



Tap Water Quality Opening Services

Seoul Metropolitan Government, Korea

Background

In South Korea, the City of Seoul has over 10 million inhabitants. The city provides water with six drinking water treatment plants with a total daily production capacity of 5.4 million cubic meters of finished water. Seoul tap water, which is called *Arisu*, satisfies all 155 items of water quality inspection recommended by the World Health Organization(WHO). The safety of *Arisu* was also verified by the United States organizations(UL & NSF), which specialize in products quality analysis with strict standards. The quality of Seoul tap water(*Arisu*) is safe enough to drink. However, most of Seoul citizens are still suspicious about the quality of *Arisu* and avoid drinking it with no apparent reason. In fact, there was no monitoring system to check the quality of tap water at home. This led to the low rate of drinking tap water and distrust in the quality. Instead, the rate of purchasing bottled water has been increasing.

The City of Seoul initiated online and offline tap water quality opening systems, in order to convince the safety to the citizens, while engaging them; (1) Seoul Water Now system (online service), (2) *Arisu* Quality Verification system (offline service).■

Seoul Water Now System

(on-line service)

The City of Seoul Water Works (SWW) designed the Seoul Water Now System in 2001. Since then, the plan had been implemented with a budget of an estimated USD 5 million over the five years.

The Waterworks Research Institute of Seoul Water Works(SWW) Office gathers all kinds of water quality data from water purification plants, water distribution reservoirs and booster pump stations, and monitors data with 24/7 services. The main computer of SWW Office analyzes the data transmitted from Waterworks Research Institute, and releases hourly averaged data through the tap water quality opening system on a real time basis.

Since its first operation in 2005, tap water quality information (Turbidity, pH, and residual chlorine content) has been released

through the Internet on a real-time basis, from a total of 72 sites (6 intake stations, 5 water purifying plants, and 60 other sites from the supply path). Citizens are able to check the tap water quality of their neighbors by using the Internet. This service has enhanced citizens' reliability and transparency of tap water quality. An additional investment of about USD 1.4 million had been made for expanding these systems as of 30 May 2009. Also, a total of 98 sites, including 26 of the taps at the end of the mains, have been opened up. ■

Arisu Quality Verification System

(off-line service)

In addition to the online system to check the quality, the SWW Office has provided a consulting service relating to comprehensive water quality, based on scientific surveys. To do so, water quality inspectors visit individual households, and check the quality of tap water from the houses. Each water sample is field tested according to five criteria, which are turbidity, residual chlorine content, pH, iron content, and copper content. When the water quality meets the criteria, the team attaches a water quality certification on the faucet, as you can see the picture (right).



If it does not meet the standards, however, the following secondary parameters are tested back: ammonia nitrogen content, chloride ion content, general bacteria content, total *coliform* content, colon bacillus content, zinc content, and manganese content. Depending on the test results, they provide guidance to the residents to correct the problems; for instance, “switch to a direct water supply system¹,” “adjust water-contact time,” “issuance of the water withdrawal order,” “water pipe repair,” or “water tank cleaning” and so on. They also provide a consulting service to improve the tap water quality. Quality tests of water from home water purifiers and/or the bottled water people buy for drinking are also provided without charge. The comprehensive customer satisfaction service system also includes all indoor plumbing, water tank management, and inspection for leakages. If any factor that could undermine the quality of tap water from households is identified, all possible measures are immediately taken and further guidance are give to the residents.

Tap water from more than 50,000 houses, apartment buildings, schools, parks, and stores has been inspected every year. A total of 1,152,634 households and buildings have been visited as of December 2008, since November 2001 (See Table 1).

¹ The mains water is directly supplied to taps in households or buildings, which are no higher than fifth floors, without storing water in cisterns.

➤ Table 1

Water Quality Verification System Records by Year (unit : households)

Year	Total	2001	2002	2003	2004	2005	2006	2007	2008
No. of Inspections	1,152,634	5,036	124,033	92,152	55,805	54,862	54,080	55,657	711,009

Seoul Water Works(SWW) Office has invested about USD 15 million and 40,000 man-days every year to complete this initiative by the year of 2010. As of 2008, it has completed their visit to about 1.1 million residences without charge.

In addition, SWW Office is operating “Tap Water Evaluation Committee” composed of specialists, members of civic groups, and citizens. They participate in the whole processes, such as intake of raw water, water quality inspection, and make announcement on the results of the inspection. In this way, SWW ensures that the verification systems are also monitored by citizens through their direct participation, enhancing citizens’ trust of the Seoul tap water *Arisu*, as well as *Arisu* Quality Verification System. ■

Key Benefits And Lessons

The Seoul citizens are able to directly check the quality of tap water which is supplied to their each house from water purification plants that are located around their residences. Furthermore, they also can get their own tap water checked by the water quality inspecting team who visit citizens’ houses. These online and offline services for checking tap water quality apparently cleared out dissatisfaction and suspicion for water quality, enhanced citizens’ trust, and improved transparency and accountability in the public services.

Specifically, the rate of drinking tap water has soared over 20 per cent than before implementing the initiatives. Approximately 76 percent of households which experienced *Arisu* Quality Verification System have shown their enhanced trust in tap water. Finally the increasing rate of drinking tap water saved management costs and purchasing fees for water purifiers or/and bottled water. ■

<Lessons>

Securing qualified inspectors and consultants with the expertise of water quality inspection, and providing them with systematic and continuous education programmes

Enhancing citizens' trust in tap water, and improving transparency and accountability in the public service by directly engaging them in the process of checking water quality; Using online and offline services

Seoul Water-Now System Structure

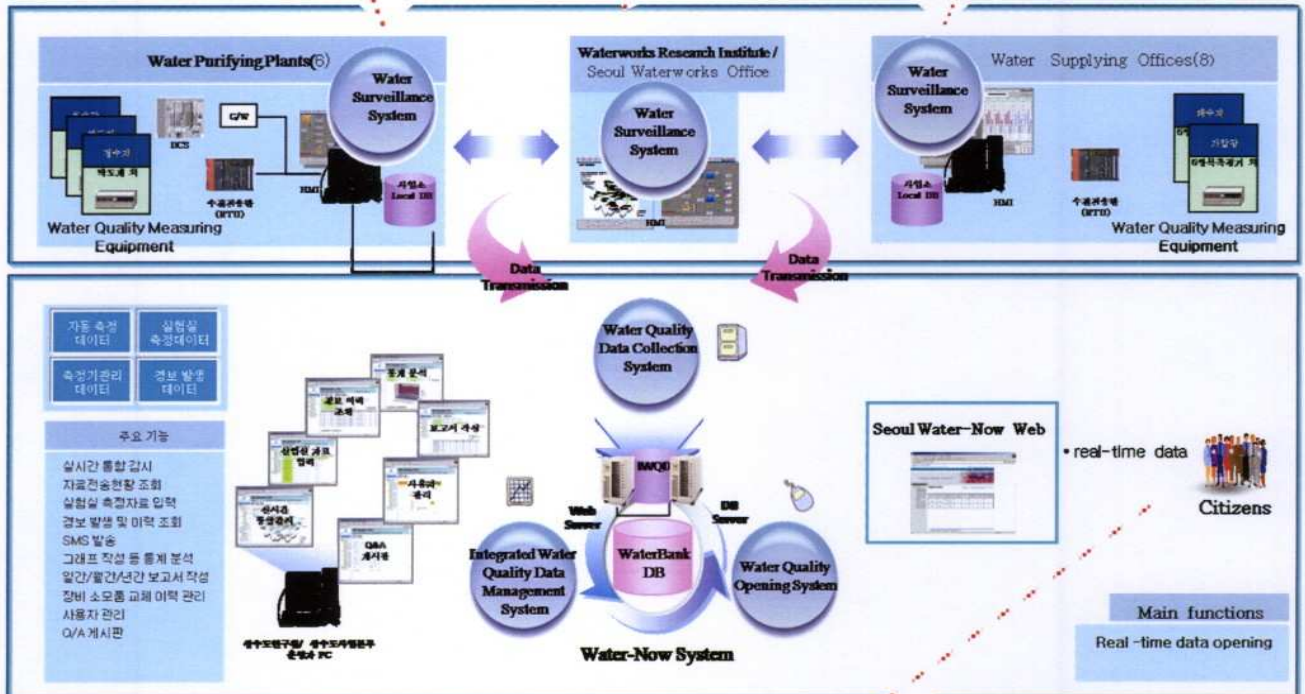


Water Quality Measuring Equipment (Water Purifying Plants)

Water Quality Surveillance System (Waterworks Research Institute)

Water Quality Measuring Equipment (Water Distribution Reservoirs and Booster Pump Stations)

System Structure



System Flow



Real-time Water Quality Information Website on Personal Computer Screen

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