

Bringing Safe Drinking Water to Micronesia

Tackling water issues faced by Pacific Island countries



People listen to the explanation of how to use a mobile drinking water treatment system in Chuuk State of the Federated States of Micronesia. (Photo: Ichigo Holdings Co., Ltd.)

In the Federated States of Micronesia, a country comprising 607 islands spread widely across the Pacific Ocean (of which 65 are inhabited), the present situation of basic infrastructure that supports the lives of the people of the country is not well developed. In regions where water utilities have yet to be installed, quite a few people live by using rain water and well water. As an island country, Micronesia is also easily affected by the impact of droughts, typhoons, and high tides at regular intervals. When such natural disasters strike, people have difficulty in securing drinking water.

Ichigo Holdings Co., Ltd., of Sendai City, Miyagi Prefecture sought to solve this problem through the introduction of mobile drinking water production systems that desalinate sea water. From November 2014 to October 2015 the company implemented a Feasibility Survey¹ under JICA's Support for Japanese Small and Medium-sized Enterprises (SMEs) Overseas Business using ODA,² focusing on the islands of Chuuk State, which have a largest population in the country.

The company's mobile drinking water production system can produce safe drinking water from sea water, river water, or well water, using a reverse osmosis membrane.³ The lightweight design enables the system to be loaded on boats or vehicles and transported to coastal or inland areas. In addition, as it is operated without the need for a power source, such as photovoltaic energy or a gasoline engine, it can also be used in disaster affected areas and areas without electrification. Furthermore, the system is characterized by its simple structure, which makes it easy to operate even by non-specialists, and another characteristic is that it does not use any kind of chemicals, making it environmentally friendly.

President of Ichigo Holdings Mr. Masamitsu Miyashita notes that, "Our group companies have a long history of involvement in the food service industry. Reflecting on the environmental burden caused by residue⁴ and waste oil, we developed a mobile desalination system as part of our contribution for corporate social responsibility (CSR) activities." As the region where the company was founded was hit by the Great East Japan Earthquake in 2011, the company engaged in assistance activities, providing water to evacuation centers and farmers. Mr. Miyashita explains that, "It was when I saw news reports in 2013 about the drought damage in the Marshall Islands that I started to think about engaging in a similar mission overseas. I



Mr. Masamitsu Miyashita met with the director of the Office of Environment & Emergency Management during his visit to the Federated States of Micronesia. (Photo: Ichigo Holdings Co., Ltd.)

subsequently came to know that Micronesia, and Chuuk State in particular, is easily affected by drought and typhoon damage. That is the reason why I decided to apply for the Feasibility Survey."

During the survey, the situation in Micronesia was assessed in the

first place and then the equipment was improved so that the system would be better suited to the local situation. For example, the system was made lighter to aid mobility so it could be taken anywhere in the islands, and was also fitted with rotating casters that enable free shifts of direction. As the system would be transported in small boats and the motion of waves could sway boats, we lowered the center of gravity of the system to improve stability and also made a strong collision-resistant structure.

Following these improvements, the mobile drinking water production system was brought to the site and a demonstration was implemented in front of approximately 100 local residents. The equipment makes it possible to manually turn rain water or sea water into drinking water at a rate of about 1.0 to 1.4 liters per minute. The quality of the treated water, as well as the simplicity of operation and the excellent mobility of the system were highly appreciated.

Mr. Miyashita notes, "What made the biggest impression on me was the delight and surprise of the people to see that such small equipment could produce delicious drinking water from sea water." In Micronesia the quality of tap water is poor so the people use boiled rain water for drinking and poor quality well water for other daily needs. However, in the case of drought or disaster, people are forced to utilize well water for drinking, which creates a health hazard. Mr. Miyashita notes that "the drinking water production system will give the people of Micronesia access to a stable supply of safe drinking water" and that this has helped to gain confidence in his company's product.

Based on the results of the Feasibility Survey, from August 2016 a Verification Survey⁵ has been initiated with the aim of assessing the best method to disseminate the drinking water production system. A total of 11 different types of small drinking water production systems have been brought in and the survey is examining the most effective locations and the types of systems for installation.

Mr. Miyashita says, "In the Verification Survey we must confirm that local people will be able to continue to use the drinking water production systems by themselves after the survey period has concluded. We will be working hard to provide training on maintenance and other issues, and ensure that our company's products and technologies take firm and tenacious root."

The supply of safe water is a major priority in development cooperation, and Ichigo Holdings is continuing its challenge to bring safe water to improve the lives of the people in Micronesia.

*1 A survey on the feasibility of using a certain product or technology for the development of a developing country based on a proposal from a Japanese SME.

*2 Projects aiming to achieve both the development of developing countries and the activation of the Japanese economy by utilizing Japanese SMEs' excellent products and technologies through ODA.

*3 Sea water or unclean water is passed through a sheet-type membrane, which allows only clean fresh water to pass through.

*4 Insoluble matter that is left after dissolution and filtering, etc.

*5 A survey to verify ways to enhance a product and technology's compatibility with a developing country and thereby disseminate the product and technology, based on a proposal from a Japanese SME.