

Case	Providing and exchanging information with retail municipalities through Aquanet Osaka during emergency and non-emergency		
Water utility	Osaka Water Supply Authority		
General information of the utility (as of 2022)			
*All the information except "operation type" is about wholesale water supply			
Operation type	Public (wholesale & industrial & retail water supply)	Service area (km ²)	1679.99
Population served	—	Distribution (m ³ /d)	1,376,762
Service coverage (%)	—	Pipe length (km)	607.81
NRW (%)	—	Number of staff	351
Number of water sources	Surface water (1), Groundwater (0), Others (0)		
Water rates (JPY)	—	(in case of 10m ³ of water per month for residential customers with 13mm diameter)	
Summary	<p>In the Osaka Prefecture area, there are no water sources other than the Yodogawa River that are abundant in quantity, making it difficult for most cities, towns, and villages in the prefecture to secure the necessary amount of water for their communities from nearby rivers and groundwater alone. For this reason, the Osaka Water Supply Authority ("the Authority") takes water from the Yodogawa River and supplies it to 42 municipalities, excluding Osaka City.</p> <p>In the past, the Authority introduced a "water supply management system" to ensure a stable water supply by remotely operating unmanned pumping stations, clean water reservoirs, and other facilities from its Water Supply Management Center that could monitor all of them. However, the information on the Authority's facilities alone had been too limited to respond to water incidents effectively. Therefore, for more stable water supply, it became necessary to understand the status of water facilities operated by the retail municipalities purchasing drinking water from the Authority.</p> <p>To enhance the lifeline safety, the Osaka Prefecture waterworks development plan (formulated in March 1980) called for further expansion of the existing water supply management system to enable information exchange with the retail municipalities, as well as the</p>		

facility development to make communications with the municipal water supply facilities. Based on this plan, in 1990, the Authority and the retail municipalities began considering the establishment of a support system to ensure more stable water supply.

Based on the results of these discussions, the support system was launched in April 1995 as the Prefectural and Municipal Waterworks Information Exchange System ("Aquanet Osaka").

Since then, the Aquanet Osaka has been effectively used as a tool for exchanging information regarding water supply between the retail municipalities and the Authority.

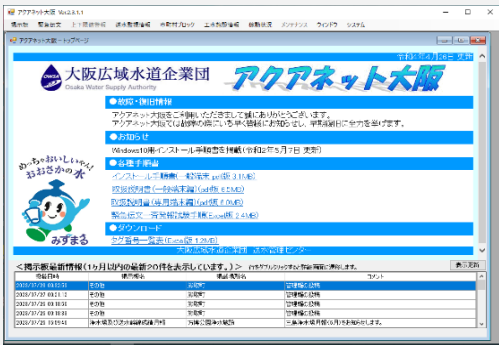


Figure 1 Top page of Aquanet Osaka

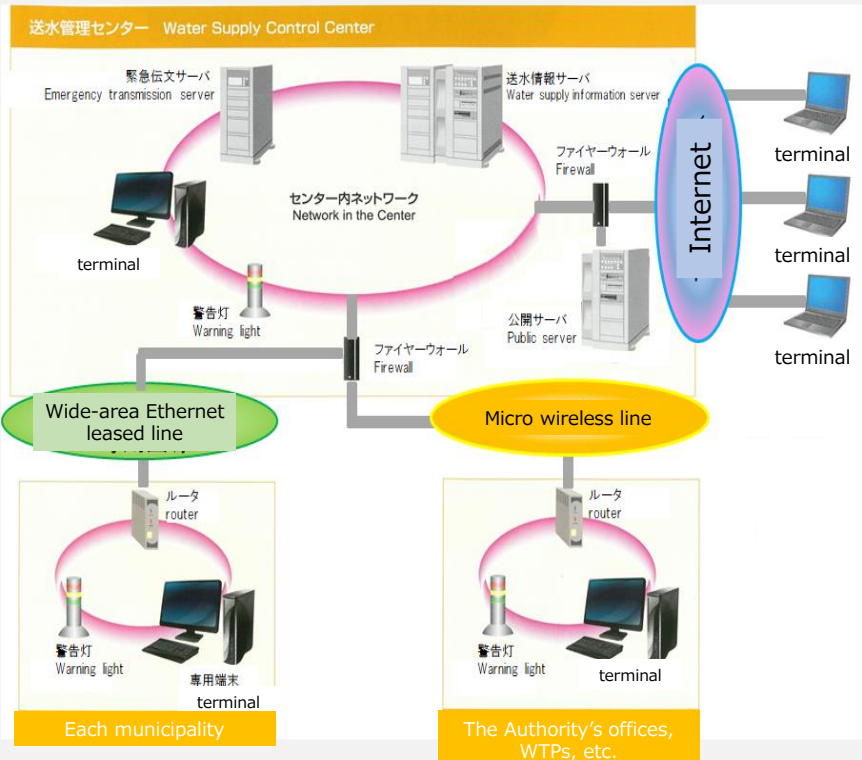


Figure 2 System configuration of Aquanet Osaka

The system configuration of Aquanet Osaka is shown in Figure 2, with servers installed at the Water Supply Management Center and related terminals installed at each site using the system. Using the network, the user can communicate with the Authority (13 sites) and retail municipalities (42 sites) via optical fiber lines (leased lines) and wireless lines. Information on municipal water supply is stored in the

The water supply information of the Authority and the retail municipalities stored in the computes at the Water Supply Management Center can be utilized through the terminals for outputting reports, displaying trend graphs, searching actual data, and outputting CSV files.

1. Trend graph

2. Monitoring screen for network

3. Monitoring screen for water quality

4. Ledger

Figure 3 Work Support System of Aquanet Osaka

② Crisis Management Functions

Aquanet Osaka is equipped with an "emergency message function" that allows information to be sent simultaneously to any terminal in the event of an emergency such as power outage, water leakage, or water quality incident, and a "bulletin board function" for information sharing between the Authority and retail municipalities.

The emergency message function, in particular, allows for simultaneous notification of incidents and facility restoration status, thereby avoiding confusion due to lack of information, and enables quicker and more accurate communication during the initial response to an incident than telephone or other communication methods.

In addition, the emergency message can be used for both "emergency" and "normal" times. During normal times/operations, "normal" messages can be used for maintenance of water quality monitors to efficiently provide information to concerned parties.

③ Network lines

When the Aquanet Osaka was first introduced, information was transmitted to and from the retail municipalities via ISDN (telephone) lines.

In April 2002, a distributed processing method (client/server) using Internet was adopted, and the system configuration was changed to actively take advantage of the Internet.

In April 2010, the Aquanet Osaka was upgraded to include the high-level computer equipment, and information transmission with the retail municipalities is now carried out using optical leased line (wide-area Ethernet) for enhanced security and stability.

The Authority's bases are connected by a self-operated micro wireless line, which enables stable communication even in times of disaster.

④ Use of the Aquanet Osaka from any terminals

Aquanet Osaka used to be available at limited terminals, but in April 2010, the system was made available from any terminals having installed its application and connected to the Internet. Now, each terminal can use functions other than sending emergency messages and posting on the bulletin board, helping to share information in the event of an emergency.

Current Status & Challenges	<p>○Regarding the viewing of Aquanet Osaka</p> <p>As mentioned above, Aquanet Osaka information can be viewed from any terminals. However, since the system is currently limited to Windows applications, the environment in which the system can be used for viewing information and other purposes is limited.</p>
Measures & Solutions	<p>○Regarding the viewing of Aquanet Osaka</p> <p>If information on Aquanet Osaka could be viewed from mobile terminals such as smart phones, it would be possible to confirm information on water supply in the event of an incident such as a leak, enabling appropriate action to be taken (e.g. switching the system or cleaning water mains) leading to rapid recovery. In addition, the ability to view emergency messages and bulletin board information is considered effective for sharing information in the event of an incident. In light of the above, it is considered that the introduction of a function that allows users to view information on Aquanet Osaka from mobile devices would expand the range of its uses and contribute to more efficient operations both in emergencies and in normal times.</p>
Future Plans	<p>The Authority is considering updating the current system of the Aquanet Osaka as it has become outdated.</p> <p>In updating the system, while maintaining the necessary functions, the Authority expects to make it more useful by, for example, adding a function to check information from mobile devices.</p>
References	<p>Osaka Water Supply Authority https://www.wsa-osaka.jp/</p>