

CUSTOMER

Macao Water

CHALLENGE

Conserving and accurately managing **the nation's limited water resources**

TECHNOLOGY

SUEZ AQUADVANCED® Water Networks, a data management system that enables utilities to remotely and continuously monitor their potable water networks to improve overall operational efficiency and deliver excellent service. The solution gathers and processes massive amounts of data coming from multiple sources and systems commonly used to manage drinking water networks such as SCADA, sensors, GIS, data historian, smart meters, Workforce management or CRM. The software proposes simple interfaces with maps and dashboards, as well as intelligent event detection methods using advanced statistical methods and machine learning.

RESULTS

Since the implementation of AQUADVANCED® Water network, operators of Macao Water can intensively monitor the network performance in hourly basis. Trend of pressure and flow variation can be qualified to provide a quick response to unusual water use. Event traceability is improved.



Conserving Macao's Water

650,000 PEOPLE
30 MILLION TOURISTS
SERVED BY MACAO WATER

Macao sought
an innovative
solution
to preserve
its natural
resources

Known as the "Vegas of China", the island and peninsula that make up South East Asia's Macao host around **650,000 inhabitants, 30 million tourists** and limited natural resources. With longstanding challenges regarding the level of salinity penetrating its freshwater, as well as potential water shortages, Macao's drinking water nevertheless complies with high water quality standards.



158 events
WERE DETECTED WITHIN
TWO MONTHS OF
DEPLOYMENT

Macao water deploys

AQUADVANCED® WATER NETWORKS

**EARLY DETECTION
OF INTERNAL BURST PIPES
IN THE UNIVERSITY
OF MACAO SAVES
5,000 m³
REPRESENTING
3 DAYS OF CONSUMPTION**

Thanks to AQUADVANCED® Water Networks, Macao Water can continuously observe and analyze the network's efficiency. Over the initial 28 months' period (May 2014 – August 2016), 158 events were detected and 92% of those events were confirmed by the operator. On two precise occasions, in April and June 2015, abnormal delivery volumes were identified, and AQUADVANCED® Water Networks was able to communicate the events immediately. Within a very short timeframe, **internal burst pipes in the University of Macao were identified and repaired, saving approximately 5,000 m³ of water — the equivalent of 3 days of the university's consumption.**

Macao's water loss rate was 10.3% in 2016, already very low compared to China's average water loss of 20%. Over several decades Macao Water implemented a system of eight hydraulic sectors with more than 666 km of network to handle the real processing volume of around 300,000 m³ of water each day. **The daily total production capacity is 390,000 m³.**



In 2013, Macao Water implemented the AQUADVANCED® Water Networks solution to have a global view and effectively manage hydraulic sectors with nearly 50 flow sensors and 30 pressure sensors, and added about 100 data-loggers to monitor the usage of big consumers such as casinos and hotels, which can require up to 33,000 m³ of water per day. With hourly data feeds, pressure and flow variation trends could be analyzed and qualified immediately. Event traceability was improved, and subsequently, so was the speed of any required repair.

**390,000 m³
MACAO'S DAILY TOTAL
PRODUCTION CAPACITY**

New insights into network performance and the ability to act quickly