

Supporting utility	Water and Sewer Bureau of the City of Kitakyushu (WSBK)		Case No.	1
On recipient utility			Data from	2013 to 2017
Recipient utility	Haiphong Water Joint Stock Company (HWC) in Vietnam			
Cooperation year	2009 to Present			
Service area	Haiphong City			
Service population ^{※1}	<ul style="list-style-type: none"> Urban area: N/A^{※2} Rural area: N/A Total: 1.36 million 	Service coverage ^{※3}	<ul style="list-style-type: none"> Urban area: N/A Rural area: N/A 70% of service area 	
Water distribution ^{※4}	170,000 m ³ /day	Maximum water distribution	Distribution capacity: 185,000 m ³ /day	
Water consumption per capita	N/A	NRW ^{※5}	13.0%	
Water source	Rivers	Pipe length ^{※6}	2,300 km	
No. of WTP ^{※7}	7	No. of Employees ^{※8}	1,157	
Water treatment	Coagulation + Sedimentation + Rapid filtration + Chlorine Disinfection			
Water rates ^{※9}	4.7 USD/10m ³ (1 USD = 22,425 VND)			
On technical cooperation				
Background	<ul style="list-style-type: none"> In April 2009, Haiphong City and Kitakyushu City signed a "Friendship Cooperation Agreement". Upon the agreement, HWC called for WSBK to provide technical cooperation to solve HWC's water related issues. WSBK submits a proposal to the Japan International Cooperation Agency (JICA) to provide technical cooperation for Haiphong City. In August 2010, WSBK started JICA's technical cooperation project to 			

※1 Source: 2014 preliminary report to provide technical cooperation for An Duong Water Treatment Plant

※2 N/A = Not available

※3 Source: 2014 preliminary report to provide technical cooperation for An Duong Water Treatment Plant

※4 Source: 2014 presentation material by HWC trainees

※5 Ibid.

※6 Source: 2014 preliminary report to provide technical cooperation for An Duong Water Treatment Plant

※7 WTP = Water Treatment Plant

※8 Source: 2014 preliminary report to provide technical cooperation for An Duong Water Treatment Plant

※9 Water rates based on "Domestic use for urban area

10,600VND/m³" <http://capnuochaiphong.com.vn/danh-muc/1/gia-nuoc-dinh-muc-35.html> (as of 2017)

	improve the efficiency of water treatment for organic substances.
Cooperative scheme	<ul style="list-style-type: none"> • Cooperation framework: JICA Partnership Project • Recipient organization: HWC • Assisting organization: Kitakyushu Overseas Water Business Association (KOWBA)
HWC's challenges	<ul style="list-style-type: none"> • Deterioration of water quality in source rivers • Water quality analysis • NRW Reduction • Distribution network management
Technical cooperation provided	<ul style="list-style-type: none"> ➤ Water treatment <ul style="list-style-type: none"> • From 2010 to 2012, WSBK implemented a JICA's Partnership Program to enhance HWC's capacity to address water source pollution due to organic substances. • Project overview <ul style="list-style-type: none"> - Monitoring and treatment of organic substances - Introduction of an advanced water treatment technology called U-BCF (Upward Biological Contact Filtration)^{※10} - Verification of U-BCF at a demonstration plant in Haiphong City ➤ NRW reduction <ul style="list-style-type: none"> • For three years from 2013, WSBK implemented a JICA's Partnership Program to reduce NRW of HWC. • Project overview <ul style="list-style-type: none"> - Implemented WSBK method to reduce NRW - Explored possibility of sub-dividing the distribution network to better control and monitor the water flow and pressures - Adopted the same mapping system as WSBK's
Future plans and prospects	<ul style="list-style-type: none"> • HWC has actively introduced Japanese technologies and improved their technical level. These technologies include: <ul style="list-style-type: none"> - Purchase of Japanese water leak detectors - Introduction of WSBK method to reduce NRW - Adoption of WSBK-style mapping system

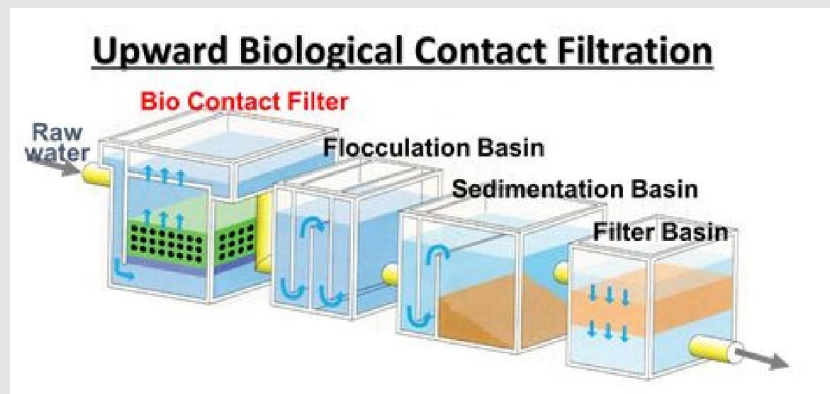
※10 U-BCF was developed by WSBK, which has its patent in Japan. For the technical features of U-BCF, please see a report regarding WSBK's water treatment processes on the website of NewTap: http://www.jwrc-net.or.jp/aswin/en/newtap/report/NewTap_Japan_002_04.pdf

- By continuing this type of technical cooperation, WSBK also envisages to help Japanese companies to develop their businesses in foreign countries.

Figures and photos



▲ U-BCF demonstration plant in Haiphong City



▲ U-BCF treatment process