

Public Private Partnership for Overseas Expansion: A survey of Municipal Water Services in Japan

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Abstract— With rapid economic growth and urbanization, some Asian cities have faced urban environment problems such as strong demand for sanitary water and sewerage. Until the 1990s, municipal water services contributed internationally by accepting technical trainees and dispatching experts to developing cities. With national governmental support, major city municipal water services in Japan have aimed to expand their business abroad for regional economic development.

We examined four cases of urban municipal water services that are expanding overseas, including Tokyo, Yokohama, Osaka, and Kitakyusyu, which developed public-private platforms for expanding abroad. These consortiums comprise dozens of water facilities and maintenance companies, and some municipal water services have created special purpose companies to attract business opportunities from foreign governments or water authorities. These organizations provide information overseas to participating companies, and they dispatch research missions to partnership cities across Asia.

Efforts regarding overseas expansion of these municipal water services have led to the reform of public organizations. For more efficient delivery, one municipal water service converted its operation department into a corporation and delegated operational tasks from the public to the corporation.

Keywords—Public Services, Water Services

I. INTRODUCTION

Municipalities are required to implement economic promotion measures on their own initiative for the region. Companies can conduct business activities anywhere, they rely heavily on processes from the past associated with the birthplace of their business, and they are free to relocate geographically. Although the central government may have jurisdiction over a very large geographical space depending on the size of the country and although it may desire to maintain competitiveness as a country, reasons for actively supporting specific regions are lacking. Meanwhile, municipalities are aligned with the region, which is the purpose of their existence, and they are urged to implement policies from the viewpoint of preserving local employment and maintaining sustainable economic development amid global urban and regional competition.

In regional industrial policy aimed at the development of the regional economy, the national government alters the allocation of resources among regions from a macro perspective and corrects regional disparity, whereas the municipality covers the regional side—by altering the allocation of resources among industries within the region due

to public interests and by developing infrastructure for the promotion of specific industries.

Measures for regional promotion by municipalities include projects to prepare environments where local companies can easily operate, such as roads, ports, and sewers; initiatives such as the creation of industrial parks to attract companies; support for small and medium-sized enterprises; and local human resource development. Subsidies to accelerate the development of specific industries, tax incentives, and priority supply of human resources may be provided.

To promote sustainable economic development, it is important to examine exchanges with overseas regions. Several earlier discussions have focused on policy measures undertaken by governments for regional development. Some studies have claimed that with global competition, the competitive advantage of nations and regions is their existence as clusters—that is, agglomerations of enterprises, research institutes, and supporting organizations (Porter 1990, 1998; Maskell, 2001; Martin & Sunley, 2003). Over the years, many researchers have shown an interest in examining the factors responsible for the growth of such clusters; consequently, concerns regarding partnerships among enterprises and organizations across the region have arisen (Amin & Thrift, 1992; Markusen, 1996; Wolfe & Gertler 2004; Eisingerich et al., 2010)

Further, functional regional actors, which smooth the transfer of knowledge and information—as the “global pipeline” (Bathelt et al., 2004) and “gatekeepers” (Rychen & Zimmermann, 2008)—are necessities. The global pipeline is a “strategic partnership between regions and nations,” and it involves direct face-to-face transactions between people across distant regions, where they exchange views and transfer knowledge and information that is not only coded but also tacit through a deeper understanding of both actors (Bathelt et al., 2004).

The function of the global pipeline can also be explained from the transaction cost theory of Coase (1988). Ordinarily, enterprises, universities, and research institutes are required to gather information on potential business partner candidates, to study such information by comparing candidates, and to verify their reliability in order to develop business partnerships and collaborations. It is necessary to acquire information and promote an exchange of opinions, but this requires a considerable and costs. At this time, if pipelines exist, such information gathering becomes easier in places with pipelines than in places without pipelines, so companies and others can

select target business partners and research partners at less cost.

In the case in which a person or a company conducts transactions under limited time constraints, there is a certain limit to the information processing ability, so one can assume that it is impossible to think of all the options and obtain the foremost result rationally. The existence of a pipeline helps one collect such information, and as a result, it leads to the construction of a smooth business relationship. Consequently, companies can find both business and research partners with less difficulty.

Rychen and Zimmermann (2008) insisted that deeply embedded gatekeepers support interconnections between clusters in the global network. The function of gatekeepers is first to contribute to the interconnection of resources both inside and outside the region, to help local enterprises benefit from external relationships, and to enable external companies and other organizations access regional resources. Second, the gatekeeper plays a central role in linking regional actors within the region, creating benefits arising from the geographical proximity of the region.

The automobile and consumer electronics industry, which has been the driving force of Japan's export-oriented economy, has become limited in its growth due to the overheating of global competition, and the search for a new engine of economic growth is expected. In this respect, overseas expansion of water and sewerage services is attracting attention as an infrastructure export. In this study, we examine how municipalities play a role of global pipelines or gatekeepers in regional revitalization through the overseas development of public water and sewerage services. As one of the local regional industrial policies of municipalities, the provision of public water and sewerage services in Japan's overseas expansion is clarified.

According to the Ministry of Health, Labour and Welfare and the Ministry of Land, Infrastructure, Transport and Tourism, water and sewerage services in Japan are subject to the supply responsibility of local public entities by law, and they are supposed to do business exclusively in the region. The penetration rate of the domestic water supply and sewers of cities with a population of one million or more is almost 100%. However, from a global standpoint, the number of countries and cities with a capacity equivalent to Japan to stably supply clean water, purify sewage with less environmental burden, and release it into public waters is limited. In emerging economies with remarkable economic development, it is certain that future needs for environmental awareness will increase and that needs for high-quality water supply and sewerage services will expand. Indeed, a huge multinational corporation in the West has developed a water business globally, and a company that supplies water services to more than 100 million people, mainly in France, etc., is entering the water industry in emerging countries.

In recent years, Japanese municipalities responsible for water supply and sewerage services, especially designated cities that supply services to more than one million residents, are promoting overseas expansion through public-private partnerships with water-related companies. Normally, municipalities do not have profit motivations, and they have clearly defined service areas. However, they are expanding their regional monopoly business overseas, with the aim of

creating opportunities to conduct business overseas through regional water affiliates. It is a unique situation for municipalities to develop overseas for the purpose of "regional economic development and international contribution." Therefore, it is important to clarify why municipalities expand their water services abroad and how they promote this public water internationalization.

The remainder of the paper is structured as follows. The next section describes the research methodology and presents the analysis. The results are then discussed, along with the conclusions of the paper.

II. METHODS

This research comprises two parts: First, the Japanese national governmental actions are summarized to show how the environment of overseas deployment of municipal water and sewerage services have developed. Second, the actions of overseas deployment by four municipalities, Tokyo, Yokohama, Osaka, and Kitakyusyu, are explored. These four municipalities are selected because they have the most large-scale water and sewerage public operators in Japan. The municipal overseas development of water and sewage services is investigated from the following two perspectives:

- 1) *Organization promoting overseas expansion*
- 2) *Outcome of conducting overseas expansion of municipal water services*

III. ANALYSIS

National governmental actions for municipal water services going abroad

In this section, the progress of Japanese governmental actions supporting overseas expansion of water and sewerage by municipalities is explored. As an initial survey to examine the possibility of Japanese companies in overseas expansion of water infrastructure development projects as measures to revitalize the stagnating Japanese economy, in January 2008, the Ministry of Health, Labour and Welfare formulated the "International Contribution in the Water Supply and Industry Overseas Development Survey Report." This report shows that in order for Japan to approach the East Asian market, converting the water business in Japan from technology, procurement, and construction to a service-oriented enterprise, it is necessary to cultivate the human resources of domestic companies and to cooperate with overseas companies (Ministry of Health, Labour and Welfare, 2008, 34–35).

Following this, the Ministry of Health, Labour and Welfare conducted a field survey targeting China, Cambodia, and Vietnam as a project to promote the international development of the water industry with a five-year plan beginning in FY 2008 in order to support the international development of the water industry. Local governments, water-related companies, and scholars examined ways in which the Japanese water business could expand overseas.

Meanwhile, in January 2008, the Ministry of Economy, Trade and Industry established the water resources policy research group to examine the strategy regarding water business and water resources from a global perspective

utilizing the strengths of Japan. The draft announced by the study group in July of the same year suggested six actions for the international development of the water business (Ministry of Economy, Trade and Industry, 2008, 15–20). They follow:

- 1) Preparation of a strategy map according to the characteristics of the region
- 2) Improvement of organization for international development
- 3) Creation and promotion of model projects
- 4) Human resource development
- 5) International standardization
- 6) Research and development

In October 2009, the Ministry of Economy, Trade and Industry established the water business international development study group to make use of the strengths of Japanese companies in contributing to solving water problems. In the National Assembly, the promotion of the water business was debated, and the New Growth Strategy (Basic Policy) decided by the Cabinet in December 2009 indicated the expansion and infiltration of Japanese “technology of safety and security” throughout Asia and the world. This strategy notes that Japan will utilize its technology and experience as a package and as an engine for sustainable growth in Asia. Specifically, the Japanese government and companies will work together to support infrastructure development, such as Shinkansen/Urban Transportation, Water, Energy, and it will facilitate the development of environmentally symbiotic cities by promoting business opportunities of Japanese companies with advanced technology in civil engineering and construction and so forth to strengthen contracts, management, and expertise management related to infrastructure projects (Prime Minister of Japan and His Cabinet, 2009, 12–13).

In May 2010, the Ministry of Internal Affairs and Communications released the municipal water service overseas expansion team interim report, showing that municipalities had a specific role in the Asian economic strategy of the national government under the new growth strategy. Thus far, international cooperation in municipal water service has been promoted from Official Development Assistance (ODA), which mainly focuses on technical assistance utilizing abundant conventional experience and knowledge. Then, from the perspective of international contribution and Japan’s economic growth, a public and private sector partnership utilizing technology and expertise working together for international development becomes important. The purpose of the overseas expansion of the municipal water service is shown in the following report:

TABLE I. PURPOSE OF MUNICIPAL WATER SERVICE OVERSEAS EXPANSION

Overseas development and international contribution as a water business service	Supporting the dissemination and development of overseas water technology to improve local standards of living and bring about the developmental effect of an international contribution
Secure sustainability of water service	Knowledge and skills are effectively utilized, and it is also a source of new revenue for water utilities in a harsh business environment.
Technology inheritance and human resource development (Level up)	Serving as a place for water staff to succeed in technology and to practice risk management, also leading to human resource development through feedback of experience
Regional industry promotion	Cooperation between public and private sectors in overseas deployment of water service will also contribute to regional industry development.

Source: Created by author from Ministry of Internal Affairs and Communications (2010). pp. 1–2.

Here, it is important that as a national policy, overseas expansion of water service by a municipality is positioned as a regional industry promotion measure. In the interim report, international cooperation in the water service of municipalities has been promoted through ODA, which mainly focuses on technical assistance and makes full use of the experience and knowledge of the Japanese public water service. From the perspective of international contribution and Japan’s economic growth, the water technology and expertise of the Japanese public and private water industry is utilized, and the international development has contributed to regional industry promotion (Ministry of Internal Affairs and Communications, 2010).

The “Growth Strategy–Scenario of Resurrection of Energetic Japan,” formulated by the Cabinet in June 2010, made the New Growth Strategy (Basic Policy) of 2009 more concrete, promoted overseas expansion of municipal water services as packaged infrastructure, planned to set up project specialists within an overseas diplomatic office, secured financing functions of government-related organizations, and aimed to expand the market size of 19.7 trillion yen by 2020. Furthermore, in July of the same year, the Japanese government established the Overseas Water Infrastructure Public Private Partnership Council, which is an organization that functions as a place to share and exchange information on overseas water projects by the public and private sectors while considering total water management from water source reservations to water supply and sewerage as a package.

Following the Great East Japan Earthquake of 2011, the Japanese government presented its policy on the revitalization of Japan to ensure the sustainability of fiscal and social security and to redesign and reinforce the national strategy of new growth. It also confirmed the implementation of packaged infrastructure overseas expansion to prevent the hollowing out of the industry and overseas market

development. In June of the same year, the Japanese government revealed the following four perspectives on overseas water service expansion:

- 1) Early development of private players with the business experience necessary for international bidding projects
- 2) Involvement from the early stage of project development
- 3) Demonstration of high-efficiency or water-saving type technology to the world
- 4) Business development linked to resource acquisition

Thus far, international cooperation in municipal water and sewage services has focused mainly on personnel exchanges, such as overseas dispatch of municipal officials with conventional experience and technology, as well as acceptance of trainees. With the establishment of guidelines by the national government, municipal collaboration with private enterprises to expand overseas is recommended for international contribution and economic development. Sharing of information between public and private stakeholders and the establishment of some organizations promoting water business collaboration have been promoted.

A. Case study 1: Tokyo Metropolitan Government

In January 2010, the Tokyo Metropolitan Government (TMG) formulated the 2010 Tokyo Waterworks Management Plan with a planned period from FY 2010 to 2012. It indicated that in addition to past efforts such as acceptance of overseas trainees through the Japan International Cooperation Agency (JICA), etc., and staff dispatch, Tokyo Suidou Service Co., Ltd., in which the Tokyo Metropolitan Bureau of Waterworks invests 51%, made international contributions using high-level water technology and operation expertise, while TMG appealed to the technology and expertise of Tokyo Waterworks by dispatching survey teams abroad.

TMG set up an implementation policy that shows that in order to make overseas expansion more concrete, the Tokyo Metropolitan Bureau of Waterworks and Tokyo Suidou Service Co., Ltd.(TSS) collaborates in gathering domestic and overseas information, conducting surveys on actual conditions, and designing a business model that meets the needs of overseas markets to establish an overseas business survey research group, overseas dispatch of the mission team, and business model development/participation for consulting and facility management orders. TMG also established the private enterprise support program, as it is necessary to respond to the various needs of each country and solve the world's water problem by considering diversity and sustainable cooperation and to provided support to pre-registered enterprises, including opportunities for business matching, accepting visits to the facilities of the Bureau of Waterworks, and expressing the will to cooperate to partner countries' governments and others.

In the TMG overseas expansion destinations of Malaysia and Vietnam, some businesses such as the TSS and private enterprise groups implemented field study of projects against non-revenue water and new facility development with JICA funds and prepared detailed proposals to realize projects utilizing water leakage prevention and water purification processing technology.

In addition, when the Japanese corporate group, represented by Mitsubishi Corporation, acquired an Australian water company in May 2010, the TSS conducted a basic survey to evaluate the situation of the local water facilities and suggested an improvement plan for water service management.

In October 2011, with regard to a project to construct a water purification plant with a daily volume of 150,000 tons in Hanoi City, Vietnam, TSS, a Japanese water treatment company, and Hanoi City Waterworks Public Corporation established a joint venture company that was responsible for the construction and maintenance of a water purification plant.

In the field of sewerage, in response to a request from the Malaysian government, Tokyo Metropolitan Sewerage Service Co., Ltd. and TMG cooperated to submit a master plan for sewage reconstruction in Malaysia in March 2011 and formulated a concrete sewage plan from the construction and operation of the sewage treatment plant to budget planning.

TSS established its wholly owned subsidiary, Tokyo Waterworks International Co., Ltd. (TWI), in April 2012 and TWI's affiliated company in Taiwan, Tokyo Waterworks International Taiwan Co., Ltd. in December 2012, strengthening the foundations for overseas project promotion. TSS has made efforts to understand the problems and needs of recipient countries by promoting active participation in international conferences, exhibitions, and field surveys to pursue dialogue with waterworks operators in each recipient country—and by continuing to provide training for overseas trainees in recipient countries and Japan.

In September 2015, TMG published the "Tokyo Waterworks International Cooperation Program," which is a comprehensive and systematic summary of international cooperation. The report shows that TMG will continue to contribute to the improvement of circumstances surrounding water supply in developing countries, taking advantage of practical technologies and service-operating capabilities that have accumulated from experience (Figure 1). The program is explained as project development improvement of water situations in overseas cities using TMG technologies; concrete achievements include technical cooperation projects at the grassroots level in Vietnam (Hanoi) and Malaysia; technical cooperation projects in India (Delhi); and infrastructure development, operational projects, and non-revenue water prevention projects in Thailand (Bangkok) and Myanmar (Yangon).

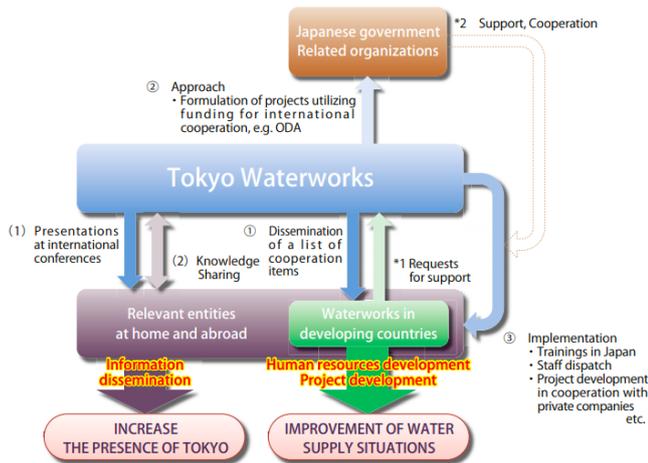


Fig. 1. Scheme of International Cooperation by Tokyo Waterworks

Source: Tokyo Metropolitan Government. (2015). p. 8

B. Case study 2: Yokohama City Government

Yokohama’s medium-term, four-year plan with an implementation period from 2010 to 2013 showed that the Yokohama City Government (YCG) supported overseas business development of enterprises in Yokohama City to expand overseas with urban infrastructure technology for the activation of the regional economy. In January 2011, YCG announced that it would designate international technical cooperation through a public-private partnership utilizing Yokohama’s resources and technology as the Y-PORT project (Yokohama Partnership of Resources and Technologies), support the solution of urban problems of emerging countries (as a social responsibility), and revitalize the city economy (economic growth strategy).

With respect to solving urban issues such as the water environment in emerging countries and resource recycling, YCG utilizes expertise in city development that the city had cultivated up until that point, advanced technology owned by city enterprises, and promoted international technical cooperation through public-private partnerships with universities and NPOs. Through the implementation of overseas deployment of city enterprises, people from around the world gathered in Yokohama for business research, improved the international status of Yokohama City, enhanced business opportunities, and led the city to economic prosperity.

In 2010, the Yokohama City Waterworks Bureau established Yokohama Water Co., Ltd. with a 100% stake, accepted trainees from Central Asia and Southeast Asia, and conducted consulting business related to water supply projects such as those in Vietnam and the Philippines. In January 2011, YCG participated in a public-private partnership with JGC corporation in the field demonstration experiment of Brida City, Saudi Arabia. YCG also conducted surveys on a water supply project in Bangladesh and in Hue City, Vietnam.

In November of the same year, the Yokohama Water Business Council was established by 133 companies and organizations chaired by the mayor of Yokohama to utilize the city’s water and sewage technology and operation expertise to support overseas water business development of city enterprises. In addition, a member introduction booklet with members’ names, business descriptions, and contact information in English and Japanese was published, and this information was also published on its website. Public and private partnerships to participate in trade fairs of international water week events in Singapore and business missions to Bangalore, India, and Jakarta, Indonesia were conducted.

In addition, in March 2012, YCG concluded the “Memorandum of Understanding (MOU) on Technical Cooperation for the Development of Sustainable Cities” with the City of Cebu, Philippines, and conducted local surveys and business matching with Yokohama City and other companies. Business matching with Sri Lanka, Saudi Arabia, Brazil, and Iraqi water service entities was organized. In July 2012, three parties, including the Singapore Public Utilities Agency, Yokohama City, and Yokohama Water Business Council, signed a MOU for joint research. In 2013, workshops concerning water service overseas expansion utilizing ODA were held for small- and medium-sized enterprises.

C. Case study 3: Osaka City Government

The Osaka City Economic Growth Strategy was announced in March 2011, through which the Osaka City Government (OCG) set up the “grow with Asia as a member of Asia” initiative to access vigorous demand in Asia with remarkable growth, to incorporate its strong energy to realize economic growth in Osaka and Kansai, and to create an economic virtuous circle throughout Asia by contributing to the growth of Asia with cutting-edge technologies and services owned by Osaka and Kansai.

Toward overseas development utilizing the region’s technological and comprehensive capabilities, two directions were indicated. First, by taking the city’s water, sewerage, and environmental technologies as packages and by strengthening cooperation with Osaka and Kansai companies with outstanding element technologies, OCG contributed to solving overseas water and environmental problems and supported the expansion of Osaka and Kansai economic business opportunities. Second, utilizing technologies such as smart communities and resources, as well as energy-recycling town management, OCG supported groups of companies developing overseas as a total business solution.

To achieve the above objectives, Osaka City established the Osaka Water & Environmental Solutions Association (OWESA) in April 2011 with the Kansai Economic Federation and the Osaka Chamber of Commerce and Industry (see Figure 2). OWESA works in an integrated manner with the Osaka City Government, Osaka Prefectural Government, and business community in Osaka and aims to solve the diversified water and environmental issues by

utilizing the considerable experience of the administration and advanced technologies owned by private sectors.



Fig. 2. Scheme of International Cooperation by Osaka Water & Environmental Solutions Association

Source: Osaka Water & Environmental Solutions Association website

<http://www.owesa.jp/e/index.html> (accessed July 5, 2018)

OWESA's Missions are as follows:

- 1) Contribute to solving global water and environment issues by mobilizing public and private sectors in the Kansai region
- 2) Propose comprehensive solutions harmonizing economic development and conservation of water and the environment to partner countries
- 3) Support business matching based on respective needs and seeds and create win-win relationships with partners

OWESA has two main activities: The first is to conduct overseas promotion for collecting and sharing information. Promotion activities involve transmitting information on Osaka-Kansai companies' high-level technical capabilities overseas, along with the experience and expertise that Osaka City has developed by overcoming past water and environmental problems—providing business-matching opportunities that will lead to orders abroad through joint exhibitions at international trade fairs such as Singapore Water Expo; holding seminars at home and abroad; and accepting technical trainees and visits from overseas. The second activity is to support findings and formulating overseas projects through Osaka's international network, including business partner cities and project implementation through collaborative work between private and public sectors. This involves finding local water and environmental problems through intercity diplomacy and technical exchanges between Osaka City and overseas municipalities and striving to formulate business projects to resolve such problems with the participants' agreement. OWESA supports the realization of business project proposals by requesting the implementation of projects to partner country governments

and governmental agencies in Japan (Ministry of Land, Infrastructure, Transport and Tourism, Ministry of Economy, Trade and Industry, JICA, etc.).

In July 2011, Osaka City concluded a MOU for cooperation in major fields including water and the environment with Ho Chi Minh City, Vietnam. In September 2014, a memorandum of understanding was signed between Osaka City and Yangon City, Republic of the Union of Myanmar, on the promotion of technical cooperation in urban infrastructure development such as waterworks, sewage works, waste treatment, and urban planning and development. OWESA made arrangements for the signing of a MOU on technical cooperation between the two cities while providing technical assistance to Yangon City.

In May 2016, OWESA announced that Saint Petersburg, Russia, had adopted the sewer system technology of Sekisui Chemical Co., Ltd. This technology adoption for sewerage works in the city resulted mainly from a technical exchange at the Osaka Promotion Seminar, which was held in Saint Petersburg in September 2014 to celebrate the 35th anniversary of the sister-city affiliation between Osaka and Saint Petersburg.

In July 2016, Clearwater OSAKA Corporation (COC) was established based on the human and technical resources built up by OCG with two corporate philosophies as follows:

- 1) Supporting the daily lives of the citizens of Osaka by providing a rich and comfortable environment while keeping the city safe and secure
- 2) Contributing to the wellbeing of the people and societies both inside and outside the country by firmly taking over, expanding, and offering a well-established comprehensive sewerage system, including substantial management resources accumulated over time by Osaka City

COC has the following three major business activities:

- 1) Operation and maintenance of all types of sewerage facilities
- 2) Design, construction, and management of all types of sewerage facilities
- 3) Various other activities relating to sewerage management

COC insists that it has total technical expertise on sewerage, such as measures against flooding and asset management of facilities, water environment improvement that can be approached from both water treatment and factory wastewater regulation perspectives, and effective use of sludge. Therefore, COC aims for orders from municipalities both in Japan and abroad, in collaboration with other private companies (consultants and manufacturers) and city governments.

D. Case study 4: Kitakyushu City Government

In 2011, the Kitakyushu City Government (KCG) formulated the Kitakyushu Municipal Water Service Mid-term Management Plan, which was effective from 2011 to 2015. It indicated as policy targets “water service at inexpensive prices,” “water service to promote the environmental model city,” and “water service to contribute to the world,” as well as the promotion of water business expansion overseas, related personnel training, and reduction of carbon dioxide emissions.

KCG established the “Asia Low Carbonization Center” as an affiliated organization in June 2010. The purpose of the center is to concentrate Japan’s environmental technologies in Kitakyushu, targeting the remarkably developed Asian region and to effectively create technology innovation through the benefits of accumulation. To promote the creation of environmentally conscious Asian cities, the Center promotes overseas expansion of packaged infrastructure service according to the needs of partner cities, as it creates opportunities for business development of companies in the city’s jurisdiction.

In addition, KCG organized the Kitakyushu Overseas Water Business Association in September 2010 as a platform of public and private sector cooperation toward overseas expansion of water and sewerage services. This association conducted the investigation of seeds and needs of private enterprises, surveyed local needs overseas, and implemented overseas expansion and project-making through public-private partnerships. Furthermore, in April 2012, KCG established the Water and Sewer Bureau, which is integrated from the waterworks and sewerage departments of the construction bureau, to strategically promote overseas water business in a comprehensive way against administrative tasks concerning water.

As an example of an overseas project, in April 2009, Kitakyushu City and Hai Phong City in Vietnam signed the “Agreement on friendship and cooperation between Kitakyushu City, Japan and Haiphong City, the Socialist Republic of Vietnam” to promote the development of the two cities; technical cooperation aimed at harmonization of urban development and environmental conservation. Then, based on a request from the Hai Phong Municipal Water Corporation, the KCG Water and Sewer Bureau provided technical support for the solution of the Hai Phong city water supply problem over three years, beginning in 2010. Through this process, Hai Phong City decided to order an advanced water purification treatment facility introducing the technology of Kitakyushu City, ordered its construction work from the Vietnamese subsidiary of the Kitakyushu Overseas Water Business Association member company, and concluded a construction contract with the company in May 2013. Since then, the association member companies have received orders from the project in Phnom Penh, Kampong Cham, and Battambang, Cambodia.

Kitakyushu City’s overseas expansion destinations ranges mainly from Cambodia to Vietnam. In 2011, KCG was

commissioned to take on the planning advisory work for 14 million yen in the water treatment plant construction project of Siem Reap City, Cambodia, followed by the design and construction management work of a water facility improvement project in Mondorakiri state in the eastern part of the country for 27 million yen. This was the first case of a Japanese municipality receiving an order for the basic plan, detailed design, and construction management.

With these successful achievements, in 2016, KCG formulated the “Kitakyushu City International Policy Promotion Outline” as the administrative plan concerning the international field. Kitakyushu City established the goal of international policy as building up the Kitakyushu brand, “Green Growth City,” where people, products and services, investments, and information gather from across Asia. This outline designated priority programs, including the promotion of international cooperation centered on the environment, water, and sewerage fields, the establishment of network infrastructure with Asian cities, and the promotion of international business including export of urban infrastructure.

IV. DISCUSSION

From the case studies of the national government and representative municipalities, overseas expansion of water and sewerage services by municipalities, which had relatively high-level technology and sufficient resources, has changed rapidly since about 2010, in response to the direction given as policy measures by the national government such as the Ministry of Economy, Trade and Industry, to revitalize the stagnant Japanese economy.

The development process of overseas expansion of municipal water and sewerage service can be summarized as follows. Thus far, the programs of municipal international contribution projects accepted trainees in the field of water and sanitation from developing countries and dispatched experts over a period of several months to several years. To promote overseas expansion of Japanese (regional) enterprises, municipalities act as global pipelines or gatekeepers; form public and private platforms, in cooperation with economic organizations and supporting enterprises; provide information; and dispatch overseas research missions. Municipalities and enterprises in the regions cooperate as delegations to overseas governments and entities. In addition, there are cases in which municipalities or their affiliate companies accepted offers to formulate plans for water and sewerage development and training personnel directly from foreign governments.

Kitakyushu City Government itself received orders for consulting work from Cambodia and made a profit. Meanwhile, Tokyo Metropolitan Government utilized Tokyo Suidou Service Co., Ltd., a joint investment company with private companies, as a window for public-private partnerships, and invested in overseas water utilities. Yokohama City Government promoted overseas expansion using Yokohama Water, a wholly owned subsidiary of Yokohama City Waterworks Bureau, and provided corporate support to the Yokohama Water Business Association. Osaka City Government also worked on corporate support by establishing the Osaka Water & Environmental Solutions

Association as a public and private partnership organization, which resulted in the establishment of Clearwater OSAKA Corporation and aims to accept orders from municipalities both in Japan and abroad.

We evaluate this public policy of overseas expansion of municipal water services from the perspective of the relevance of the purpose of policy indicated by the municipal water service overseas expansion team interim report of 2010 and the actual outcomes. First, concerning overseas development and international contribution as a water business service, as many cases of expanding cities overseas are already recognized, it is known that the spread of high-level Japanese technology overseas using local resources has contributed to improving local standards of living through the resolution of urban water environmental problems.

Second, in terms of securing the sustainability of water service, it is thought that overseas expansion will contribute to effective utilization of the capabilities and skills of municipal staff, but this overseas development is expected to be a new income source of an as yet unknown, future entity. The assumed income of municipalities or their invested corporations are the consulting fees in the short term, and the dividends of the investment corporation are those in the medium to long term. Many of the surveys that municipalities implement in order to form projects in overseas cities were to be implemented by the budget of the Japanese government. ODA is also expected as a source of financing for the construction projects, so it is difficult to predict how much business income can be steadily obtained through international expansion.

Third, regarding technology inheritance and human resource development, it is thought that the capacity of municipal officials will be improved by accumulating the experience of new business and cooperation with private companies through overseas expansion. In particular, the number of projects for new construction and renewal of related facilities has fluctuated in periods of several years to decades. From the business management perspective, it is important to standardize the working volume by developing outside the overseas area or the jurisdictional area.

Fourth, Regional Industry Promotion, the revenue increase of enterprises in the region caused by overseas expansion of municipal public-private partnerships, is presently difficult to clarify. Overseas expansion of Japanese municipal water service remains at an early stage, and results from ongoing projects must be examined after at least a few years. Meanwhile, small and medium-sized enterprises participating in public-private partnership platforms established by each municipality cannot bear such a time scale as a business. It is assumed that such enterprises may appear as a decrease or discouragement of concern with water service overseas development.

V. CONCLUSION

With rapid economic growth and urbanization, some Asian cities have confronted urban environmental problems, such as strong demand for sanitary water and sewerage. Until the 1990s, municipal water services contributed internationally by accepting technical trainees and dispatching experts to developing cities. With national governmental support, major city municipal water services in Japan have

aimed to expand their business abroad for regional economic development.

These municipalities have established public-private platforms to expand abroad. These consortiums comprises dozens of water facilities and maintenance companies. Some municipal water services have created special purpose companies to attract business opportunities from foreign governments or water authorities. These organizations provide information overseas to participating companies, and they dispatch research missions to partnership cities in Asia. The efforts of overseas expansion of such municipal water services have led to the reform of public organizations. For more efficient delivery, municipal water services have converted their operation departments into a corporation and delegated operation tasks from the public to the corporation.

Overseas expansion of water supply and sewerage services by municipalities using a network with foreign government agencies as global pipelines and gatekeepers have aimed to create demand overseas for local water and sewerage industries and to support regional water service-related companies going abroad. Under this premise, the geographical scope of water and sewerage services operated exclusively by municipalities in the region is being expanded to overseas.

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