REGULATED INDUSTRIES COMMISSION

Performance Monitoring and Reporting Framework

For The

Water and Wastewater Sector

January

2021

This document seeks to establish a Performance Monitoring and Reporting Framework for the purposes of monitoring the Water and Wastewater Sector in Trinidad and Tobago.

Consultative Document

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ABBREVIATIONS

Abbreviation	Meaning
breaks/km/yr	Breaks per kilometer per year
clogs/km/yr	Clogs per kilometer per year
hrs/day	Hours per day
m^3/conn/d	Cubic metres per connection per day
m^3/conn/m	Cubic metres per connection per month
m^3/km/d	Cubic metres per kilometres per day
\$/ m^3 prod	Dollar per cubic metre of production
\$/conn	Dollar per connection
\$/ m^3/yr	Dollars per cubic metre per year
\$/conn/yr	Dollars per connection per year
GDP	Gross domestic product
ILI	Infrastructure leakage index
lpcd	Litres per capita per day
mcm/d	Million cubic metres per day
RAB	Regulatory Asset Base
WASA	Water and Sewerage Authority
W&WW	Water and Wastewater

1.0 INTRODUCTION

1.1 Background

As the economic regulator of the electricity, and the water and wastewater sectors in Trinidad and Tobago, the Regulated Industries Commission (RIC) has a mandate to regulate the service providers under its purview in a manner which promotes efficiency and economy in their operations. In carrying out its regulatory role, the RIC is guided by the legislative and regulatory framework set out in the RIC Act No. 26 of 1998. Specifically, section 6(1) of the Act empowers the RIC to, among other things: prescribe standards of service; monitor service providers and conduct checks to determine compliance with the standards; impose sanctions for non-compliance with the standards; and carry out studies of efficiency and economy of operation and of performance by service providers, and publish the results thereof.

In keeping with the above mandate, the RIC established a Performance Monitoring and Reporting (PMR) Framework in 2005, for the purposes of monitoring the services of the electricity transmission and distribution sector. A recent review of the Framework shows the effectiveness of the regulatory approach adopted by the RIC.[1] Against this background, the RIC will establish a **PMR Framework for the purposes of monitoring the Water and Wastewater Sector in Trinidad and Tobago**. This will form part of the RIC's overall compliance and reporting framework for the sector.

1.2 Purpose of this Document

This document seeks to establish a PMR Framework for the Water and Wastewater Sector. It will outline the RIC's approach of using key performance indicators to monitor the performance of the Water and Sewerage Authority of Trinidad and Tobago (WASA).

1.3 Structure of the Document

This document is organized in five (5) sections. The introduction is contained in **Section 1**. **Section 2** discusses the need for performance monitoring and reporting. **Section 3** outlines the principles and scope for the design of the PMR Framework. **Section 4** outlines the reporting and verifying mechanisms of the PMR Framework. Lastly, **Section 5** outlines further proposals for the PMR

[1] Review of Performance Monitoring and Reporting Framework for the Electricity Transmission and Distribution Sector (January, 2021), http://www.ric.org.tt/publications/.

Framework the Water and Wastewater Sector, in keeping with those recently proposed for the electricity sector.

1.4 Responding to the Document

All persons wishing to comment on this document are invited to submit their written responses **by 4:00 pm on February 15th, 2021.** Responses should be sent by post, fax or email to:

Executive Director
Regulated Industries Commission
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Email : ricconsultation@ric.org.tt

Website : www.ric.org.tt

All responses will normally be published on the RIC's website unless there are good reasons why they must remain confidential. Any requests for confidentiality must be indicated.

2.0 THE NEED FOR PERFORMANCE MONITORING AND REPORTING

Monopoly utilities do not face the normal competitive pressures that would be an impetus to providing a high quality of service. As a result, a regulator has to institute certain measures to ensure that the customers of such utilities are provided with a high quality of supply. There are various options available to the regulator to incentivize the service providers to improve inefficiencies and outperform performance targets. These include establishing quality of service standards, setting an X factor (efficiency factor), and implementing certain mechanisms such as efficiency carryover mechanisms,[2] service incentive schemes and performance monitoring and reporting schemes.

Irrespective of the regulatory approach taken, information on the services being provided is essential for the economic regulation of network industries. In fact, in the absence of effective competition and customer choice, monitoring and reporting of service performance can operate as a transparent customer protection measure. A performance and monitoring scheme can provide incentives for service providers to maintain and improve quality by providing information to customers, the media and stakeholders, thus enabling them to critically assess performance.

The main objective of the RIC's PMR scheme is therefore to provide comprehensive information to stakeholders about the services they receive, while at the same time provide incentives for the service provider to improve its performance. Under the scheme, the measures of performance established at the beginning of the price control period would be subsequently compared with actual performance throughout the period. The performance reporting will be a starting point from which more comprehensive and regularly updated analysis can be undertaken, thereby providing stakeholders with improved information to assess the performance of the utility.

In short, the PMR scheme would be a significant performance driver and a useful tool for:

- informing customers and other interest groups about the level of service they are receiving;
- providing information and data for developing regulatory standards where required and for on-going assessment of compliance with such standards;

[2] An efficiency carryover mechanism allows a service provider to keep the savings made above those embodied in the X factor for a specific period of time and a service incentive scheme links quality of service to revenue.

- informing the decision-making processes of regulators;
- identifying baseline performance of service providers as well as comparing relative performance with other utilities; and
- assessing the current performance of the sector and determining areas for improvement of service needs.

Regulatory audits will generally complement the PMR Framework to ensure that accurate and reliable information is reported.

<u>The RIC invites comments on the following:</u>

- Should the RIC establish a Performance Monitoring and Reporting (PMR) Scheme for the Water and Wastewater Sector as set out in this Framework?

3.0 PRINCIPLES AND SCOPE FOR THE DESIGN OF THE PMR FRAMEWORK

The identification, determination and monitoring of performance indicators is an integral tool in the evaluation of the performance of utilities. The performance indicators that a given stakeholder may be interested in can be very diverse. For instance, customers want to be assured that certain benchmarks are being met and there are continuing quality improvements in the services provided by the utility. Whereas, shareholders, boards and executive management show interest in the performance indicators that affect the bottom line of the organization. This interest is prompted by their concerns to ensure that improvements lead to enhanced cost effectiveness. Consequently, the scope and set of performance indicators for the design of a PMR Framework can vary significantly.

Therefore, the RIC's PMR Framework would have regard for the following principles:

- the performance indicators must be well defined and collected on a consistent basis to provide a valid measure of performance, and to allow reasonable comparisons overtime and with other utilities;
- the performance indicators must be meaningful, relevant, pertain to key issues relating to the service provider and its customers, and reflect local conditions;
- the PMR Framework must focus on a reasonable range of performance indicators and draw upon existing indicators to minimize the costs of collecting information and aid reasonable comparisons; and
- the accuracy and reliability of information provided must be verifiable.

It is generally accepted that a well-run utility should provide efficient services to all customers at prices that are generally affordable and which allow the utility to recover efficient costs and finance new investment. There are five (5) broad characteristics of such a utility, including efficient operations and maintenance, financial sustainability, efficient and effective capital investment, responsiveness to customers, and accountability to stakeholders.[3] Assessing the achievement of each these characteristics can be determined by reference to appropriate indicators that measure

[3] Tynan Nicola, and Kingdom Bill. 2002. "*Effective Water Service Provision: Performance targets for a well-run utility."* The World Bank.

the utility's performance. Accordingly, the performance indicator scope for the PMR Scheme would broadly cover the following major areas:

- **baseline explanatory data** (e.g. customer number, system length);
- **network reliability and efficiency** (e.g. leakages, interruptions);
- **customer responsiveness and services** (e.g. response to service disruptions, complaints handling);
- **financial performance** (e.g. profitability - that is assessing profit or loss position, return on RAB);
- **service coverage** (e.g. water coverage, sewerage coverage); and
- **affordability** (e.g. prices).

Whenever possible, the PMR Scheme should include qualitative information.

The draft list of performance indicators for the Water and Wastewater sector is set out in the **Appendix**. It provides details on definitions, units of measurement and the time periods for reporting of the relevant indicators.

The RIC is aware that performance indicators and definitions should remain stable over time to facilitate the collection of time-series data and allow trends in performance to be monitored. However, it will be necessary to undertake periodic reviews of the performance indicators to ensure that they take into account future developments and remain relevant and meaningful. Thus the RIC reserves the right to adjust the scope and number of indicators that it monitors.

The RIC invites comments on the following:

- The principles and scope for the design of the Performance Monitoring and Reporting Framework.

- The draft list of performance indicators for WASA as set out in the Appendix.

4.0 REPORTING & VERIFICATION MECHANISMS FOR PMR FRAMEWORK

The RIC believes that the service provider must be adequately monitored and performance targets must be effectively enforced for the performance indicators to deliver the expected results. Accordingly, the reporting and verifying mechanisms (i.e. the frequency of collection and reporting and the process for verifying information) in the PMR Framework would broadly encompass the following:

- the service provider reports information quarterly/annually electronically using standardized templates developed by the RIC. All submissions by the service provider are to be interrogated by the RIC; and
- the RIC publishes an annual report of the service provider's performance.

In order for performance reporting to be credible, the information must be accurate and reliable. WASA must therefore ensure that adequate resources are devoted to meeting its regulatory commitments in this regard, and it should consider the establishment of a dedicated regulatory unit as part of its overall compliance efforts. The RIC also has a responsibility to review the integrity of the data collection processes and it has to be satisfied that the service provider has in place processes and procedures to ensure the integrity of data. Regulatory audits will therefore be used to test the effectiveness and efficiency of a service provider's design or systems of control as well as the integrity of the data provided. Audits will be undertaken as necessary, prior to the release of a performance report. These audits can be conducted by RIC staff, however, the RIC reserves the right to engage an external party to conduct this exercise.

The annual report of the service provider's performance will be publicly released at the end of each period. This report will serve as a measure of performance for the service provider, and a permanent record of the progress attained with respect to the performance indicators over the relevant period. It will also assist in identifying performance gaps which may need to be resolved by the service provider, while better informing customers and other stakeholders about the level of service they are receiving. Over the longer term, the Report will feed into the RIC's Price Review Process.

5.0 FURTHER PROPOSALS FOR PMR FRAMEWORK

In keeping with the proposals from the Review of the PMR Framework for the Electricity Transmission and Distribution Sector[4], the RIC will initiate the following measures:

1. Employ all enforcement powers contained in the RIC Act to obtain timely and reliable information from the service provider, including:
   - Caution letters;
   - Publication of non-compliance in the media; and
   - Any other action necessary to achieve compliance (inclusive of fines); and
2. Report on an abbreviated list of major indicators (i.e. "traffic signal" indicators) at six (6) months intervals to give a snapshot of the performance and financial health of WASA. In order to provide a broad perspective, the indicators will cover the following areas: **financial health, operational efficiency and customer responsiveness.** The rationale behind this list of indicators is to depict the overall health and performance of the service provider using no more than five (5) indicators that may be of interest to customers and easily understood by them (see Table below). These "traffic signal" indicators will also be included in the water bills of customers.

Table – List of Major Indicators

Indicator	What it Measures
Non-revenue water	Non-revenue water represents water that has been produced and is "lost" before it reaches the customer (either through leaks, through theft, or through unbilled legal usage).
Current Ratio	Financial Health – Liquidity
% Net Profit	Financial Health (assessing the profit or loss position of the service provider)
Customers per Employee Ratio	Operational Efficiency of the service provider
Written Complaints Response Rate	Customer Responsiveness

The RIC invites comments on: **- The proposed mechanisms to verify the data and to ensure compliance on the part of the service provider.**

[4] Review of Performance Monitoring and Reporting Scheme for the Electricity Transmission and Distribution Sector (January 2021), http://www.ric.org.tt/publications/.

APPENDIX

PERFORMANCE INDICATORS FOR THE WASA (DETAILED)

Item	Category	Indicator	Definition	Key Data	Source	Monitored by	Reported by	Reporting Period
1.0	***Baseline Explanatory Data***							
1.1		Number of water customers (no.)	The number of customers that the utility provides water services to, according to customer class and area	1. Total no. of water customers 2. No. of water customers per class[5] 3. No. of water customers per area	WASA	WASA, RIC	WASA	Annually
1.2		Number of wastewater customers (no.)	The number of customers that the utility provides wastewater services to, according to customer class and area	1. Total no. of wastewater customers 2. No. of wastewater customers per class 3. No. of wastewater customers per area	WASA	WASA, RIC	WASA	Annually
1.3		Length of water mains km	All the water mains used in the utility's operations	1. Total length of water mains	WASA	WASA, RIC	WASA	Annually
1.4		Length of wastewater mains (km)	All the wastewater mains used in the utility's operations.	1. Total length of wastewater mains	WASA	WASA, RIC	WASA	Annually

[5] WASA's customer classes include: Domestic, Agricultural, Non-Domestic, Cottage and General. Public Utilities Commission of Trinidad and Tobago Tariff Book to Order 83 Schedule of Rates and Charges of the Water and Sewerage Authority of Trinidad and Tobago.

Item	Category	Indicator	Definition	Key Data	Source	Monitored by	Reported by	Reporting Period
1.5		Volume of water abstracted by Source (mcm/d)	The volume of water abstracted from all sources, including surface water, groundwater and desalinated water.	1. Total volume of water abstracted 2. Volume of water abstracted per source	WASA	WASA, WRA, RIC	WASA	Annually
2.0	***Affordability***							
2.1		Connection charge – water TT$/conn	The cost to make a residential pipe connection to the water system measured in absolute amount.	Connection cost	WASA, RIC	WASA, RIC	WASA	Annually
2.2		Connection charge –sewer TT$/conn	The cost to make a residential pipe connection to the sewer system measured in absolute amount.	Connection cost	WASA, RIC	WASA, RIC	WASA	Annually
2.3		Disconnections for non-payment of bills (per 100 customers)	Number of domestic customers disconnected due to non-payment of bill, expressed per 100 customers.	1. No. of domestic customers per class 2. No. of customers disconnected per class	WASA	WASA, RIC	WASA	Annually

Item	Category	Indicator	Definition	Key Data	Source	Monitored by	Reported by	Reporting Period
3.0	***Cost and Staffing***							
3.1		Staff (per 1000 connections) #/'000	The total number of staff, expressed per thousand water connections.	1. Employee figures 2. No. of connections	WASA	WASA, RIC	WASA	Annually
3.2		Labour costs (% operating costs) %	The total annual labour costs (including benefits), expressed as a percentage of the total annual operational costs.	Financial statements	WASA, Auditors	WASA, RIC	WASA	Annually
3.3		Contract out service cost (% operating cost) %	The total cost of services contracted-out to the private sector, expressed as a percentage of total annual operational costs.	1. Contract data 2. Financial statements	WASA, Auditors	WASA, RIC	WASA	Annually
4.0	***Customer Responsiveness and Service***							
4.1		Complaints by Major Type #	Reports on the major areas of complaint	1. No. of complaints by major type 2.Total no. of complaints	WASA	WASA, RIC	WASA	Quarterly and Annually
4.2		Complaints resolution rate %	The number of complaints resolved, expressed as a percentage of the number of complaints received.	1.No. of complaints received 2.No. of complaints resolved and unresolved 3.Average time to resolve complaints	WASA	WASA, RIC	WASA	Quarterly and Annually

Item	Category	Indicator	Definition	Key Data	Source	Monitored by	Reported by	Reporting Period
4.3		Complaints Received per 100 Customers	The number of complaints received for every 100 customers	1. Total no. of complaints received 2. Total no. of customers	WASA	WASA, RIC	WASA	Quarterly and Annually
4.4		Calls to Emergency Phone Line % answered in 30 seconds	The percentage of calls answered within 30 seconds.	1.Total no. of calls to emergency phone line 2.No. of calls answered within 30 seconds	WASA	WASA, RIC	WASA	Quarterly and Annually
4.5		Response to Written Complaints %	Number of written response within the target time period / number of written complaints during the period * 100	1. Total no. of written response within the target time period 2. Total no. of written complaints during the period	WASA	WASA, RIC	WASA	Quarterly and Annually
5.0	***Financial Performance***							
5.1		Total Revenue (by Category)	The operating revenue and other revenues for the period.	Financial statements	WASA, auditors	WASA, RIC	WASA	Annually
5.2		Total Expenditure (by Major Category)	The sum of operating expenses and other expenses. Operating expenses includes Generation, Transmission and Distribution, Administration and General and Depreciation	Financial statements	WASA, auditors	WASA, RIC	WASA	Annually
5.3		Gearing	$\frac{[\text{Interest bearing debt}]}{[\text{Interest bearing debt + equity}]}$	Financial statements	WASA	WASA, RIC	WASA	Annually
5.4		Funds Flow Operations $	Operating Revenue – Operating Expenses	Financial statements	WASA	WASA, RIC	WASA	Annually

Item	Category	Indicator	Definition	Key Data	Source	Monitored by	Reported by	Reporting Period
5.5		Funds Flow Interest Cover Times	(FFO + Interest) Interest	Financial statements	WASA	WASA, RIC	WASA	Annually
5.6		Cash Interest Cover Times	Opening Cash Flow Interest Expense	Financial statements	WASA	WASA, RIC	WASA	Annually
5.7		Debt Pay Back Period Years	Net Debt FFO	Financial statements	WASA	WASA, RIC	WASA	Annually
5.8		Debt as a Proportion of Regulatory Asset Base (RAB) %	Net Debt RAB	Financial statements	WASA	WASA, RIC	WASA	Annually
5.9		Collection Rate	Operating Revenue –Receivables Operating Revenue X 100 %	Financial statements	WASA	WASA, RIC	WASA	Annually
5.10		Revenue Billed/Operating Cost	Operating Revenue Billed Operating Cost	Financial statements	WASA	WASA, RIC	WASA	Annually
5.11		Revenue Collected/ Operating Cost	Revenue Collected Operating Cost	Financial statements	WASA	WASA, RIC	WASA	Annually
5.12		Internal Financing %	(FFO – Dividends) X 100% Net CAPEX	Financial statements	WASA	WASA, RIC	WASA	Annually
5.13		Return on RAB %	Net operating income RAB x 100%	Financial statements	WASA	WASA, RIC	WASA	Annually
5.14		Operating Cost per Unit	Total Operating costs Total no. of kWh sold	Financial statements	WASA	WASA, RIC	WASA	Annually

Item	Category	Indicator	Definition	Key Data	Source	Monitored by	Reported by	Reporting Period
6.0	***Metering***							
6.1		Metering level (%)	The total number of connections with operating meters, expressed as a percentage of the total number of connections.	1. No. of connections 2. No. of metered connections 3. No. of new connections for year	WASA	WASA, RIC	WASA	Annually
7.0	***Pipe Network Performance***							
7.1		Pipe breaks (break/km/yr)	The total number of pipe breaks per year expressed per km of the water distribution network.	1.No. of jobs per region per year 2.Size of distribution network (km)	WASA	WASA, RIC	WASA	Quarterly/Annually
7.2		Pipe breaks (break/conn/yr)	The total number of pipe breaks per year expressed per number of water connections.	1. No. of jobs per region per year 2.No. of water connections	WASA	WASA, RIC	WASA	Quarterly/Annually
7.3		Sewerage clogs (clogs/km/yr)	The total number of blockages per year, expressed per km of sewers.	1.No. of repair jobs per area 2.Size of distribution network (km)	WASA	WASA, RIC	WASA	Quarterly/Annually
7.4		Sewerage clogs (clogs/conn/yr)	The total number of blockages per year, expressed per number of sewerage connections.	1. No. of repair jobs per area 2.No. of new sewerage connections	WASA	WASA, RIC	WASA	Quarterly/Annually
8.0	***Service Coverage***							
8.1		Water coverage (%)	The population with easy access to water to water services (either with direct connection or within 200m of standpipe), expressed as a percentage of the total population under utility's nominal responsibility.	1.Population served 2.Total population 3.Map of served population 4. Map of infrastructure (pipe, plant) 5. New mains (km) 6. Replaced mains (km)	WASA, CSO	WASA, RIC	WASA	Annually

Item	Category	Indicator	Definition	Key Data	Source	Monitored by	Reported by	Reporting Period
8.2		Sewerage coverage (%)	The population with sewerage services (direct service connection), expressed as a percentage of total population under utility's nominal responsibility.	1.Population served 2.Total population 3.Map of served population 4.Map of infrastructure (pipe, plant) 5.New sewers laid (km)	WASA, CSO	WASA, RIC	WASA	Annually
9.0	***Quality of Service***							
9.1		Continuity of service (hrs./day)	The average hours of service per day for water supply.	1.FSE data 2.Customer feedback on service (hours and days per week)	WASA	WASA, RIC	WASA	Annually
9.2		Water pressure	The level of pressure shown anywhere on the water supply piping system.	1.Customer feedback 2. Site visit tests	WASA	WASA, RIC	WASA	Annually
9.3		Customers per class of supply[6] (%)	The percentage of customers in each class of water supply, during a given period.	1.FSE data 2.Customer feedback on service (hours per week and days per week) 3.Breakdown of water supply schedules per class of supply 4.No. of customers per class of supply 5. Population in receipt of supply	WASA	WASA, RIC	WASA	Annually
10.0	***Water Losses***							
10.1		Non-revenue water (%)	The difference between water supplied and water sold (i.e. volume of water 'lost') expressed as a percentage of net water supplied	1.Water into supply 2.Estimated authorized consumption (domestic, commercial, public) 3.Estimated unauthorized consumption (illegals)	WASA	WASA, RIC	WASA	Annually

Item	Category	Indicator	Definition	Key Data	Source	Monitored by	Reported by	Reporting Period
10.2		Non-revenue water (m^3/conn/d)	The volume of water 'lost' per water connection per day	1.Water into supply 2.Estimated authorized consumption (domestic, commercial, public) 3.Estimated unauthorized consumption (illegals) 4.No. of water connections	WASA	WASA, RIC	WASA	Annually
10.3		Non-revenue water (m^3/km/d)	The volume of water 'lost' per km of water on the distribution network per day	1.Water into supply 2.Estimated authorized consumption (domestic, commercial, public) 3.Estimated unauthorized consumption (illegals) 4.Size of distribution network (km	WASA	WASA, RIC	WASA	Annually
10.4		Infrastructure leakage index	Quantifies how well the distribution system is managed (maintained, repaired, rehabilitated) for the control of real (leakage) losses at the current operating pressure.	1.Current Annual Real Losses (CARL)[7] 2.Unavoidable Annual Real Losses[8]	WASA	WASA, RIC	WASA	Annually
11.0	***Water Production***							
11.1		Total water production (lpcd)	The total annual volume of water produced, expressed as litres per capita per day.	1.Total volume of water produced 2.No. of production facilities 3.Average plant production 4.Plant capacity	WASA, CSO	WASA, RIC	WASA	Quarterly/ Annually

[6] WASA's class of supply includes: Class I, Class II, Class III, Class IV and Class V

[7] CARL represents the volume of water lost from reported leaks, unreported leaks, background losses, and operator error (storage tank overflows) during the water audit reporting period.

[8] UARL represents the lowest loss technically achievable in a water utility based on its key characteristics

Item	Category	Indicator	Definition	Key Data	Source	Monitored by	Reported by	Reporting Period
11.2		Total water production (m^3/conn/month)	Total annual volume of water produced, expressed as connections per month.	1.Volume of water produced 2.No. of production facilities 3.Average plant production 4.Plant capacity 5. No. of connections	WASA	WASA, RIC	WASA	Quarterly/ Annually
11.3		Total water supplied (lpcd)	The total annual volume of water supplied to the distribution system, (including purchased water, if any), expressed as litres per capita per day.	1.Total volume of water supplied 2.Average household size	WASA, CSO	WASA, RIC	WASA	Quarterly/ Annually
11.4		Total water supplied (m^3/conn/month)	The total annual volume of water supplied to the distribution system, (including purchased water, if any), expressed as connections per month.	1.Total volume of water supplied 2.Average household size 3.No. of connections	WASA	WASA, RIC	WASA	Quarterly/ Annually