



CHENNAI METROPOLITAN WATER SUPPLY AND SEWERAGE BOARD

METERING POLICY

2022

INDEX

1	Background/Context	1
2	Definitions	2
3	Legal Framework	3
4	Objectives of the Policy	3
5	Scope of the Policy	3
5.1	Who is metered?	4
5.2	Ownership of Meters	4
5.3	Meter Specifications	4
5.4	Meter Technology	4
5.5	Meter sizing	4
5.6	Meter Installation and Testing	5
5.7	Meter Location	5
5.8	Meter Relocation	5
5.9	Meter removal	6
5.10	Meter Installation in exceptional consumers	6
5.11	Sub metering	6
5.12	Meter Readings and Billing	6
5.13	Meter Security	7
5.14	Illegal connection/ Motor Suction	7
5.15	Fire Hydrant availability, Use and Metering	7
5.16	Meter Accuracy and Testing	7
5.17	Defective Water meters	8
5.18	Consumer Responsibilities	8
5.19	Consumer Privacy	9
5.20	Power of Entry	9
5.21	Contacting the Utility	9
5.22	Revision of Meter Policy	10

Annexure

Annexure 1	Technical Specifications for Consumer Water Meters	11
Annexure 2	Standard operating Procedure for installation of Meters	13

“METERING POLICY - 2022”

1. Background/Context:

Chennai City has no perennial source of drinking water. Being a fast-growing city, the demand for water is increasing every year. The Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB) has made investments in Desalination plants and Tertiary sewage treatment facilities, and hence the cost of water production is high. Therefore, there is a need for judicious use and conservation of limited available and expensive water.

In this context, CMWSSB is taken up a demand management program by expanding the Consumer water metering program. This water meter policy provides the basis, details, the objective, roles and responsibilities of all stakeholders and the technical standards for the water metering program.

Consumers are also classified as Domestic, Partly Commercial, Commercial, Industrial, Institutional and Municipal Bulk Supply, based on the nature of water usage activity of the consumer.

As at the end of September 2022, the Board is providing drinking water through 770292 property service connections, out of which 746194 connections are unmetered and 24095 are metered. Out of 746194 unmetered connections, 670652 belong to Domestic, 54140 belong to Partly Commercial, 21402 belong to Commercial and institutional.

The Board has installed 11,387nos of Mechanical meters and 12,708 nos of mechanical meters with AMR attachments for the Commercial and high-volume consumers under smart city funding. The total meters installed so far is 24,095nos. which is 3.12%. AMR meters are installed from November 2019 and as a result, revenue has generated to the extent of Rs.57Crores during the year of 2021-22.

2. Definitions:

Added Areas means and includes the erstwhile local bodies including the Panchayats and Municipalities annexed to Chennai city in 2011 to form the Greater Chennai City;

Authorised Authority means any committee, director, officer, engineer or any other employee of the Board to whom such power or function has been delegated under Section 22 of the Chennai Metropolitan Water Supply and Sewerage Act, 1978; (TAMIL NADU ACT 28 OF 1978) in relation to any power to be exercised or function to be performed.

Authorized Personnel means any official authorized for this purpose by the Managing Director;

Board means the Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB) established under Section 3, Chennai Metropolitan Water Supply And Sewerage Act, 1978;

Chennai Metropolitan Area means the Chennai Metropolitan Planning Area as defined in clause (23-a) of section 2 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972);

Consumer means any person or entity either owner or occupier of any premises provided with drinking water supply and or provided with sewerage services by the Board in accordance to the Section 6 of Regulations for Levy and collection of Tax and Charges;

Core City means the geographical area governed by Greater Chennai Corporation prior to the merger of Added Areas in the year 2011;

Defective Water Meter means any consumer water meter which is dis-functional or indicating erroneous readings not reflecting the accurate consumed quantity of water;

Government means the State Government of Tamil Nadu;

Grievance means a complaint on certain level of deficiency or unfairness in the services provided by the Board in respect of water supply and sewerage disposal including all commercial services of provision of new connections, disconnections, reconnections and associated billing and revenue collection. Defective water supply and sewerage system can also form part of grievances of the Consumer.

Operational Area means the operational jurisdiction vested with the Board for water supply and sewerage services within the geographical area of Chennai Metropolitan Area, which is 1189 sq km; ~~Greater Chennai City.~~

Service Area means the area vested with the Board for provision of water supply and sewerage services within the geographical area of Chennai Metropolitan Area;

Water Meter or Meter means the device used to measure the volume of water consumed by the consumers resident in domestic, partly-commercial, commercial, institutional, industrial buildings and any other premises that are supplied with drinking water or treated waste water by the Board's water supply system;

Water Supply means the system of providing drinking water to an individual, community or an entity for meeting its requirement for drinking and other domestic uses, including commercial, industrial, recreational and other public uses except for purposes of irrigation and generation of hydel power;

Water works includes any source of water supply like stream, lake, spring, river or canal, well, reservoir, cistern and tank dug well, bore well, dug-cum-bore well, tube well, filter points and infiltration galleries, any channel, duct, whether covered or open, desalination plants, treatment units, sluice supply main, culvert, bridge, engine, water tank hydrants, stand-pipe or post, conduit and machinery and any adjacent land not being private property and any land, building or other things for supplying water or for protecting source of water supply or for treatment of water;

Year means the financial year of the Government;

3. Legal Framework:

The clause number 47, Chapter VI, Water Supply and Sewerage, in the CMWSSB Act 1978, provides “For calculating the amount payable by the owner for consumption of water supplied by the Board, the Board may determine the quantity consumed on the basis of reading recorded by a meter installed in the premises”.

4. Objectives of the Policy

The key objectives of the policy are :

- a) To promote water conservation by encouraging efficient water use
- b) To reduce Non-Revenue Water (NRW) and increase cost recovery.
- c) To ensure fairness and equity to all Consumers in charging for water services.
- d) To achieve 100% of metering of all high rise and commercial connections by the year 2023 and to achieve 80% of domestic connections (G+2 and below buildings) by the year 2027.
- e) To set out roles and responsibilities of both CMWSSB and Consumer in relation to the installation of metered connections, maintenance of the water meters.

5. Scope of the Policy

This policy covers types of consumers for metering, selection of meter, its specification and installation guidelines. This also covers the tariff, billing & collection and grievance

redressal procedures related to metering. Further the responsibilities of the Board and consumers with regard to metering are described. Cost recovery and subsidy framework are not part of this policy and are dealt separately.

5.1. Who is metered?

CMWSSB shall install the water consumption meters for all the consumers having water connections in a phased and progressive manner commencing with high water consumption and high revenue categories and all non-residential and new Consumers.

5.2. Ownership of meters:

The Consumer meters shall be owned by **Board** and fixed rental charges will be levied on **the consumers along with the water charges**. The rental charges shall be used for the specific purpose of routine and periodical maintenance of the meters and regular meter replacement program by the Board. The day-to-day safety and up keep of the meters shall be the responsibility of the Consumer. If any wilful tampering or damage of the meters occurs either other than natural wear and tear, the Board will undertake replacement of such defective meter and the cost of such exceptional repair or replacement of meter shall be recovered from the consumer with advance notice.

5.3. Meter Specifications:

Meter standards and specifications are governed by respective Indian or International standards as applicable from time to time as summarized in Annexure 1.

5.4. Meter Technology:

- i. Electromagnetic or Ultrasonic electronic meters with in - built battery and with AMR or AMI data transfer communication ability.
- ii. Multijet Mechanical meter of Class B with AMR facility
- iii. Multijet Mechanical Meter of Class B (with AMR Compatibility)
- iv. Positive displacement water meter with AMR compatibility or AMR facility
- v. Any other meter technology as approved by the Board appointed technical committee from time to time.

5.5. Meter sizing:

The size of meter shall be arrived based on the dwelling units of the premises as mentioned in annexure 1.

5.6. Meter Installation and Testing:

The meters will be tested at Board own lab or NABL accredited labs. The meter of prescribed size and specification shall be installed at designated locations along with Geo tagging by the Board or its authorized representative.

In case of any fault / dispute in readings, only the “authorized personnel” of Board are allowed to remove, attend to repairs and reinstall the meters. In case of any violations or tampering of meters by consumer, the water connection will be disconnected as per Sec 49 (d) of CMWSSB Act.

The Standard operating procedure to be adopted during installation of meters is detailed in Annexure2.

5.7. Meter Location:

The meter shall be installed at a spot where it is readily accessible and readable. The meter shall be installed inside the Consumer premises at a point upstream of the tap. In case of service pipes connected to consumer’s sump, the meter shall be installed at a point upstream of the sump with mandatory installation of backflow prevention device and a float valve fitted at the inlet point into the sump.

In added areas all new meters shall be installed above Ground level as per prudent industry practice.

In core areas, meter will be installed for the buildings located nearer to WDS and at the locations wherever sufficient pressure exists.

For the remaining part of the core area the Metering program will be planned and implemented along with over all distribution rehabilitation and service improvement program in progressive manner.

5.8. Meter Relocation:

The case of meter relocation arises under the following cases:

- i. Due to change in internal arrangement or alteration of pipe laying inside the premises.
- ii. Division of existing connection arising due to division of property ownership
- iii. Due to consumer applying for shifting of water service connection

In the above cases the consumer has to intimate to corresponding Area office stating the reason for relocation. After physical verification of the premises by the concerned Depot Engineer, if the reason stated by the consumer is found to be justifiable, the relocation of meters will be approved by concerned Area Engineer within 3 working days at the cost of consumer.

5.9. Meter Removal:

In case of valid reasons only the “Authorized personnel” are permitted to remove the meters after obtaining orders from the “Area Engineer”. The removed meters shall be re-installed in suitable required location. In case of any violations the water connection will be disconnected as per Sec 49 of CMWSSB Act.

5.10. Meter Installation in exceptional consumers:

In case of any meter installations in exceptional locations of high security areas, military operations, and similar such sensitive locations, the expert team constituting the Area Engineer and Deputy Area Engineer shall visit the location and identify suitable location to install meters in close coordination with such consumers.

5.11. Sub metering:

The Board is not responsible for any sub metering or internal arrangements. As per Board norms only one connection will be effected to single premises.

5.12. Meter Reading and Billing

- a) The billing cycle will be as decided by the Managing Director with respect to the category of the premises from time to time.
- b) Meters will be read by authorised representatives possessing identification.
- c) The bill shall include the details of consumer, meter ID, previous reading with date, present reading with date, arrears if any, current consumption charges, total amount due, payment deadlines without interest, penalty interest rate, incentives if any for early payment, subsidies as applicable and the trend of consumption for the six previous months.

In case of any dispute in consumption charges, the consumer shall represent to the concern Area office. In such case, the meter shall be removed tested and re-installed by authorized personnel only and a standby meter will be installed. If the meter is found to be accurate, then the cost of meter testing and re-installation shall be borne by the consumer.

In the event that a meter reading cannot be made due to the fact that the meter has been out of order on account of no fault of the consumer or the meter has been taken or removed by the Board on the order of the competent authority for the purpose of testing or rectifying

the defects, the Board shall bill the consumer for that period on any one of the following basis namely;

- a) based on the actual reading of the meter for the corresponding period in the previous year if applicable, OR
- b) An average of the meter reading for the previous 6 months or 12 months when the meter was functioning or whichever is higher.

In event of excess payment made by the consumer, after re-conciliation the same will be adjusted in the forthcoming bills.

5.13. Meter Security

It is the responsibility of the consumer to ensure the security of the meter fixed. If a meter is stolen, or tampered or damaged, connection shall be provided with a new meter and all costs related to removal of old meters, cost of new meter and all installation charges shall be recoverable from the Consumer along with monthly water charges and penalty of Rs.2000/-.

5.14. Illegal bypass of meter and installation of suction pumps upstream of meter

Wherever a consumer is found to have installed a bypass or suction pump in the upstream of the meter or fails to fix or prevents the fixing of a meter as required by or under the provisions of this Act, or willfully or negligently tampers or damages the meter or otherwise interferes with any pipe or tap or main, action will be taken as per CMWSSB Act and Board Regulations in force.

5.15. Fire Hydrant availability, Use and Metering:

The vehicles from fire stations fill water from the nearest 42 filling stations maintained by Board. These vehicles use designated assess card to discharge designated quantity of water from the automated metered filling point. The water is being supplied at free of cost.

5.16. Meter Accuracy and Testing:

The accuracy of the meters should comply with the IS 779 and IS 6784 or ISO 4064. The important parameters shall include:

- a) Pressure tightness
- b) Loss of pressure
- c) Metering accuracy
- d) Minimum starting flow

Board ensures that all meters installed are of appropriate type to measure the estimated range of particular connection, tested, calibrated, accurate and shall not cause loss of pressure higher than permissible and the installations are as per Board approved standard operating procedure updated from time to time.

In an exceptional event of a consumer suspecting the accuracy of the meter, the consumer shall report to the Depot Engineer or Contact help lines and shall remit the prescribed meter testing fees and the Board shall organize either testing on site or testing at lab as per respective testing standards.

A meter shall be regarded as registering incorrectly if on being tested it is found to exceed the prescribed limits of error.

In the event of the tested meter found to be beyond the stipulated accuracy range, the Board shall replace such inaccurate meter within three working days and refund the meter testing fees to the consumer.

Where a tested meter is proved to have registered less than the volume of water supplied to that premises, the balance payable by the consumer shall not exceed an amount reflecting the charge for the volume of water which would ordinarily have been supplied to the house during the three months preceding the last occasion on which the inaccurate meter was last read, less any sums already paid in respect of that period.

If the tested meter is found to be recording higher than the accurate consumption, the Area Engineer shall review the previous bills not exceeding three months from the date of last reading of the meter prior to the consumer complaint date and determine the revision of charges if any and issue an adjustment credit note in the subsequent bills.

5.17. Defective Water meters:

Any meter which are dis-functional or does not reflect the consumed quantity of water or share inaccurate readings are termed as Defective meters. During routine maintenance works, on identification of any defective meters, or consequent to a complaint from consumer and meter found to be inaccurate or defective, or a meter tampered or damaged or sabotaged due to negligence or wilful default by a consumer, such defective meters shall be replaced by a standby meter, until they are repaired and reinstalled by the Board.

5.18. Consumer Responsibility

- i. The consumer shall always maintain the meter in safe and clean condition and shall provide access to the authorities fix or check the meter at all times.
- ii. Shall promptly notify the authority in event of any damages or repairs.

- iii. Shall clear any dues payable to the Board within specified period under this Act, or any regulation or other instruments made there under.
- iv. The consumer shall not be wilfully or negligently damage the meter fixed and the consumer shall not otherwise interfere with any pipe or tap or main or other work of conveying water from any works of the Board.

5.19. Consumer Privacy:

All data collected in regard to consumption and related data shall be safely secured and will be used only for the intended purposes including studies for service improvements in the city. The consumer will be given access to view their consumption history.

5.20. Power of Entry:

The power of entry into the premises of the consumer by the authorized authority to check the readings/working of meters is as per Section 67 of the CMWSSB Act.

The authorised authority shall except in the case of an emergency give not less than 24hrs notice in writing of its intention to do so to the owner or occupier: provided the authorised authority shall, except in case of an emergency, obtain the prior permission from the concerned where the land, the building, or immovable property is owned by and is in the possession.

5.21. Contacting the Utility:

The Board has formulated and established various Grievance Redressal mechanisms with the objective of transparency in providing services to the citizens. The Board also welcomes Consumer comments, suggestions and inputs which shall enable improvement of service delivery and achieve efficiency in its operations. On receipt, the Board shall investigate it and report back to the complainant and address the issue as efficiently and effectively as possible. The different methods for registering the complaints are stated below:

- a) 24X 7 Complaint Cell / 044-45674567
- b) Online Complaints
- c) E-mail complaints
- d) Open House Meetings
- e) Mobile APP for Grievance Redressal System

- f) Mobile Phone numbers, email ids, Mobile App details and other contact facilities are available in Boards Official Website.

5.22. Revision of Meter Policy:

This policy shall be reviewed at least once three years or as and when found necessary by the Board's Technical Committee consisting of Engineering Director, Chief Engineer (O&M)- I and Finance Director, and report to be submitted to the Board.



Annexure 1: Technical Specifications for Consumer Water Meters

Technical Requirements	Details
Technical Standards	<ul style="list-style-type: none"> a) IS 779:1994 (reaffirmed 2015) - Specification for water meters (domestic type) b) IS 6784:1996 – method of performance testing of water meters c) ISO 4064-1:2014 – water meters for cold potable water and hot water – metrological and technical requirements d) ISO 4064-2:2014 – water meters for cold potable water and hot water – test methods e) ISO 4064-3:2014 (Reviewed and Confirmed in 2019) – water meters for cold potable water and hot water – test report format f) ISO 4064-4:2014 – (Reviewed and Confirmed in 2019) – Non metrological requirements not covered in ISO 4064-1. g) ISO 4064-5:2014 – (Reviewed and Confirmed in 2019) – Installation requirements
Required Certificates	<p>IS 779: 1994 (reaffirmed 2015) and IS 6784:1996, IS 2373: 1981 (reaffirmed 2017), ISO 4064 (1 to 5):2014</p> <p>The Meter should be MID certified. In addition, endurance test report in accordance with ISO4064:2014 from FCRI should be provided.</p> <p>Manufacturer's authorization</p>
Class of Water Meter	<p>Class 2 Water meters in accordance with ISO4064:2014.</p> <p>Operating range ratio (Q3/Q1) = R500.</p>

Technical Requirements	Details		
Sizing of Water Meter	The size of meter shall be arrived based on the dwelling units of the premises:		
	Equivalent Dwelling Units	Size of Meter (mm)	Recommended range of monthly consumption (m3)
	Upto 6	15	0-100
	7 to 20	20	101-170
	21 to 40	25	171-260
	41 to 70	32	261-420
	Above 70	100	420 – 550
Material Requirements	The water meter body shall be made of Corrosion resistant material like, Engineering Plastic, brass, Bronze, Stainless steel, Carbon steel. The same will be reviewed time to time by the Technical committee.		
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.		
Meter Accuracy Testing	A water Meter shall be designated as accuracy class2. 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 (Q1andQT) shall be ± 5 %.During procurement, two Meter samples from each Tender 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.		

Annexure 2 -Standard Operating Procedure for Installation of Meters

The following Standard Operating Procedure has to be adopted in installation of meters.

- (a) The water meter being a delicate instrument shall be handled with great care. Rough handling including jerks or fall is likely to damage it and affects its accuracy;
- (b) To avoid damages and over run of the meter due to intermittent water supply system, It is always advisable to install the meter, so that the top of the meter is below the level of the communication pipes so that meters always contains water, when there is no supply in the line. Also, the minimum straight length condition as per the drawing shall be observed;
- (c) The meter shall preferably be housed in a protection box (PVC) with the lid; it should never be buried under ground nor installed in the open nor under a water tap so that water may not directly fall on the meter.
- (d) The meter shall be installed so that the longitudinal axis is horizontal the flow of water should be in the direction shown by the arrow cast on the body.
- (e) Before connecting the meter to the water pipe, it should be thoroughly cleaned by installing in the place of the water meter a pipe of suitable length and diameter and letting the passage of a fair amount of water flow through the pipe work to avoid the formation of air pockets. It is advisable that the level of the pipeline where the meter is proposed to be installed should be checked by a spirit level;
- (f) Before fitting the meter to the pipeline check the unions nuts in the tail pieces and then insert the washers. There after screw the tail pieces on the pipes and install the meter in between the nuts by screwing. To avoid its rotation during the operation, the meter should be kept fixed with suitable non-metallic clamps. Care should be taken that the washer does not obstruct the inlet and outlet flow of water;
- (g) The protective lid should normally be kept closed and should be opened only for reading the dial;
- (h) The meter shall not run with free discharge to the atmosphere. Some resistance should be given in the downstream of the meter, if static pressure on the main exceeds 10m head;
- (i) A float valve shall be fitted inside the sump to avoid wastage of water due to over flow / excess supply.

- (j) A meter shall be located where it is not liable to get the severe shock of water hammer which might break the system of the meter;
- (k) Owing to the fine clearance in the working parts of the meters they are not suitable for measuring water containing sand or similar foreign matter and in such cases a filter or dirt box of the adequate effective area shall be fitted on the upstream side of the meter. It should be noted that the normal strainer fitted inside a meter is not a filter and does not prevent the entry of small particles, such as sand;
- (l) Where intermittent supply is likely to be encountered the meter may be provided with a suitable air-valve before the meter in order to reduce inaccuracy and to protect the meter from being damaged. At higher altitude, if the meter is installed as above, the problem will be eliminated;
- (m) Every user expects a problem-free installation of the meter and there after only accurate reading. Regular monitoring is desirable in order to avoid failures;
- (n) The meter is installed in the pipeline using flanged or threaded connections giving due consideration for conditioning sections. It should be seen that stress-free installation is carried out in the pipeline;
- (o) It is essential to install the flow meter co-axially to the pipeline without protruding any packing or gasket into the water flow stream. In the case of ultrasonic meter, the probes are welded on the pipeline which requires care to see that no projection is protruding in the pipeline;
- (p) The Control valve should be fixed in the upstream of the water meter.
- (q) Installation in 'U' shape is essential for intermittent water supply;
- (r) Flow meters should be provided with battery backup in order to retain integrator reading.