HORIBA
Process & Environmental

Case study

Monitoring drinking water quality by Water Distribution Monitor TW Series

Case study of remote monitoring/operation at water tower in Selangor State, Malaysia

March 2021

1 Overview

According to the World Health Organization, 2.2 billion people across the globe do not have access to clean drinking water as of 2019. This alarming figure accounts to almost one-third of the world population. The increase in demand for safe drinking water as a corollary of the increase in world population could pose a challenge for water shortage.

In Malaysia, Vision 2020 was introduced in 1991 to create a self-sufficient industrialized nation by setting several key objectives. One of the key objectives is related to the conservation and management of water resources to ensure access to adequate safe drinking water for everyone.

In order to achieve the above-mentioned objective, the demand for water quality monitoring before distributing the water for consumption has reached an unprecedented level. The Water Distribution Monitor, TW Series has been adopted by the local utility companies to ensure that their water meets the regulatory standards before distribution (Fig. 1).

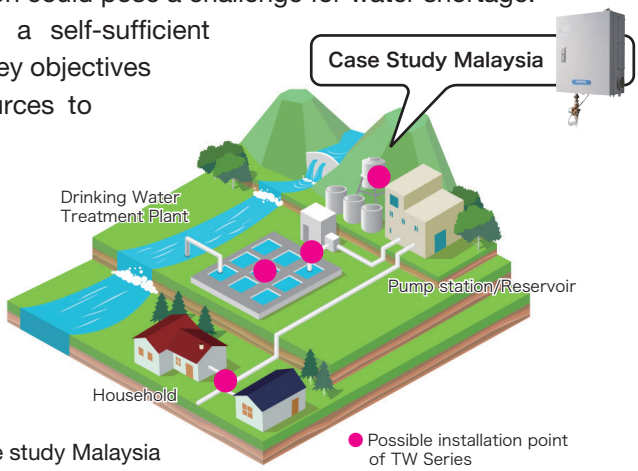

Fig. 1 Installation point of TW Series in case study Malaysia

2 Case Study Malaysia

In 2018, Selangor State, near Kuala Lumpur, the capital city of Malaysia, began using HORIBA TW series for drinking water monitoring, and the number of units is expected to increase to 190 units by the end of 2021. In this application, TW Series was used in a distinctive way. With the help of local system integrator, Selangor State had upgraded the TW Series to enable real time data monitoring via IOT web (Fig. 2). They had developed a software for “live” data monitoring so that TW's measurement data, which monitors water quality supply prior to distribution at the water supply station, can be checked remotely at any time on a PC or smartphone.

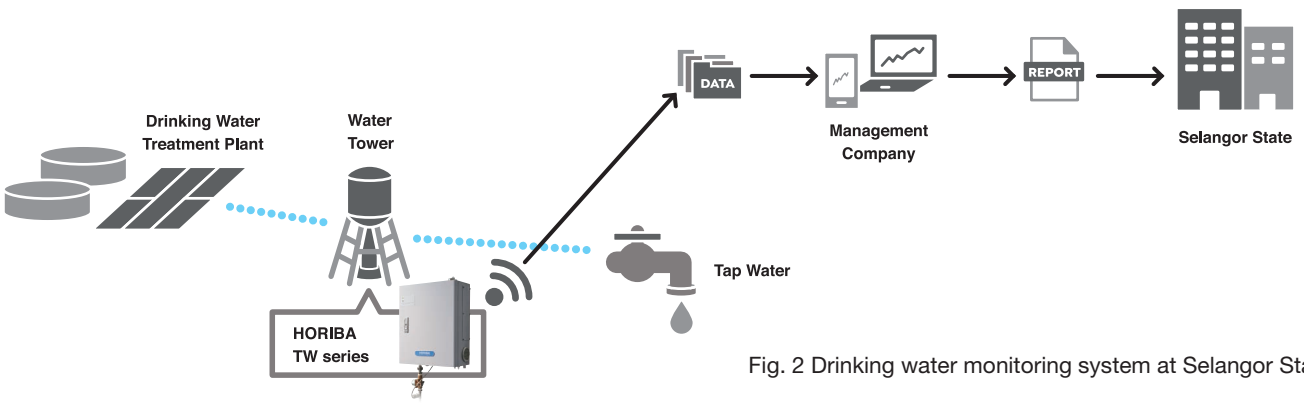

Fig. 2 Drinking water monitoring system at Selangor State

The above-mentioned data telemetry system allows operator to monitor the real time water quality data remotely. As a result, operators are not required to visit the site physically to download the measurement data. This revolutionary method of water quality management has been highly evaluated, and about 150 additional units will be delivered to the state in the near future.

3 Product information

HORIBA Water Distribution Monitor TW Series is a compact water quality measurement system designed for drinking water and water distribution plants. This compact system is equipped with built-in sensors to monitor five water quality parameters. Optional sensors can be added to monitor as many as seven water quality parameters. No reagents are required for measurement, which could help reduce running cost. Focusing on user-fiendishness, we have designed the operations to be simple with the use of touch panel. Maintenance can also be performed without the need of special tools.

TW-150

■Standard type

Measurement items	Measurement method	Measurement range	Repeatability	Calibration method
Turbidity	90 degree light scattering method	0 to 2, 0 to 5, 0 to 10 NTU/FTU	±2.5% of full scale	Formazin standard solution
Color	Transmitted light absorption method	0 to 10,0 to 20 TCU	±5.0% of full scale	Standard color solution
Free residual chlorine	Polarographic method	0 to 5 mg/L	±2.5% of full scale	DPD colorimetric method
Water pressure	Semiconductor detection method	0 to 1 MPa, 0 to 10 Bar	±1.0% of full scale	Standard pressure gauge
pH	Glass electrode method	2 to 12 pH	±0.1 pH	pH standard solution

■Option (each parameter can be added to the standard type)

Measurement items	Measurement method	Measurement range	Repeatability	Calibration method
Conductivity	AC 2 pole method	0 to 500, 0 to 1000 µS/cm	±2.0% of full scale	KCl standard solution
Water temperature	Thermistor method	0 to 50°C	±0.5°C	Standard thermometer

Product website
https://www.horiba.com/tw-150/index.html

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