



Request for proposal For Setting up of Water ATM for Safe Drinking Water including Designing, financing, constructing / installing, operating and maintaining of Water ATMs and vending of water from Water ATMs at Public Places through Public Private Partnership (PPP) at designated locations under “Smart City Mission” at Puducherry City

Volume II: Scope of Work and Technical Specifications



RFP for Water ATM on PPP Mode

Tender No: 006/PSCDL/2019

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**Puducherry Smart City Development Limited
Puducherry**



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Abbreviations

Term	Definition
ABD	Area Based Development
ATM	Automatic Teller Machine
BIS	Bureau of Indian Standard
Day	Calendar day
DPR	Detailed Project Report
FRP	Fiber Reinforced Plastics
GIS	Geographic Information System
GoI	Government of India
GoP	Government of Puducherry
GPRS	General Packet Radio Services
GSM	Grams per Square Meter
INR	Indian Rupee
ICT	Information and Communication Technology
KLD	Kilo Liters per Day
LCD	Liquid Crystal Display
LLP	Limited Liability Partnership
LPH	Liter Per Hour
Ltd.	Limited
MoHUA	Ministry of Housing and Urban Affairs
O&M	Operation and Maintenance
PHD	Public health Department
pH	Percent of Hydrogen ion concentration
PMC	Project Management Consultant
PPP	Public Private Partnership
PP	Polypropylene
PSCDL	Puducherry Smart City Development Limited
PUF	Polyurethane Foam
PWD	Public Works Department
RFP	Request for Proposal
RMP	Regular Modified Polyester
RO	Reverse Osmosis
Sq.Km	Square Kilometre
TDS	Total Dissolved Solids
ULB	Urban Local Body
UV	Ultra Violet



1 Background

To meet the safe drinking water requirements at public places in Puducherry, portable water is proposed to be supplied to the consumer through his/her drinking bottle / container / paper cups (for dispensing paper cup for 250 ml of water). This proposal will be essential for the betterment of the urban environment as the usage of consumers own bottle / container would result in minimizing the high usage of plastic / bottles for drinking water purposes. The water ATM would also enable citizens to access safe drinking water at various locations within Puducherry.

2 Scope of work for the Bidder

- 2.1** Designing, financing, constructing / installing, operating and maintaining of Water ATMs and vending of water from Water ATMs at Public Places through Public Private Partnership (PPP) along with water storage tanks of Material suitable to store drinking water (Potable water) as per prevailing standards where Stainless Steel (minimum Grade SS316) is preferable and submitting weekly test report of output water to the Engineer-in-Charge. The operation of the plant shall be with the Concessionaire for 10 years
- 2.2** Making power connections at water ATM and all electrical fittings up to the power meter, power connection & external electrification charges will be borne by the Concessionaire.
- 2.3** Quality control and monitoring systems to be incorporated at each ATM location as per the following:

EMBEDDED DEVICE FOR AUTOMATION FOR FOLLOWING PURPOSES

1. Quantitative Monitoring
 - a. Number of Glasses of water dispensed in a day.
 - b. Number of Bottles for different denomination of water dispensed in a day.
 - c. Water level in the tank.
2. Water Quality Monitoring
 - a. TDS level of water.
 - b. Temperature of water.
 - c. Hardness.
 - d. pH values of water.



3. Sensors for
 - a. Temperature Monitoring.
 - b. TDS Monitoring.
 - c. pH Monitoring.
 - d. Ultra-Sonic Water Level Monitoring.
 - e. Water Dispensing from Three Nozzles through Coin Acceptor.
 - f. Support of 1,2,5 rupee and 10 rupees coins.
 - g. Water Dispensing using NFC (Near Field communication) cards.
 - h. Cards to work for different amount as specified and can be recharged to any amount.
 - i. Support for Card 'Balance' Rechargeable.
 - j. Sensors support for Monitoring Water Temperature, TDS, PH and Water Level in the tank.
 - k. Display of Water purity parameters on LCD Display of 14" size.
 - l. Ability to backup data for 48 hours in-case of server/connectivity outage.
 - m. LED display on controller panel box to indicate System Status.
 - n. Uploading of Transactions and Water parameters data to Server over TCP/IP using GPRS.
4. Water ATM shall be suitably equipped with ICT enabled technology with components that will notify PSCDL & ULB with denomination wise dispensing quantity in a day.
5. Water ATM shall be suitably equipped with ICT enabled technology with components that will notify PSCDL & ULB with denomination wise dispensing quantity on daily basis.
6. Disposal of waste water to nearest Sewer drain/ Manhole with proper arrangement with necessary approval.
7. The quality of water dispensed to the end user shall be as per BIS-14543- 2004.
8. Water ATM should be equipped with provision for chilled water.
9. Specifications:
 - a. Each water ATM should be equipped to dispense water of 250 ml (eco friendly biodegradable cups/ glass of minimum 170 GSM paper to be provided by the bidder at the ATM in the cost of water). 0.5 litre, 1 litre, 2 litre & 5 litre water in their own containers and 250ml, 500ml and 1 litre with container.
 - b. Filling Speed: about 10-12 litre / minute.
 - c. Operational Time – 6 AM to 10 PM every day, which may be amended location wise as per requirement/demand in consultation with PSCDL/Municipality.



- d. ATM Unit with Treatment Unit Dimension: Cubical/ cylindrical in shape with base area up to 60 sq.ft or as approved by Engineer-in-charge.
 - e. The ATM shall have the provisions for float valve for overflow control.
10. The maintenance of pipe lines from the point of connection to the water ATM is the responsibility of the bidder.
 11. Making Power connection at Water ATMs and all electrical fittings up to the power meter; power connection & external electrification charges is the responsibility of the bidder.
 12. The bidder should have their own testing facilities for water testing process. The water sample is to be analyzed for all parameters as per BIS 14543 in a weekly manner or as and when required.
 13. Water Storage Tank shall be placed inside the ATM Structure.
 14. The storage tank is Stainless steel - SS316 grade.
 15. LED boards need to provide for display of BIS 14543 water quality parameters including.
 - a. pH.
 - b. Hardness.
 - c. Temperature.
 - d. Water Level.
 - e. TDS.
 16. The structure should be appropriate to protect the whole ATM system, including its equipment and accessories in all weather conditions and it should withstand the extreme climatic variations.



3 General Requirement

- 3.1** The Concessionaires advised to analyze the potable water of requisite sample size on their own before quoting their rates in Financial Bid, No extra claim will be entertained after the allotment of the work on this account.
- 3.2** The output water quality characteristics shall be as per BIS 14543: 2004 Specifications of Drinking Water.
- 3.3** The Concessionaire must design supply, install, commission, and maintain the Water ATMs for Ten Years. The Concessionaire will maintain a safe, clean and hygienic environment in and around the Water ATM.
- 3.4** The Concessionaire should have their own testing facilities for water testing process. The Concessionaire should analyze the water sample for all parameters as per BIS 14543: 2004 norms in a weekly manner or as and when suggested by the PSCDL / ULB, from the Lab as approved by Authority. Concessionaire shall maintain proper record in this regard. The Attendant of Concessionaire shall be available at the Water ATM during the operation time. A LED/LCD digital screen of at least 14-inch diagonal showing 3 key parameters namely pH, TDS & temperature on a real time basis in an interval of 5 minutes.
- 3.5** The maintenance of pipelines etc. from point of connection onwards to the Water ATMs shall be responsibility of Concessionaire during the Contract Period.
- 3.6** Making connection for raw water:
 - a) The Concessionaire shall be responsible for executing works for making connection for Water ATMs from the source (Nearby existing water supply line) provided by the PWD including cost of all material and labour etc. The cost of filtration process at each ATM, to ensure quality of product water as per BIS 14543: 2004 shall be the responsibility of the Concessionaire.
- 3.7** Disposal of waste generated at each Water ATM:
 - b) The disposal of waste generated at each ATM shall be disposed by the Concessionaire at his own cost to the nearest sewer system. In case of faulty performance severe penalties would be levied on the Concessionaire by PSCDL as applicable under existing laws related to littering in public areas.
- 3.8** The Concessionaire shall install the required equipment and maintain the same for a period of Ten Years from the date of commissioning of water ATMs, as per the conditions prescribed in this document, and in the time frame prescribed at his own



cost.

- 3.9** After completion of Contract period the water ATMs will become the property of the PSCDL.
- 3.10** The Concessionaire shall perform all routine maintenance to ensure that all water ATMs shall remain in working condition.
- 3.11** The Concessionaire will depute duly trained Operators at each water ATM. The Concessionaire shall ensure routine inspection of the equipment by the equipment supplier.
- 3.12** The output water shall be distributed daily between 6:00 am to 10:00 pm on all days from water ATMs. However, PSCDL may increase or decrease the working hours, if so desired, in order to provide adequate water to the public. The Concessionaire shall have to provide all the services during the extended hours.
- 3.13** The Concessionaire shall provide trained manpower to maintain the water ATMs to ensure the provision of quality services.
- 3.14** The Concessionaire shall provide and maintain the electrical and plumbing fittings of all types at the Water ATM in good working condition.
- 3.15** The Concessionaire shall provide LED boards for display of water quality parameters including.
- i. pH.
 - ii. Hardness.
 - iii. Temperature.
 - iv. Water Level.
 - v. TDS.
- 3.16** Concessionaire should ensure that all the Water ATMs (in a pocket) are working all the time and annual repair/maintenance etc. shall be carried out periodically at his own cost.
- 3.17** All expenses shall be borne by the Concessionaire.
- 3.18** To maintain premises clean, safe hygienic and risk free in and around the Water ATM (approx. Two-meter radii) is the responsibility of Concessionaire. The Attendant of the Concessionaire shall ensure that all the waste shall be disposed off by the user within litterbin kept at each ATM.
- 3.19** Water & Electric supplied through connection by the PSCDL (if any), will be charged from Concessionaire on Commercial rates applicable from time to time.
- 3.20** Online information of daily report to PSCDL.



- 3.21** PSCDL has reserve the right to inspect any ATM at any time during the working hours.
- 3.22** PSCDL has right to take sample of water at any time.
- 3.23** During the non-availability of piped water from PSCDL, Concessionaire shall make his own arrangement for which PSCDL may make available water from its bulk supply reservoir on payment basis for which transportation arrangements will be made by the Concessionaire.
- 3.24** The water storage capacity at each ATM should be as approved b PSCDL which can be increased as per the requirement.
- 3.25** The ATW machine shall have access for physically challenged or specially abled persons. The ATW machine should have a mechanism to give feedback regarding functioning of ATW. The feedback system should have a star rating system with 5 stars for excellent service. There should be a touch screen system for feedback. A toll-free number for handling complaints should also be provided. The feedback receiving mechanism shall have alerts for non-performance such as non-availability of water, poor quality of water or other such deficiencies.



4 Other Requirements

- 4.1 All the successful Concessionaires will have to ensure collection of the samples from the respective sites and meeting of the design criteria.
- 4.2 Bidders would need to submit their O&M expenditure information to the Engineer-in-Charge on a quarterly basis for the records of PSCDL.
- 4.3 Any deviation from the proposed design needs to be approved by the PSCDL.

5 Testing and Inspection

5.1 Third party Inspection

- a) The charges for third party inspection, if any, would initially be borne by the Concessionaire.

5.2 Site tests

- b) After erection at site, all components, equipment as described shall be tested to prove satisfactory performance and /or fulfilment of functional requirements without showing any sign of defect as individual equipment and as well as a system.

6 Delivery / Commissioning

The commissioning of all the water ATMs is 6 months (120 days) from the date of the confirmed Letter of Acceptance or handing over of site whichever is later.

7 Penalty in case of non-performance

In case of non-performance of more than 3 hours in a particular day between the operating hours, 1-day non-operation will be considered, and penalty will be levied as per the table below

In case the quality of water is not as per BIS 14543: 2004 specification the ATM operation of dispensing water should be stopped immediately. PSCDL will impose a penalty of Rs 1000 for each such event at the Water ATM concerned.

Penalty in case of Non-operational beyond 3 hours in a day with respect to ATM shall be as follows

- a) up to 4 days – Rs.2000/- per day/per ATM.
- b) 4-7 days – Rs.3000/- per day/per ATM.
- c) Above 7 days – Rs.5000/- per day/per ATM.

Failure to report any information pertaining to non-operational/not desired quality of the ATM would invite additional penalty of Rs. 1,000/- per such case per day of delayed information.



In case of non-compliance of water quality with IS 14543: 2004 standard and / or non-operation of ATM's beyond the stipulated days (maximum 30 days) or as approved by PSCDL the contract is liable for termination.

8 Scope of PSCDL

PSCDL shall be responsible to provide:

- 8.1** PSCDL will provide nearest source of water (up to 30m); further arrangement including required plumbing works from source to Water ATMs shall be borne by the Concessionaire.
- 8.2** PSCDL will charge for raw water supplied either for Fixed Water ATM or for Mobile ATM's. Raw water will be charged as 10 Rs per 1000 litres of water.
- 8.3** Single phase or three phase power supply as required at one point, further distribution including installation of electric meters for Water ATM's shall be in scope of Concessionaire. The Concessionaire must conduct site survey and consider that cost in the financial analysis.
- 8.4** The power consumption charges shall be charged on commercial rates basis.
- 8.5** Whenever PSCDL/PWD is not able to supply source of water, the successful bidder shall be able to make the arrangement for water through private supplies or from bulk supply from PWD reservoir/bore well on a payment basis for which transport arrangements will be made by the Concessionaire. PSCDL will provide necessary help for approval procedures.
- 8.6** PSCDL will not be responsible for any payments of raw water either piped water supply or from bulk water supply from private water suppliers or from PWD reservoir/bore well.
- 8.7** Payment against raw water to private water suppliers or to PWD piped water supply/reservoir/bore well shall be made directly to the concerned party/organization by the concessionaire.



9 Construction requirement for Water ATM

- 9.1** The Concessionaire shall design ATM's in such a way that material considered, or design and construction should only be of Stainless Steel (minimum Grade SS316).
- 9.2** The Concessionaire shall design ATM's in such a way that, in case quality of incoming Water is not as per required standards, then plant/ ATM should be automatically shut down. The Concessionaire should bring matter to the knowledge of the Engineer-in-charge immediately and it should be sorted out within a day itself to make ATM back in operation and use.
- 9.3** Specifications, Capacity, Shape and design of the ATM shall be provided by the Concessionaire for each and every location identified (Please refer to Annex III for illustrative design) before start of work and only after obtaining clearance from PSCDL.
- 9.4** Concessionaire shall design ATM's in such a way that, sufficient quantity for storage of water should be made at each and every ATM but not less than the minimum quantity as specified in Financial Bid, to avoid shut down of ATM's on account of no water situation, since present water supply in the area is intermittent. Provided that the Concessionaire shall ensure that the technology chosen is
 - a) Appropriate to the site and ground situation.
 - b) Has a precedent for use in a project of similar nature and size.
 - c) Is supported by the technology/service provider for design, supply, implementation and on-going maintenance.
 - d) Addresses all issues of safety, including fire safety, operational safety, and environmental safety.



Annexure -1: Proposed Locations of water ATM's

THE LOCATION MAP IS ATTACHED AS DRAWING NO	PSCDL-NKI- PSCP-E4-TA-001
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Annexure -2 Specifications for The Atm Unit and Development of Site

1. General requirements:

- a. Minimum covered area of treatment plant enclosure to be provided for fixing RO plant along with required product water tanks shall be 60sq.ft along with provision for two dispensers on two sides.
- b. A service area should be provided within the enclosure, with sufficient space so that all the equipment can be conveniently taken inside for fitting and repairs.
- c. Minimum 7 ft headroom shall be provided.
- d. Product water storage tank 500 litres shall be placed inside the treatment plant Housing Structure.
- e. Adequate space shall be provided for storing materials/ consumable required during O&M of the treatment plant system.
- f. The unit should be modular and easy to relocate.
- g. General requirements and specifications for treatment plant enclosure – space requirement for accommodating system.

2. Enclosure of Treatment plant Structure:

- a. All exposed non-galvanized steel structure should be stainless steel / clad with stainless steel for higher non-rust life grade SS 316.
- b. Thickness of PUF panels should be 50 mm with 40kg/m³ density and minimum 0.4 mm galvanized Steel sheet on both sides. The sheet shall be galvanized steel with RMP coating for higher durability. Color of inner sheet should be white/blue whereas external sheet of the panel should be coated with attractive color combinations to go with the external surroundings in order to qualify as aesthetic road furniture to mix with the surroundings. The external finish on Steel panels shall be brick/wooden/stone.
- c. The structure should be rigid, made of MS frame of minimum 2.5mm thickness and duly painted for rust resistance.



- d. Necessary foundation for RO+UV system and required platforms for specified category of treatment plant system shall be provided with plinth depth of 0.5ft. above ground level.
- e. Single door of adequate size with good quality locking arrangement of Yale/Godrej make shall be provided to restrict access to the unit. The door should be made of steel with PUF insulation along with matching colors with adequate protection against breakage.
- f. Raw water storage tank of minimum 500-liter capacity must be provided inside. The raw water storage tank should have provision to be attached to piped water supply as well as fitting of external nozzle which provides the option for sourcing raw water from tankers and functioning as a standalone unit in case piped water supply is not available.
- g. A chiller unit of 200 litres storage capacity should be provided inside the unit. Proper ventilation facility must be provided for the removal of chiller unit heat.
- h. The structure should be appropriate to protect the entire treatment plant system, including its equipment and accessories in all weather conditions and it should be able to withstand the extreme climatic variations.
- i. Treatment plant housing shall be a hexagonal/ cylindrical structure ensuring maximum utilization of space and ergonomics.
- j. Minimum 2 easily washable stainless-steel counters of dispensing capacity ranging from 250 ml to 5 L for dispensing cold drinking water must be provided on the external panels of the housing structure. Each counter should be capable of dispensing cold water and each must have latching system for switching ON with push button.
- k. The unit shall have minimum two coin/card enabled dispensers.
- l. The top canopy protecting the tank should be aesthetically made e.g. like dome so as to cover the entire raw water storage to protect it from heating and external weather conditions with materials like PP reinforced UV stabilized Poly Vinyl/ FRP covering.
- m. The total floor area around the unit should be covered with branded vitrified/anti-skid tiles.