

News Release

FOR IMMEDIATE RELEASE

Commencement of the Demonstration Project for “RemixWater”, Seawater Desalination and Water Reuse Integrated System in the Republic of South Africa

Globally introducing the Japan-originated energy saving and low environmental impact type of water production system.

Tokyo, November 18, 2016 --- Hitachi, Ltd. (TSE:6501, “Hitachi”) today announced that it has been selected as a contractor for the Seawater Desalination and Water Reuse Integrated System implemented under the framework of the International Energy Consumption Efficiency Technology and System Demonstration Project initiated by the New Energy and Industrial Technology Development Organization (“NEDO”). Going forward, Hitachi will conclude a consignment agreement with NEDO and commence a demonstration project in the eThekweni Metropolitan Municipality, known as City of Durban, the Republic of South Africa, for the first time outside of Japan. For this operation, Hitachi will design, construct and operate “RemixWater”, seawater desalination and water reuse integrated system featuring energy conservation and low environmental impact, based on the feasibility study conducted from February 2015 to March 2016. The project period is four years, from November 2016 until November 2020.

A ceremony was held in the eThekweni Metropolitan Municipality on November 17, to conclude a Memorandum of Understanding (MOU) between NEDO and the eThekweni Metropolitan Municipality, with Ms. Zandile Gumede, Mayor of eThekweni Metropolitan Municipality, and Mr. Munehiko Tsuchiya, Executive Director of NEDO, in attendance among other guests.

The eThekweni Metropolitan Municipality is the third largest city in South Africa with the population of approximately 3.6 million. It is not only an industrial city that features the largest trade port for containers on the African continent as well as factories owned by global companies, but also an international city where the 2010 FIFA World Cup and the 17th United Nations Framework Convention on Climate Change (COP 17) were held. The city also set a goal of creating a livable city that offers the most enhanced welfare system on the African continent “by 2030, eThekweni will be Africa’s most caring and livable city”. On the other hand, the requirements for an energy saving type of water production system are growing against the background of a surge in electricity charges and a serious shortage of water due to the concentrated population in the urban areas.

“RemixWater” is a new water production system which has energy saving and low environmental impact specifications for industrial or domestic use, such as drinking water level quality. This system is integrating seawater desalination and water reuse processes. The conventional seawater desalination system, which uses RO^{*1} membranes, requires high pressure to filter dissolved material mainly salt through RO membranes. Accordingly, electricity consumption of high-pressure pumps generally account for almost 50% of the total operating cost, making improvements in energy conservation an important challenge. It supposed to be also challenge about impact on the environment because brine with a concentration of salt that is higher than that of seawater is constantly discharged. On the other hand, “RemixWater” simultaneously has both energy conservation and low environmental impact through the integration of seawater desalination and water reuse processes. Specifically, it reduces the concentration of salt by mixing the water expelled through the RO membranes during the water reuse process with seawater. This decreases of reverse osmosis pressure in the filtering stage through RO membranes and achieves around 40% of decrease in pumping pressure of conventional desalination process, contributing to a significant improvement in energy saving. At the same time, it reduces salt concentration of brine discharged into the sea to approximately 3.5%, the same level as seawater.

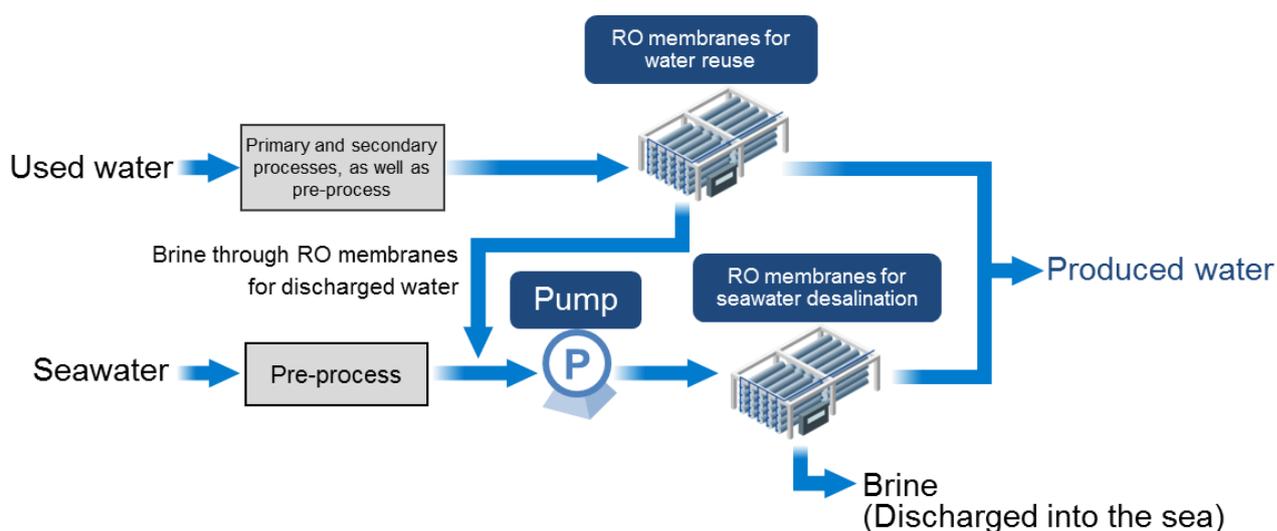
To implement the project, Hitachi will construct a new “RemixWater” facility that produces 6,250 cubic meters of water per day^{*2} at the existing sewage treatment plant in the eThekweni Metropolitan Municipality. Then it will achieve stable production of water in compliance with the country’s standard for the quality of drinking water^{*3} and seek to accomplish a performance featuring approximately 30%^{*4} of energy saving compared with existing desalination systems and low environmental impacts.

“RemixWater” was developed by the Global Water Recycling and Reuse Solution Technology Research Association^{*5} as part of NEDO’s Water Saving and Environmentally-friendly Water Recycling Project from Fiscal Year 2009 to 2013. The system stably produced 1,400 cubic meters of water per day for approximately three years, from April 2011, in the Water Plaza Kitakyushu, a plant constructed and operated by the Global Water Recycling and Reuse Solution Technology Research Association.

Hitachi established the water business unit in April 2016, as a Comprehensive Water Service Provider that responds to market requirements and customers. Through these efforts, it has been accelerating the global development of water solution businesses, leveraging advanced technologies and partnerships. Starting with this project, Hitachi will move forward with offering leading-edge seawater desalination systems, including “RemixWater”, to countries and regions that have a demand for water resources and contribute to the improvement of water infrastructures and solving challenges.

- *1. RO: Reverse Osmosis
- *2. Equivalent to the amount of water supplied to a population of approximately 25,000.
- *3. SANS241, which is defined as the quality standard for general drinking water in the Republic of South Africa. SANS: South African National Standard.
- *4. Trial calculation by Hitachi. Comparison between “RemixWater” and existing seawater desalination systems is based on the assumption of the production of 100,000 cubic meters of water per day, with a salt concentration of 3.5%. This calculation can be changed by differences of conditions such as seawater quality, location and others.
- *5. The Global Water Recycling and Reuse Solution Technology Research Association: A technology research association established in 2010 to develop and accumulate expertise on business operations and management with a perspective towards the global development of water recycling solutions. It has two member companies: Hitachi and Toray Industries, Inc.

■Flow processes in the “RemixWater” system



■RO membranes systems of “RemixWater” in the Kitakyushu Water Plaza



■Website for “RemixWater”

http://www.hitachi.com/businesses/infrastructure/product_solution/water_environment/foreign/remix_water.html

■Note on trademarks

“RemixWater” is a registered trademark of Hitachi, Ltd. in Japan, Australia, South Africa, Saudi Arabia, and Qatar.

About Hitachi, Ltd.

Hitachi, Ltd. (TSE: 6501), headquartered in Tokyo, Japan, delivers innovations that answer society’s challenges. The company’s consolidated revenues for fiscal 2015 (ended March 31, 2016) totaled 10,034.3 billion yen (\$88.8 billion). The Hitachi Group is a global leader in the Social Innovation Business, and it has approximately 335,000 employees worldwide. Through collaborative creation, Hitachi is providing solutions to customers in a broad range of sectors, including Power / Energy, Industry / Distribution / Water, Urban Development, and Finance / Government & Public / Healthcare. For more information on Hitachi, please visit the company's website at <http://www.hitachi.com>.

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