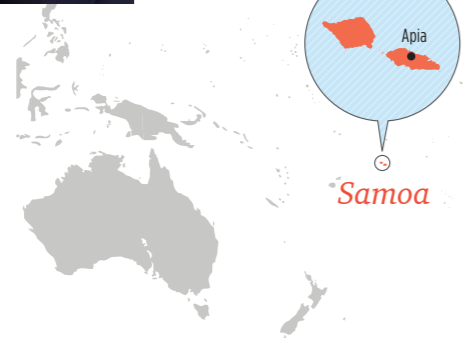




Experts teach plumbing and connecting techniques. This not only prevents leaks but also enables water supply with appropriate pressure. Customers will also be able to use tap water comfortably.



Takara (right) carefully checks the design of flowmeter room which enables water pressure and the flow rate to be monitored.



Bringing Together the Wisdom of Okinawa

In Samoa, where there is no dam and have frequent water shortage in dry seasons, control of scarce water resources are necessary. Okinawa, the island region in Japan, Prefectural Government extends technical cooperation on water supply service to Samoa.

SOLVING THE PROBLEMS OF WATER SUPPLY IN THE ISLANDS BY SHARING KNOWLEDGE

Samoa consists of nine small and large islands. In this small country with a land area about 1.3 times larger than Tokyo, Samoa Water Authority (SWA) supplies water to about 160,000 people which is about 85% of its population.

While SWA is responsible for the nation's water

service, problems are piling up. Motomu Takara, a chief advisor of the project which aims to improve water supply service points out that “the problem is Non-Revenue Water which is not invoiced to customers due to leakage. For example, in the Alaoa district supplying water to the central part of the capital city, Apia, 60% of the water supplied is lost.”

For Takara, who has been working as a water engineer in Japan, it is not a coincidence that he came to Samoa after retirement. He was familiar with water supply projects in ‘island regions,’ as he used to work at Okinawa Prefectural Enterprise Bureau which supplies drinking water to local municipalities of the island.

Besides reduction of non-revenue water, the project aims to supply safe water stably to Alaoa through improvement of water quality and enhancement of management of water treatment plant. Okinawa established a domestic support committee to provide logistic support for dispatch of experts and acceptance of trainees to enhance SWA's capacity.

In Miyakojima City, where there is no river and water supply is mostly dependent on groundwater, the ‘Ecological Purification System’ which does not use chemicals is also adopted to prevent pollution of precious water sources. Ecological Purification, also called as Slow Sand Filtration, is a system to purify water whereby microbes and animalcules grown on the surface and inside the sand layer dissolve suspended solid in the water while allowing water to pass slowly through the sand filter.

This method is maintained easily at low cost as well as effective in subtropical climates with increased biological activity. Okinawa's cooperation began when this technology was passed to the Samoans through JICA Partnership Program in 2006.

Later, Miyakojima City and Nago City also implemented technical cooperation to support operational management of the water treatment plant and leakage detection and repairing. Okinawa have been also offering assistance through JICA, by conducting training to share Okinawa's know-how in water source preservation and management with Okinawa Prefectural Enterprise Bureau as the host organization.

TARGETING DISSEMINATION AND ESTABLISHMENT OF THE TECHNOLOGY

While Samoa has received various support programs, preparation of the manuals and in dissemination of technology to the entire organization of SWA has delayed. Takara recalls the time when Shinshu University Professor Emeritus Nobutada Nakamoto, a leading expert of Ecological Purification System, visited Samoa in February 2016, and says, “To my surprise, there was almost no sand in the filter basin when we inspected the Alaoa Water Treatment Plant. It could have caused not only the failure of self-purification mechanism in the Ecological Purification System but also bacteria leakage from the sand layer”. Therefore, experts had to instruct to refill the sand urgently and started creating an operation manual of the water treatment plant of Ecological Purification System so that the plant is operated based on the proper understanding.



Nakamoto (left) explains the method of operation and maintenance of treatment plant based on Ecological Purification System to engineers of SWA. He also created a model using a bucket to promote their understanding.

Through the cooperation on improvement of non-revenue water, mindset of SWA workers started to change. An expert from Naha City Water and Sewer Bureau recommended the use of paper maps, in addition to the geographic information system (GIS), computer-based mapping database. “SWA workers were suspicious at first as they found paper map out-of-date. However, they found out that they can record information on meters and leakage effectively when they used paper maps in the field,” says Takara. In the end, they printed out the drawings of the entire Alaoa water supply district on GIS for use in their operations.

“At the request from an engineer in charge of non-revenue water in SWA, workers across divisions participated in the operation to visit all 35 villages in Alaoa one by one, holding maps in their hands they fixed leaks and replaced faulty meters,” Takara says. He has been watching how these efforts will affect the non-revenue water ratio.

Besides, standard operating procedures (SOPs) are now being prepared under the supervision of experts from Okinawa to help counterparts achieve uniformity of the performance of a specific work such as piping work, chlorine dosing control for water quality management.

Takara says, “Capacity development is not easy as skilled SWA workers sometimes quit after two or three years. However, the process of having a number of discussions together and solving the problems is worthwhile for me. It also gives us an opportunity to improve our expertise”.

By sharing knowledge on the water supply in island region, Okinawa-Cooperation project has contributed to improve the lives of the Samoan people.



The project team members and workers of Samoa Water Authority. They are striving to regain trust for tap water in a country where people buy expensive bottled water.



The project logo created by a former volunteer for Japan Overseas Cooperation Volunteers in Samoa. The thoughts for “ties”, “circulation”, and “harmony” are embedded in the shape of a circle, a symbol of Alaoa Water Treatment Plant.

CEPSO: Capacity Enhancement Project for Samoa Water Authority in cooperation with Okinawa