

# DADAAB WATER & SANITATION CO. LTD.

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# **METERING POLICY 2021**

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## Acronyms and Abbreviations

Dadaab Water and Sanitation Company 1. DAWASCO -Water Services Regulatory Board 2. WASREB -3. NRW -Non-Revenue Water 4. DMA **District Metered Area** -5. CM **Commercial Manager** -**Technical Services Manager** 6. TSM -

#### 1. INTRODUCTION

## 1.1 Background

Dadaab Water and Sanitation Co. Ltd was incorporated on 29<sup>th</sup> February, 2020 under the provisions of the Companies Act, 2015.

### Mandate

The company's broad mandate is to provide water and sewerage services within its Service Provision Area.

#### Vision:

To be the leading water and sanitation service provider in Kenya

#### Mission:

To offer our customers high-quality water and sanitation services in the most efficient and cost effective manner"

#### Core Values:

Customer focus
Competence and professionalism
Transparency and accountability
Integrity
Innovation and Creativity
Environmental conscience

The water supply area is within Dadaab municipality and its environs.

The Company acknowledges the importance of accuracy in quantifying clean 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). The Company targets to ensure 100 % metering of all water connections in its area of supply.

## **1.2 Problem Statement**

The company lacks clear and standard guidelines and procedures for management of processes of acquisition, installation, and disposal of water meters. This has led to challenges like incomplete records, missing or mismatching serial numbers, low quality and improper positioning of Meters thus predisposing connections to illegal by-passes and tampering. Other aspects include poor workmanship during meter installation and a lack of clarity on the rights and responsibilities of the Company and Customers.

### 1.3 Objective

This Policy aims to provide a structured framework for managing Meters and related accessories within the Company's area of supply. It provides Standard Operating Procedures by defining specifications and quality of equipment and workmanship as well as ensuring adherence to the timelines as per the Service Charter. The Policy enlightens the company and customer of their rights, and responsibilities and promotes accountability.

## 1.4 Scope

This policy applies to Meters installed by DAWASCO and covers;

- (i) Definitions and specifications
- (ii) Acquisition
- (iii) Issuance
- (iv) Installation
- (v) Responsibilities for the Company
- (vi) Responsibilities for the Customer
- (vii) Disposal
- (viii) Policy Review

#### 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 buildings 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 zones.

# 2.2 Technical Specifications of Bulk Water Meters

TECHNICAL REQUIREMENTS	DESCRIPTION FOR 50MM AND ABOVE BULK METERS
	- ISO 9001-2008/2015 certified
Required Certificates	<ul> <li>Type approval certificate (either according to EN 14154, MID 2004/22/EC, ISO 4064 , or OIML R49)</li> <li>Manufacturer's authorization</li> </ul>
Type of Water Meter	Ultrasonic, Electromagnetic, and Mechanical Water Meters are 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
Class of Water Meter	Meters with R value of 160 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 Celsius (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 DAWASCO, or any other approved mark shall be engraved to reduce the chance of theft.
Meter Accuracy	A water Meter shall be designated as accuracy class 2. This requires the Maximum Permissible Error (MPE) to be $\pm 2.\%$ (for temperatures

Table 1: Technical Specifications for Bulk Water Meters

TECHNICAL REQUIREMENTS	DESCRIPTION FOR 50MM AND ABOVE BULK METERS
	from 0.1 °C to 30 °C and $\pm 3$ % 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 $\pm 5$ %. During procurement, two Meter samples from each Tenderer shall be tested in an accredited facility. Any Meter that fails 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. The 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 supplyof spare parts for at least two years after the warranty expiry. 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.

# 2.3 Technical Specifications for Consumer Water Meters

TECHNICAL REQUIREMENTS	DESCRIPTION FOR 15MM TO 40MM CONSUMER METERS	
	- ISO 9001-2008/15 Ce	rtified
Required Certificates	- Type approval certifi from 2005 or 2014, o	cate (either according to EN ISO 4064 r OIML R49 from 2003 or 2013)
	- Manufacturer's autho	orization
	- KEBS certificate	
Type of Water Meter	Volumetric, Ultrasonic, electromagnetic and Velocity Meters	
Installation Position	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.	
Class of Water Meter	Class C and above or R160 and above; Where R=Q3/Q1)	
Sizing of Water Meter	The water Meter shall be sized monthly consumption. Meter Nominal Diameter (MM)	to match the customers expected Recommended range of Monthly consumption (M <sup>3</sup> )

Table 2: Technical Specifications for Consumer Water Meters

TECHNICAL REQUIREMENTS	DESCRIPTION FOR 15MM TO 40MM CONSUMER METERS		
	15	0-100	
	20	101-170	
	25	171-260	
	40	261-420	
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 Celsius (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 that can be sealed 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 that provides a unique imprint on the seal.		
<b>Connection parts</b> Threaded Meters shall be supplied complete with a set of c that are made of copper alloy, special polymer, or equivalen resistant to corrosion, rust, and damage due to shock or vibr connectors shall be threaded to the correct male size, comp nuts, linings, and fiber sealing washers. The Meter linings adequate provisions to safeguard against tampering.		ied complete with a set of connectors special polymer, or equivalent material damage due to shock or vibration. The the correct male size, comprising cap washers. The Meter linings shall have d against tampering.	
Calibration	The Meter shall be delivered cal	ibrated.	

TECHNICAL REQUIREMENTS	DESCRIPTION FOR 15MM TO 40MM CONSUMER METERS
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 DAWASCO, or any other approved mark shall be engraved to reduce the chances of theft.
Meter Accuracy Testing	A water Meter shall be designated as accuracy class 2. This requires the Maximum Permissible Error (MPE) to be $\pm 2$ % (for temperatures from 0.1 °C to 30 °C and $\pm 3$ % 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 $\pm 5$ %. During procurement, two Meter samples from each Tenderer shall be tested in an accredited facility. Any Meter that fails 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. The 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 supplyof spare parts for at least two years after the expiry of the 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.

# 3. ACQUISITION, STORAGE AND ISSUANCE

# **3.1 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 to be replaced. The The procurement process shall strictly adhere to the Specifications as outlined in the subsections 2.2 and 2.3 above; and the Public Procurement and Disposal Act 2015.

## **3.2 Receiving of Meters at the Central Store**

- (i) Receiving of new Meters in the Company's main store located at Dadaab town shall be carried out during official working hours i.e. Monday to Friday, between 8.00 am – 5.00 pm.
- (ii) Upon receipt, the Meters shall be inspected and received by the Inspection and Acceptance Committee appointed in writing by the Managing Director.
- (iii) The committee shall consist of a minimum of three (3) members and not more than five(5).A minimum of three (3) shall be drawn from the following Departments:
  - a) Technical-1
  - b) Stores-1
  - c) Finance and Administration-1
  - d) The other 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 store records.

## 3.3 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 the installation.

## 3.3.1 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 triplicate. The issued copies shall be kept as follows:

- (a) Original Store
- (b) Copy Scheme
- (c) Copy Billing office for inputting into the system.
- (v) The Store-keeper shall maintain a record of the balances available against each Scheme's procurement plan.

## 3.3.2 Replenishment

The following procedure shall be followed while replenishing stocks at the schemes:

- (a) Respective Scheme shall submit a Requisition Form, duly signed by the Scheme Manager.
- (b) The 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.
- (c) The Scheme Manager shall also account for Meters replaced and include:
  - (i) The serial number of the Meter replaced.
  - (ii) Serial number of the new Meter.
  - (iii) Service order number.
  - (iv) Customer details and date of installation.
  - (v) Reason for replacement and supporting documentation.

## 3.4 Issuing Meters to plumbers for installation

- (i) When a new Customer pays the requisite fees, the system shall automatically assign an account number, a Meter number and generate a requisition form.
- (ii) The Revenue officer shall retrieve and print the Requisition Form from the system and the Chief 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 a plumber who shall then forward the 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 Plumber assigned to carry out the installation.
- (iv) Bulk meters shall be requisitioned by the NRW Unit with approvals from the Technical Services Manager.

## 4. INSTALLATION

## 4.1 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 are to be installed by the 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 elevatedsteel tanks.
- (ii) All bulk Meters be installed in lockable masonry chambers.
- (iii) All bulk Meters be installed as per the manufacturers' installation guidelines.
- (iv) Plumber 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.

#### 4.2 Consumer Meter Installation

The following procedure shall apply to all consumer meter installations:

- (i) There shall be a dedicated team of plumbers 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 3.2 (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.

## 4.3 Rules Governing Consumer Meter Installation

The following Rules apply to all consumer meter installations:

- (i) Only qualified and authorized DAWASCO plumbers 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 plumber 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 residential properties with many dwelling units, the property owner has liberty to choose to install one Meter for the entire property or install a water Meter for each unit. Where the latter is chosen, Rule NO. (v)Still apply. However, in the case of storey buildings, a main pipe is allowed to pass along the edges of the building, and meters are located at varying positions approved by the water utility, provided that all the meters will be installed on the ground floor.
- (x) The Plumber is to ensure the workmanship is of high standard and there are no leakages at the Meter by testing using a portable hand pump.

#### 5. **RESPONSIBILITIES**

#### 5.1 Company's Responsibility

The Company must ensure:

- (i) The rules listed in 3.2.1 above are observed.
- (ii) All authorized water connections within the supply area are metered.
- (iii) Meter reading is carried out accurately and timely every month.
- (iv) Meter testing is carried out both on regular and impromptu basis to ensure Meter accuracy is maintained. 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 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 plumber shall ensure Meter readings and serial numbers are updated in the Billing System to avoid errors.

- (vi) All meter replacements are to be undertaken by NRW /O&M units.
- (vii) The Company is to contact customers s e v e n days post-installation to confirm there is no leakage.

## 5.1.1 Physical Alteration

Only a designated DAWASCO staff has the 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.

The Company must ensure that workmanship during installation is of a high standard and there is no leakage at the Meter. This is to safeguard both the Company and the Customer from water losses.

## 5.1.2 Disconnection of a Meter

Disconnection of a Meter shall be if:

- (a) It fails a credibility test
- (b) Due to accrued debt
- (c) Request for temporary disconnection
- (d) Request for permanent disconnection.

## 5.2 Responsibilities of a Customer

Meter management at Customer's premises:

- (i) Ensuring they have an authorized connection to the Company's water supply line.
- (ii) Ensuring Meters' installation onto their property is done by Company staff.
- (iii) Ensuring the Meter area is easily accessible to Company staff and kept clear to also facilitateeasy reading.
- (iv) Maintaining a Metered standpipe if they have one.

## 5.2.1 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.

## 5.2.2 Safeguarding against tampering and damaging

- (i) A customer must not tamper with an installed Meter. The following constitute meter tampering:
  - (a) Removal of a Meter
  - (b) Reversing of the direction of a Meter
  - (c) Attaching magnetic devices on a Meter with a magnetic transmission system and Willful damage to the water Meter.
- (ii) Any customer established to have tampered and/or deliberately damaged the Meter shall be surcharged. The amount charged shall be Kshs 30,000 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.

# 5.3 Illegal Connections

Where a Customer is found to have an illegal water/sewer connection; that connection and any other serving the same premise (or homestead) shall be immediately disconnected and the culprit charged accordingly. The charges are as follows:

- (a) Illegal Water connection:
  - (i) Domestic = Kshs. 30,000 plus the estimated consumption during the period of the illegality.
  - (ii) Commercial, Industrial or construction site =Kshs.100,000 plus the estimated consumption during the period of the illegality.
- (b) Illegal Sewer Connection:
  - (i) Domestic, Government, Schools, Universities and Colleges = Kshs. 30,000
  - (ii) Commercial and Industrial = 100,000
- (c) Self-reconnection after cut-off for non-payment = 30,000 plus the water consumption from the date of cut-off.

If the culprit fails to pay the charges, other avenues of recovering the money shall be employed which may include taking legal action.

## 6. DISPOSAL OF WATER METERS

Any Meter removed from a site shall be returned and recorded in the stores. Details relating to that Meter shall be communicated to the billing department who shall upload the same in the system. If the Meter is replaced, details of the new Meter shall be uploaded and records updated. Replacement shall not be effected until the other Meter has been removed from the system.

A report of the replaced Meters shall be generated by the system on a monthly basis. All the Meters shall be checked before declaration for disposal. The condemned Meters for disposal (unserviceable) shall be submitted to the main store accompanied by the resolution (condemnation) report as justification for disposal. The store's personnel shall perform due diligence to ascertain the conformity of the returned Meters to their respective details as captured in the system and as guided by the serialization in the system.

## 6.1 Modes of Disposal

#### 6.1.1 Plastic Meters

All the plastic Meters shall be disposed of by smelting in the incinerator located at the sewerage treatment plant.

#### 6.1.2 Metallic Meters

All the metallic Meters shall be disposed off as scrap. The process shall at all times adhere to the Public Procurement and Disposal Act 2015 and the accompanying Regulations.

#### 7. MONTHLY REPORTS

#### Each Scheme must ensure it:

- (i) Maintains updated records on maintenance of bulk and customer Meters. This Includes service schedules and Meter testing dates.
- (ii) Maintains accurate inventory/records that tally with the physical stock.
- (iii) Prepares a detailed monthly report on usage and stock levels and submit it to the CM on a monthly basis.

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

#### 8. **REVIEW OF THE POLICY**

This policy will be subject to regular review and amendments when need arises.

#### 8.1 Effective Date

This policy comes into effect on the Twenty Eighth day of June 2019

This policy was approved by the Board on Twenty Eighth day of June 2019 under minute number.....

Amendments done on ------July 2020 under minute number -----

Signed:

MANAGING DIRECTOR .....

CHAIRMAN- BOARD OF DIRECTORS.....