentivizing informants who report cases of illegal connections.
- Utilize GIS mapping and smart metering technologies to track and detect unauthorized water usage efficiently.

3.3.5 Collaboration with Law Enforcement and Regulatory Agencies

NYAHUWASCO shall work closely with local authorities, law enforcement agencies, and WASREB to ensure:

- Swift legal action against offenders.
- Continuous review of enforcement policies to incorporate technological advancements and industry best practices.
- Strengthening of internal auditing mechanisms to prevent collusion and internal breaches in the metering process.

4. INTERNAL METERING PROCESSES

4.1 Acquisition, Storage and Issuance

4.1.1 Procurement of Meters and Installation Accessories

Each scheme shall prepare a procurement plan and submit it to the relevant head of department for inclusion in the overall procurement plan at the beginning of each Financial Year. The plan will be informed by growth projections and number of Meters requiring replacement. The Procurement Process shall strictly adhere to the Specifications as outlined in the Procurement Policy and the Public Procurement and Disposal Act 2015.

4.1.2 Technical Specifications of Water Meters

Water meters play a crucial role in ensuring accurate measurement, billing, and management of water consumption in both bulk and consumer applications. To guarantee efficiency, reliability, and compliance with national and international standards, it is essential that all meters procured and installed meet stringent technical specifications. These specifications ensure durability, accuracy, and compatibility with the existing water supply infrastructure, while also enhancing the prevention of water losses and unauthorized tampering.

This section outlines the mandatory technical requirements for bulk and consumer water meters, including certification, material composition, installation considerations, accuracy standards, and after-sale service provisions. By adhering to these specifications, NYAHUWASCO aims to enhance operational efficiency, improve revenue assurance, and provide customers with a high standard of service.

Technical Specifications of Bulk Water Meters

Table 1: Technical Specifications for Bulk Water Meters

TECHNICAL REQUIREMENTS	**DESCRIPTION FOR 50MM AND ABOVE BULK METERS**
Required Certificates	- ISO 9001-2008/2015 certified
	- Type approval certificate (either according to EN 14154, MID 2004/22/EC, ISO 4064 , or OIML R49)
	- Manufacturer's authorization
	- KEBS certificate
Type of Water Meter	Ultrasonic, Electromagnetic, and Mechanical Water Meters of high quality are acceptable
Installation Position	The water Meter must be capable of installation in Horizontal positions without compromise in its performance. The prove of this must be provided in the technical specifications brochure/sheet

TECHNICAL REQUIREMENTS	DESCRIPTION FOR 50MM AND ABOVE BULK METERS
Class of Water Meter	Meters with R valiue of 125 and above are recommended; Where R=Nominal Flow rate (Q3) /Minimum flow rate (Q1)
Sizing of Water Meter	Nominal pipe diameters 50 MM and above
Material Requirements	Flanged Epoxy coated cast Iron or Copper Alloy body
Maximum working Temperature	50 Degrees Celcius (T50)
Maximum Allowable Pressure (MAP)	16 BAR (PN 16)
Strainer	The water Meter MUST be installed with sieves/strainers
Calibration	The Meter shall be delivered calibrated with certificates
Markings	In addition to the inscription requirement in ISO 4064 (Marks and Inscriptions), the water Meter shall have the following markings clearly and indelibly marked on its body: (a) Nominal diameter; (b)Maximum allowable temperature (T50); (c) Maximum Admissible Pressure (MAP 16 BAR); (d) Direction of flow shown by an arrow; (e) Name and/or Trademark of the manufacturer; (f) Numerical value of Nominal Flow (Q3); (g) Letter V or H, if the Meter can only be operated in the vertical or horizontal position; (h) Meter serial Number (i) Furthermore, the abbreviation of NYAHUWASCO, or any other approved mark shall be engraved to reduce the chance of theft.
Meter Accuracy Testing	A water Meter shall be designated as accuracy class 2. This requires the Maximum Permissible Error (MPE) to be *±2 %* (for temperatures from *0.1 °C* to *30 °C* and *±3 %* for temperatures greater than *30 °C*) for the upper flow rate zone (Q3 & Q4). The MPE for the lower flow rate zone (Q1 and QT) shall be *±5 %*. During procurement, two Meter samples from each Tenderer shall be tested in an accredited facility. Any Meter that shall fail the accredited test shall be considered technically non responsive in the tendering process
After Sale service	The Meter shall have a warranty of at least 12 months from the date of supply. Availability of spare parts has to be proven. The supplier or the

TECHNICAL REQUIREMENTS	DESCRIPTION FOR 50MM AND ABOVE BULK METERS
	manufacturer should provide a complete list of available spare parts (in English), their specific costs (at the time of purchase) and delivery time. The supplier/manufacturer should guarantee the supply of spare parts for at least two years after the expiry of warranty. The name, address, and contact details of the local agent responsible for providing spare parts and maintenance shall be indicated. Operation and Maintenance manuals (in English) shall be provided.

Technical Specifications for Consumer Water Meters

Table 2: Technical Specifications for Consumer Water Meters

<table>
<tr><th>TECHNICAL REQUIREMENTS</th><th>DESCRIPTION FOR 15MM TO 40MM CONSUMER METERS</th></tr>
<tr><td rowspan="4">Required Certificates</td><td>- ISO 9001-2008/15 Certified</td></tr>
<tr><td>- Type approval certificate (either according to EN ISO 4064 from 2005 or 2014, or OIML R49 from 2003 or 2013)</td></tr>
<tr><td>- Manufacturer’s authorization</td></tr>
<tr><td>- KEBS certificate</td></tr>
<tr><td>Type of Water Meter</td><td>Volumetric, Ulstrasonic, elctromagnetic and Velocity Meters</td></tr>
<tr><td>Installation Position</td><td>The water Meter must have clear indication of installation position and its performance implication. Preferably, the Meter shall be capable of installation in Horizontal, Vertical and Inclined positions without compromise in its performance. Where performance of a specific Meter deteriorates with installation in a given position, such position must be avoided as much as is practically possible.</td></tr>
<tr><td>Class of Water Meter</td><td>Class C and above or R160 and above; Where R=Q3/Q1)</td></tr>
<tr><td>Sizing of Water Meter</td><td>The water Meter shall be sized to match the customers expected monthly consumption.
<table>
<tr><td>Meter Nominal Diameter (MM)</td><td>Recommended range of Monthly consumption (M^3)</td></tr>
<tr><td>15</td><td>0-100</td></tr>
<tr><td>20</td><td>101-170</td></tr>
<tr><td>25</td><td>171-260</td></tr>
<tr><td>40</td><td>261-420</td></tr>
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TECHNICAL REQUIREMENTS	DESCRIPTION FOR 15MM TO 40MM CONSUMER METERS
Material Requirements	CO-POLYMER (specially blended polymer), Painted cast iron or copper alloy body. Technical department to decide which type of body material to procure from time to time.
Maximum working Temperature	50 Degrees Celcius (T50)
Maximum Allowable Pressure (MAP)	16 BAR (PN 16)
Strainer and reverse flow Restricter	The water Meter MUST have in-built sieves/strainers and non-return valves/ mechanism
Tamper protection seals	A water Meter shall include protection devices which can be sealed so as to prevent, both before and after correct installation of the water Meter, dismantling or modification of the Meter, its adjustment device or its correction device, without damaging these devices. This can be done by sealing with a corrosive resistant wire or specially made plastic ribbon inserted through 2.5 mm diameter holes in the halves of the body, and secured by a circular sheet metal seal impressed by a device which provides a unique imprint on the seal.
Connection parts	Threaded Meters shall be supplied complete with a set of connectors that are made of copper alloy, special polymer, or equivalent material resistant to corrosion, rust and damage due to shock or vibration. The connectors shall be threaded to the correct male size, comprising cap nuts, linings and fibre sealing washers. The Meter linings shall have adequate provisions to safeguard against tampering.
Calibration	The Meter shall be delivered calibrated.
Markings	In addition to the inscription requirement in ISO 4064 (Marks and Inscriptions), the water Meter shall have the following markings clearly and indelibly marked on its body: (a) Nominal diameter; (b)Maximum allowable temperature (T50); (c) Maximum Admissible Pressure (MAP 16 BAR); (d) Direction of flow shown by an arrow; (e) Name and/or Trademark of the manufacturer; (f) Numerical value of Nominal Flow (Q3); (g) Letter V or H, if the Meter can only be operated in the vertical or horizontal position; (h) Meter serial Number (i) Furthermore, the abbreviation of NYAHUWASCO, or any other approved mark shall be engraved to reduce the chances of theft.
Meter Accuracy	A water Meter shall be designated as accuracy class 2. This requires the

TECHNICAL REQUIREMENTS	DESCRIPTION FOR 15MM TO 40MM CONSUMER METERS
Testing	Maximum Permissible Error (MPE) to be ±*2 %* (for temperatures from *0.1 °C* to *30 °C* and ±*3 %* for temperatures greater than *30 °C*) for the upper flow rate zone (Q3 & Q4). The MPE for the lower flow rate zone (Q1 and QT) shall be ±*5 %*. During procurement, two Meter samples from each Tenderer shall be tested in an accredited facility. Any Meter that shall fail the accredited test shall be considered technically non responsive in the tendering process.
After Sale service	The Meter shall have a warranty of at least 12 months from the date of supply. Availability of spare parts has to be proven. The supplier or the manufacturer should provide a complete list of available spare parts (in English), their specific costs (at the time of purchase) and delivery time. The supplier/manufacturer should guarantee the supply of spare parts for at least two years after the expiry of warranty. The name, address, and contact details of the local agent responsible for providing spare parts and maintenance shall be indicated. Operation and Maintenance manuals (in English) shall be provided.

NB. Large consumers who require Meter sizes 50mm and above appropriate Meter size shall be determined and such Meter shall fall under the bulk Meter category.

4.2 Receiving of Meters at the Central Store

(i) Receiving of new Meters in the Company's main store located at Nyahururu town shall be carried out during official working hours i.e. Monday to Friday, between 8.00am – 5.00pm.

(ii) Upon receipt, the Meters shall be inspected and received by an Inspection and Acceptance Committee appointed in writing by the Managing Director.

(iii) The committee shall consist of minimum of three (3) members and not more than five (5). The minimum three (3) shall be drawn from the following Departments:
   a) Technical-1
   b) Stores-1
   c) Commercial 1
   d) The remaining two (2) members can be drawn from any department within the Company at the discretion of the Managing Director.

(iv) The Inspection and Acceptance committee shall verify the delivered Meters against the set specifications.

(v) A sample of at least 2 meters of the delivered consignment shall be picked randomly and taken to an accredited facility for testing to ascertain their accuracy and functionality

(vi) If a Meter fails the accredited test for accuracy, the whole consignment shall be rejected and the supplier shall collect them at their own cost.

(vii) When the Meters meet all the requirements, they shall be received and entries made in the stores records, then stored accordingly.

4.3 Issuance from Store

The following are guidelines on how Meters will be issued from:

(i) The main stores to the Schemes.
(ii) Stores within the scheme to the Metering staff assigned to carry out installation.

4.3.1 New Issuance

The following procedure shall be followed during the issuance of new meters from the stores:

(i) Respective Scheme shall submit a Requisition Form, duly signed by Scheme Manager, and approved by the Commercial Manager.
(ii) The Storekeeper shall raise a delivery note and issue the requested quantities.
(iii) The Storekeeper shall ensure the Meters are issued in lots with serial numbers arranged sequentially.
(iv) The Scheme Manager will receive the Meters and ascertain correctness and sign the delivery note in duplicate. The issued copies shall be kept as follows:
    (a) Original – Store
    (b) Copy – Scheme
(v) The store keeper shall maintain an accurate record of number of meters received, meters Issued and Balances.

4.3.2 Replenishment

The following procedure shall be followed while replenishing stocks at the schemes:
Respective Scheme shall **submit a Requisition Form**, duly signed by the Scheme Manager.
Scheme Manager shall account for all Meters issued previously. This should include:

i) Meter Serial number.
ii) Service order number.
iii) Customer account number and date of installation.
iv) Scheme Manager shall also account for Meters replaced and include:
v) The serial number of Meter replaced.
vi) Serial number of the new Meter.
vii) Service order number.
viii) Customer details and date of installation.
ix) Reason for replacement and supporting documentation.

4.4 Issuing Meters to artisans for installation

(i) When a new Customer pays the requisite fees, the system shall automatically assign an account number, generate a requisition form and match the account number with the meter serial number.

(ii) The Revenue officer shall retrieve and print the Requisition Form from the system and the Revenue Officer shall approve it and pass it to the Officer in Charge of O&M section. The Officer shall assign the connection task to an artisan who shall then forward a dully approved requisition to the stores to obtain a meter.
(iii) The Stores officer shall issue the meter with issuance document bearing the date, meter serial number, service order, GPS location coordinates of the proposed meter point and consumer water account number to the artisan assigned to carry out the installation.
(iv) Bulk meters shall be requisitioned by the NRW Unit with approvals from the relevant officers.
(v) All issued meters must be correctly sized, according to their application.

4.5 Installation

4.5.1 Installation of Bulk Meters

Bulk water Meters measure the volume of water supplied to the entire supply system and to each of the four schemes and DMAs. Each scheme is divided into hydraulically isolated DMAs. All bulk meters to be installed by NRW team.

The following are the minimum requirements for the installation of bulk water Meters:

(i) Bulk water Meter must be installed at:
  (a) Exit pipes of clear water tanks at water treatment works.
  (b) The delivery pipe at the intake pump station
  (c) All pipe entry points to a District Metered Area (DMA/ZONE)
  (d) Exit points of Main storage water tanks such as the High level tank and elevated steel tanks.

(ii) All bulk Meters to be installed in lockable masonry chambers.
(iii) All bulk Meters to be installed as per the manufacturers' installation guidelines.
(iv) Artisan to ensure the workmanship is of high standard and there is no leakage.
(v) All bulk Meters to undergo periodic testing; at least once every quarter.
(vi) Where a bulk Meter is found to give erroneous readings, it shall be replaced immediately if it is not repairable.
(vii) It is the responsibility of Scheme Managers to ensure zonal Meters in their areas of supply are maintained by adhering to service schedules and keeping accurate records of the same.

4.5.2 Consumer Meter Installation

The following procedure shall apply to all consumer meter installations:

(i) There shall be a dedicated team of artisans drawn from O&M team for new consumer meter installations in all schemes. When a prospective customer expresses interest for a water connection, the team shall visit the Customer's premises/site and assess the technical viability and materials required.

(ii) Upon confirmation of the viability, the prospective customer will fill and submit an application form and pay the requisite charges.
(iii) The Company shall provide a Meter and its accessories.
(iv) The accessories in (iii) above shall be determined by the nature of connection. Nevertheless, the accessories will entail the bare minimums that will ensure the meter is installed.
(v) The Customer shall be required to provide all other pipes and fittings associated with the connection as directed by the Company.
(vi) The Meter shall be installed within 3 working days subject to the above conditions.

4.5.3 Rules Governing Consumer Meter installation

The following Rules apply to all consumer meter installations:

(i) Only qualified and authorized NYAHUWASCO artisans can install a water Meter.
(ii) In as much as is practically possible, water Meters to be installed in horizontal positions.
(iii) No velocity Meter shall be installed vertically or in inclined positions.
(iv) Where space constrictions demand that a water Meter be installed vertically, only volumetric or ultrasonic Meters shall be installed.
(v) All water Meters to be installed near the easily accessible property boundary, preferably within 1m and not more than 2 Meters from the boundary.
(vi) Every metered connection must have two gate valves; one immediately after the Tee/ Saddle clamp and the other one just before the Meter.
(vii) All Meters to be installed such that the inlet riser and outlet riser are at least 300 mm from the ground surface.
(viii) When the artisan installs the Meter, they must make sure there is a 300 mm gap around it and that it is accessible for easy reading and servicing.
(ix) In properties with many dwelling units, the property owner shall install one Meter for the entire property.
(x) The artisan to ensure the workmanship is of high standard and there are no leakages at the Meter by testing using a portable hand pump.

4.6 Decommissioning And Disposal Of Water Meters

It should be noted that the procedures in this section draw authority from the Public Procurement and Disposal Act 2015. As such this section should be read together with and implemented in accordance with the procurement policy.

4.6.1 Decommissioning of Meters

Decommissioning shall be deemed necessary where water meters have been deemed obsolete, unserviceable, or beyond economical repair. Meters that have reached the end of their operational life or are no longer serviceable must be decommissioned following strict internal controls. The steps include:

1. **Evaluation and Approval for Decommissioning**:

Meters slated for decommissioning will undergo a thorough technical evaluation. This evaluation will determine if the meter is beyond its life cycle, malfunctioning, or obsolete due to newer technology. Based on this, a condemnation report must be generated as justification for decommissioning. Only upon approval from the relevant technical and procurement committee, as outlined in **Part XIII of PPDA 2015**, can meters be formally decommissioned.

2. **Disconnection and Documentation**:
   Decommissioned meters shall be safely disconnected and returned to the main store. The store personnel must verify the meter details against the system records, ensuring serial numbers and other metadata are correct and communicate the verified information to the billing department. The meter's removal shall be recorded by the billing personnel in the company's asset management system to ensure it is properly accounted for.
3. **Replacement of decommissioned Meters.**
   Where a decommissioned Meter is replaced, details of the new Meter shall be uploaded and records updated accordingly. The stores personnel shall perform due diligence to ascertain conformity of the returned Meters to their respective details as captured in the system and as guided by the serialization in the system. Replacement of a meter shall not be effected until the other Meter has been removed from the company's management system.
   A report of the replaced Meters shall be generated on monthly basis.

4.6.2 Disposal of Meters

The disposal of decommissioned meters shall follow the Public Procurement and Asset Disposal Act, 2015 (PPDA 2015) regulations and must comply with all relevant environmental and asset disposal standards:

1. **Approval for Disposal**:
   After meters are decommissioned, they shall be submitted to the stores accompanied by the condemnation report. The Disposal Committee shall review the request and authorize the disposal process following Section 163 of PPDA 2015, ensuring transparency and due diligence.
2. **Modes of Disposal**:
   a) **Plastic Meters**: All plastic meters shall be disposed of through incineration at the sewerage treatment plant in line with manufacturer guidelines.
   b) **Metallic Meters**: Metallic meters, once decommissioned, shall be treated as scrap metal and disposed of accordingly through sale, adhering to the Public Procurement and Disposal Act, 2015, and its accompanying regulations.
3. **Record Keeping and Reporting**:
   As per the Procurement policy A disposal report shall be generated monthly and submitted for auditing purposes. This report will detail the disposal method, quantities, and financial outcomes if applicable, in accordance with Section 168 of PPDA 2015. Proper records shall be maintained for audit trails and legal compliance.
4. **Prohibition of Internal Sales**:
   No decommissioned meters shall be sold to employees or internal stakeholders to ensure the process is free from conflicts of interest, as per Section 176 of PPDA 2015.

4.7 Reports

To ensure effective monitoring and management of water meters, each scheme is required to maintain accurate records and submit detailed monthly reports. These reports play a critical role in tracking meter performance, stock levels, maintenance activities, and compliance with service standards. Proper documentation and reporting also enhance accountability, facilitate decision-making, and improve overall service delivery. The specific procedures for record-keeping, reporting, and monitoring shall be outlined in the Standard Operating Procedures (SOPs) to ensure consistency and adherence to best practices.

Each scheme must ensure that it:

1. **Maintains updated records on the maintenance and servicing of bulk and customer meters**
    - Each meter's maintenance history must be recorded, including installation dates, service schedules, and calibration logs.
    - Meter testing dates must be documented to ensure compliance with regulatory requirements and performance standards.
    - Any repairs, replacements, or adjustments made to meters should be accurately logged, specifying the issue, action taken, and the responsible personnel.
2. **Maintains an accurate inventory of meters, ensuring that records match the physical stock**
    - A centralized meter database must be maintained, listing all installed and stored meters, along with their specifications and statuses.
    - Regular stock reconciliations should be conducted to verify that physical meter counts match recorded inventory levels.
    - The inventory should include details on meter acquisitions, installations, replacements, and retirements, ensuring full lifecycle tracking.
3. **Maintains a meter issue register to track reported problems and resolution status**
    - The register should document all reported meter-related issues, including meter failures, inaccuracies, leaks, and tampering cases.
    - Each issue must be assigned to a specific personnel member or team for resolution, with clearly defined timelines.
    - The status of each issue—whether pending, under review, or resolved—must be updated regularly to ensure timely action and prevent prolonged service disruptions.
    - The register should include customer complaints related to metering, ensuring follow-up and feedback mechanisms are in place.
4. **Prepares and submits a comprehensive monthly report to the Commercial Manager (CM)**
    - The report should provide meter usage trends and consumption analysis, highlighting variations and potential discrepancies that may indicate leaks or illegal connections.
    - Stock levels, acquisitions, and disposals must be clearly outlined, detailing the number of meters procured, installed, or removed from service.

- A summary of identified maintenance issues and their resolution status should be included, providing insights into common faults and efficiency of the repair process.
- The report must document compliance with scheduled service and calibration timelines, ensuring that meters are maintained in accordance with regulatory and operational standards.
- Any operational challenges encountered in meter management should be highlighted, along with recommendations for improvements to enhance efficiency and service quality.

The specific procedures governing these reporting and record-keeping requirements shall be detailed in the Standard Operating Procedures (SOPs). These SOPs will serve as a reference for staff to ensure uniformity, efficiency, and regulatory compliance in all aspects of meter management.

This data should form part of the information included in the quarterly Technical Report.

5. PUBLIC AWARENESS AND EDUCATION

To promote effective water metering and responsible water consumption, NYAHUWASCO shall conduct public awareness campaigns to educate consumers and stakeholders on:

- The importance of accurate metering for fair billing and sustainable water management.
- The procedures for meter installation, maintenance, and replacement, including reporting faulty meters.
- Consumer rights and obligations regarding water meter use, access, and tampering policies.
- The standards and specifications of approved water meters to ensure quality and efficiency.
- The company's procurement and disposal procedures for metering infrastructure, ensuring transparency and accountability.

Public awareness efforts shall be conducted through community meetings, radio programs, printed materials, social media campaigns, and educational partnerships with local institutions.

5.1 Complaints and Feedback Mechanism

NYAHUWASCO shall establish a structured feedback mechanism to address stakeholder concerns and complaints related to metering, billing, and service delivery. This includes:

- A dedicated complaints desk for reporting faulty meters, billing discrepancies, and unauthorized meter activities.
- An online feedback portal and email system for submitting metering-related inquiries and concerns.
- A customer service hotline for prompt responses to metering and billing complaints.
- Regular public engagement forums to review feedback, address challenges, and improve service delivery.

By strengthening stakeholder engagement and public awareness, NYAHUWASCO aims to enhance compliance, improve meter accuracy, reduce water losses, and ensure transparent service delivery.

6. REVIEW OF THE POLICY

This policy shall be subject to periodic review to ensure it remains aligned with prevailing legal frameworks, regulatory requirements, and industry best practices in water metering. The review process shall take into account:

- **Changes in national and county water regulations**, including amendments to the Water Act 2016, Public Procurement and Disposal Act (PPDA) 2015, Water Services Regulations 2021, and other relevant legal provisions governing metering and billing.
- **Updates in regulatory guidelines from WASREB, KEBS, and other oversight bodies**, ensuring that metering standards, accuracy requirements, and procurement procedures comply with the latest industry benchmarks.
- **Technological advancements in metering systems**, including the adoption of smart metering technologies, remote monitoring solutions, and enhanced data management practices.
- **Operational challenges and stakeholder feedback**, incorporating insights from customers, meter technicians, billing teams, and regulatory agencies to improve service efficiency and transparency.
- **Performance audits and compliance assessments**, conducted periodically to evaluate the effectiveness of the metering policy in reducing non-revenue water (NRW), improving billing accuracy, and enhancing customer satisfaction.

Policy amendments shall be undertaken through a structured review process involving technical experts, regulatory authorities, and key stakeholders to ensure that any revisions enhance service delivery, promote accountability, and support NYAHUWASCO's strategic objectives.

7. APPROVAL

Title: **Metering Policy 2025**

Approval Authority **Nyahuwasco Board of Directors**

Vide Board Meeting held on this day ----------of ---------- 20 ------- Minute Number: --------

Signed by:

1. **Bernard Mwaura** **Sign: _____** **Date: _____**
   Managing Director

2. **Fr. David Munyeki** **Sign: _____** **Date: _____**
   Chairman Board of Directors