

Chapter 8

International Environmental Cooperation by Municipalities in Japan: Prospects and Possibilities of Regional Collaboration

Akiko SASAKI¹ and Michikazu KOJIMA²

Introduction

Paragraph 34 of the Agenda 2030 for Sustainable Development adopted in 2015 by the United Nations General Assembly identifies the role of local governments. It is closely related with Sustainable Development Goal 11: “Make cities and human settlements inclusive, safe, resilient and sustainable.” Municipality is a key player as many of the sustainable issues, such as waste management and pollution control, occur at the local level. Primarily, each municipality focuses on its issues; international cooperation is not in its mandate. However, they have accumulated expertise and skills to tackle environmental problems to protect the health of citizens and the local flora and fauna.

Due to the rapid economic growth, cities in ASEAN countries have rapidly developed. Currently, around 47% of the population live in urban areas (ASEAN, 2015). Solving urban environmental problems is indispensable, and some of the cities attempt to solve them through cooperation with municipalities from developed countries. Several Japanese municipalities have worked on international environmental cooperation and are dedicated to improving the environment of partnering cities.

As shown in Figure 8-1, municipal cooperation is mostly considered to implement a project between two cities (supported by national governments or organizations like JICA together with private sectors in many cases). However, this study attempts to shed light on regional cooperation and its prospects for international environmental cooperation.

There is adequate research on international cooperation of bilateral cities, yet studies on cooperation through Inter-Municipal Cooperation (IMC) or regional

1 Research Management Officer, Institute of Developing Economies, Japan External Trade Organization (IED-JETRO)

2 Senior Economist, Economic Research Institute for ASEAN and East Asia

cooperation are rare. Regional cooperation is beneficial and efficient for municipalities since they can work together on public service provision. It is prevalent and implemented among European countries and the US as well as Japan. However, most of such associations are not involved in international cooperation even though a large number of them work on environmental projects in Japan.

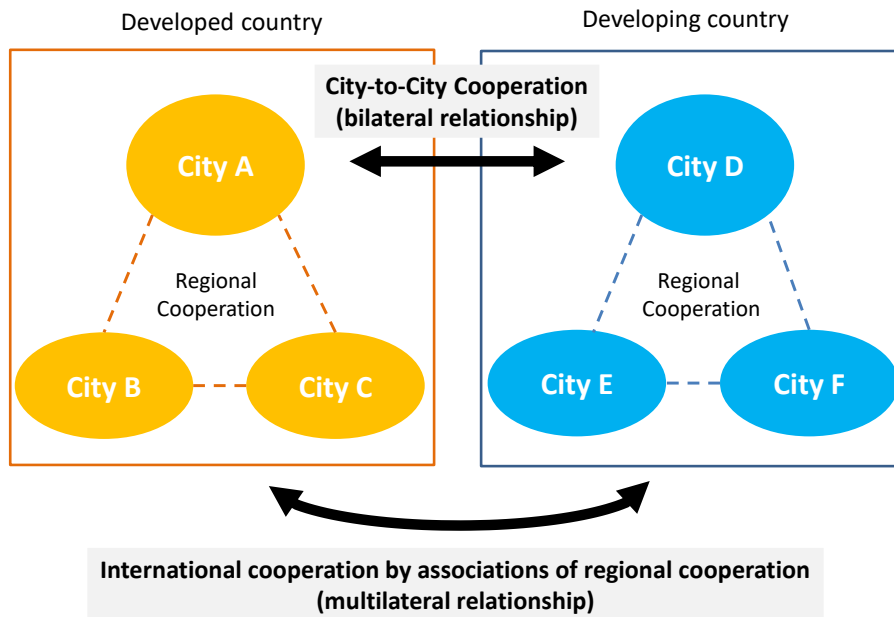


Figure 8-1: Different types of international cooperation at the local level

This study consists of two parts. First, it addresses international city-to-city cooperation focusing on environmental issues and briefly explains the current situations, merits, and demerits via a case study of Kitakyushu City, a well-known international environmental cooperation municipality in Japan. Based on that, the second part follows by looking at an overview of Japanese regional cooperation and a case study on international environmental cooperation by Clean Authority of Tokyo (CAT23). Lastly, it attempts to analyze the potentials and challenges of the associations of regional cooperation to initiate international cooperation and transfer the expertise to cities in developing countries

In this study, the term “local government” includes prefectures, municipalities (cities, towns, and villages), and relevant organizations such as associations of regional cooperation.

1. International Environmental Cooperation by Municipalities in Japan

1) Overview of the International Environmental Cooperation by Municipalities

Historically, international cooperation between municipalities in Japan began in the 1950sⁱ. The topics covering the cooperation have expanded since then. Many cities have sister-city networks aimed at building relationships with foreign cities and deepening the international understanding of citizens. According to the Ministry of Foreign Affairs of Japan (MOFA) survey, besides the sister-city relationship, the topics for international cooperation became varied depending on the strengths or needs of municipalities. Currently, municipalities focus mostly on economic cooperation. Environmental cooperation occupies 7% of the purposes of cooperation (2006). Environmental cooperation themes on clean energy and clean technology encompass improving the water supply system and waste management system. Although the environmental cooperation ratio is small, the role of municipalities in environmental solutions is prominent and highly evaluated (Takayanagi, 2004), especially when national-level government cooperation does not work due to unstable political conditions.

After the rapid economic growth of the 1950s and 70s, Japan has enjoyed the fruits of development. Yet, it has caused environmental pollution and degradation in many areas. Cities needed to learn to tackle such problems and introduce technologies to improve air, water, and sanitation systems of the local environment. Thus, they accumulated know-how and experience against pollution.

Some municipalities, currently, transfer their know-how and skills to developing countries in need; especially, to Asian countries. For most municipalities, it is not viable to implement projects for inter-municipal cooperation due to budget limits, human resources, and connections (Ishinabe, 2010). Ministries and agencies like the Ministry of Environment of Japan (MoE) and Japan International Cooperation Agency (JICA) offer project funds; municipalities implement projects by using them. Other ministries and public organizations offer schemes, but the Joint Crediting Mechanism by MoE and Grassroots Technical Cooperation Projects by JICA might be the major ones.

The Joint Crediting Mechanism (JCM) is a “means to facilitate the diffusion of leading low-carbon technologies, products, systems, services, and infrastructure, as well as the implementation of mitigation actions. It also aims to evaluate contributions from Japan to GHG emissions reduction or removals in a quantitative manner and use them to achieve Japan’s emissions reduction target.” (MoE, 2016, p.1). JCM is mainly provided for feasibility studies since 2013 for promoting low-carbon cities in developing countries.

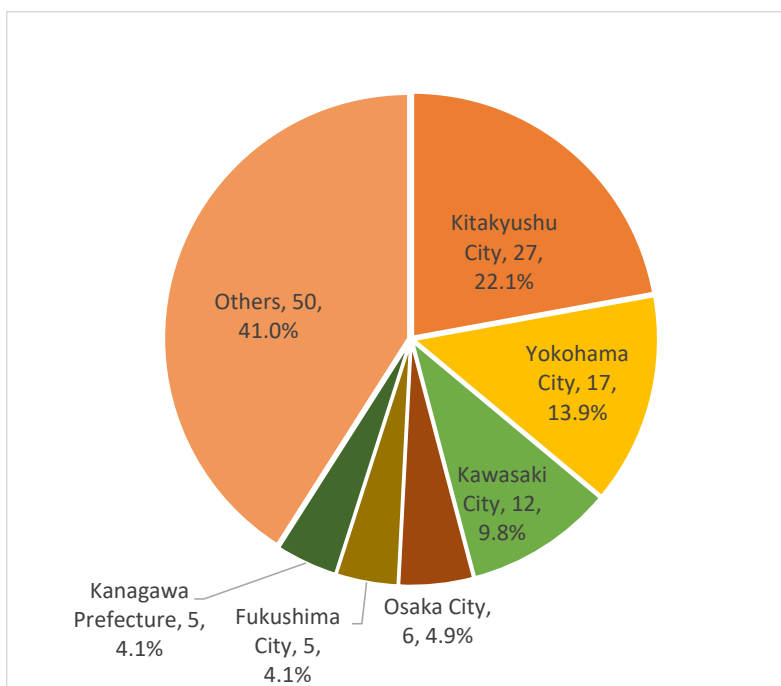
The Grassroots Technical Cooperation Projects by JICA are classified into three categories: Grassroots Partner Type, Grassroots Cooperation Support Type, and the Local Government Type [named as a special framework for community revitalization (*chiiki kasseika tokubetsu waku*) since 2013]. The Local Government Type is offered for municipalities and their partner organizations. It aims at transferring knowledge and experience of cities to support the development and problem-solving in developing countries. It is also expected to build a ‘win-win’ relationship by contributing to revitalizing Japanese economy and communities (JICA, n.d.). The project goals vary and include feasibility studies, capacity building, and technological cooperation.

Table 8-1 shows the number of projects by Japanese local governments (prefectures, municipalities, and relevant organizations) by using JCM schemes and the Grassroots Technical Cooperation Projects (only the Local Government Type) by JICA from 2013 till 2017. Local governments do not directly implement some projects. Private companies initiate them by utilizing Japanese and partnering municipality networks. In that case, Japanese municipalities cooperate with the projects by, for instance, holding workshops. Implemented projects are concentrated in Asia, especially in Southeast Asia, covering over 80% of whole projects.

Table 8-1: Number of international environmental cooperation projects by local governmentsⁱⁱ

JFY	Northeast Asia	South Asia	Southeast Asia	Pacific	Latin America	Middle East	Africa	Total
2013	2	1	11	0	1	0	0	15
2014	2	0	20	0	0	1	0	23
2015	3	2	23	0	0	0	1	29
2016	3	0	23	2	1	0	0	29
2017	1	0	24	1	0	0	0	26
Total	11	3	101	3	2	1	1	122

Figure 8-2: Share of local governments working on environmental cooperation (starting from JFY 2013-2017)ⁱⁱⁱ



Source: Made by authors, based on Ministry of Environment (n.d.) and JICA (n.d.)

We observe clear gaps in local governments working on international environmental cooperation. Kitakyushu City implements approximately 20% of whole projects, and the top 3 cities (Kitakyushu City, Yokohama City, and Kawasaki City) occupy more than 40% of whole projects (Figure 8-2). All three cities are designated cities defined by Local Autonomy Law. They usually have large industrial sites and ports with about a population of a million or more. Thus, it might be more viable for large municipalities to work on international cooperation.

Among municipalities intensively working on international environmental cooperation, section two takes a glance at the case of Kitakyushu City.

2) The Case of Kitakyushu City

Kitakyushu City, located in Fukuoka Prefecture in the western part of Japan, has contributed to Japanese modernization and industrialization via heavy industries including steel, chemicals, and cement in the 20th century. The city is known for the first government-owned steelwork, which began operation in 1901.

While industrial sectors drove city development, Kitakyushu sacrificed the environment and caused severe pollutions from the 1960s to 1980s. Citizens, especially women, stood up against it and started campaigns to improve the environment. Together with the city government, private sectors, and citizen groups, there were tremendous efforts to improve air and water quality. As a result, Kitakyushu is well-known as the city that recovered from pollution.

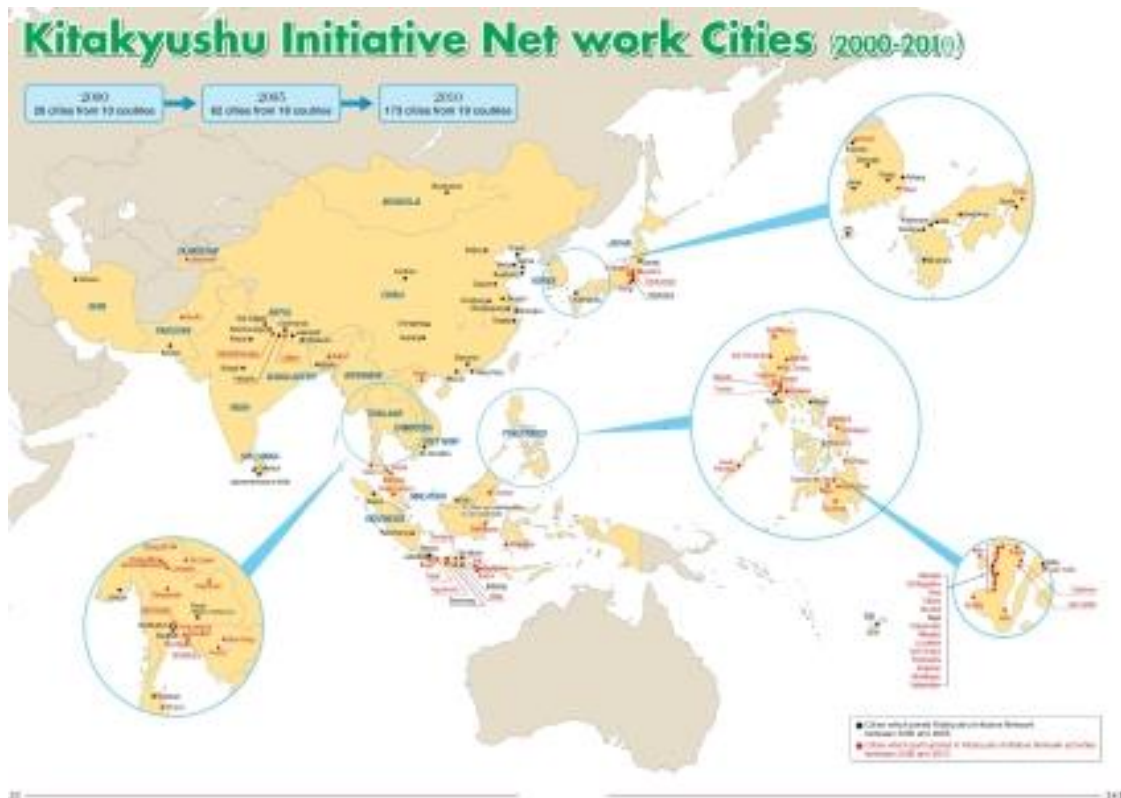
Their international environmental cooperation started in the 1980s. Kitakyushu International Techno-cooperative Association (KITA) was established in 1980 to share experiences and skills with other cities, especially developing countries. It aimed to support the economic development of developing countries by utilizing the technologies accumulated through the steel industry and environmental solutions. So far, they have invited over 9,000 participants from 165 countries since its establishment (Kitakyushu International Techno-cooperative Association, n.d.). Local actors such as companies, universities, and administrative institutions working together and cooperating to accept trainees from abroad have supported the activities (Kitakyushu-shi kankyo shuto kenkyukai, 2008).

The first environmental cooperation of Kitakyushu City began with Dalian City in China. Their initial relationship began as a friendship city in 1979 for an exchange of culture, sports, and economy. Based on the long-term relationship and trust, the environmental cooperation commenced in the 1980s. They started with organizing seminars and, eventually, invited officials of the environmental protection bureau of Dalian City until 2002 (Naito, 2014). Meanwhile, JICA started training courses on environmental topics consigned to KITA in 1987. The courses increased after opening JICA Kyushu Center (Naito, 2014). Gradually, their activities inspired the cooperation of national governments. Kitakyushu, together with JICA, used the scheme of Japanese ODA (Official Development Assistance) for the first time as a Japanese municipality for implementing the survey on an environmental model district in Dalian. Later, it was developed into the national cooperation on environmental issues between Japan and China (Kitakyushu-shi kankyo shuto kenkyukai, 2008).

Such activities were highly evaluated internationally; Kitakyushu City received the “Global 500 Award” by UNEP in 1990 as the first local government in Japan. Kitakyushu has intensified activities for international cooperation by expanding their networks to other Asian cities needing support to solve similar environmental problems. In 2000, the Ministerial Conferences on Environment and Development in Asia and the Pacific by UNESCAP was organized in Kitakyushu City. Within the conference, “Kitakyushu Initiative” was adopted, which built a network of cities in Asia and the

Pacific working for sustainability (Figure 8-3). Sixty-two cities in 18 countries and regions were members of the Kitakyushu Initiative in 2007 (Kitakyushu-shi kankyo shuto kenkyukai, 2008). The city has established the Kitakyushu Asian Center for Low Carbon Society and closely working with relevant organizations like JICA, KITA, and Institute for Global Environmental Strategies (IGES) to promote activities.

Figure 8-3: Environmental cooperation network of the Kitakyushu Initiative



Source: Kitakyushu City Website (http://www.city.kitakyushu.lg.jp/kankyoku/file_0272.html)

The activities of Kitakyushu are diverse. Municipalities visiting the city can learn from the training activities including eco-town, recycling technologies, detoxifying harmful products, and waste management. The city also implements projects and provides consulting services. For instance, they have worked on solid-waste management based on community-level composting in Surabaya City, Indonesia. The sewer and water bureau provided consulting services for water supply to Sen Monorom City, Cambodia, namely: basic planning, implementation, and construction management (Kitakyushu-shi, n.d.).

Kitakyushu City’s success has been widely recognized internationally and domestically. The city has garnered many awards including “Model Cities for Green

Growth” by OECD in 2006, “Eco-Model City” by the Japanese government in 2008, and “Partnership Award” at the first Japan SDGs Awards in 2017. Activities on international cooperation have progressed into the next phase and beyond. The city now integrates the SDGs of Agenda 2030 into their vision for international cooperation. In 2018, Kitakyushu City announced publication of the SDGs report at the UN High-Level Political Forum together with Shimokawa Town and Toyama City; these are the first SDGs reports by local governments. Within Kitakyushu City’s SDGs Future Vision is the basic concept of international cooperation through expertise and skills utilization (Kitakyushu City and IGES, 2018).

3) Merits and Demerits for Local Municipalities

Though successful cases of international cooperation like Kitakyushu exist, municipalities primarily exist for its local residents and are run partly by their tax revenue for improving public service. Thus, how are municipalities working on international cooperation justified for such activities?

The difference between international cooperation among the municipalities and international aid is that the municipal cooperation focuses on policies of mutual benefit (Ewijk and Baud, 2009, Johnson and Wilson, 2009). International municipal cooperation is easier and flexible to start unlike the ones between nations.

The benefits for municipalities in developing countries include receiving development support, capacity development of municipal officials, and reinforcement of local governance (Bontenbal, 2009). Many studies also indicate the benefits of municipalities from a developed country perspective including capacity development of local government officers, and appreciating different cultures and values by working together with partnering cities (Ishinabe, 2010; Bontenbal, 2009). Nakamura et al. (2011) summarized their motivations into four categories: 1) “utilization of local human capital with experience in environmental management” (p.229), 2) enhancing the “synergy of environmental business and international environmental cooperation” (p.234), 3) “response to trans-boundary pollution issues” (p.229), and 4) “conservation of natural assets” (p.235). Some municipalities are motivated to share their history of pollution. Others promote cooperation due to international orientation to improve the international recognition of the city (Nakamura et al., 2011).

Although positive effects are expected, many challenges are highlighted by municipalities both in developed and developing countries. Challenges include financial issues; lack of setting, sharing process, and goals between the partnering municipalities;

difficulties to gain support from the council, citizens, or sometimes from colleagues; and knowledge and resource inequality among the partnering cities (Hewitt, 2002, 2004; Bontenbal, 2013; Johnson and Wilson 2009; Ishinabe, 2010).

Moreover, it is an important fact that international environmental cooperation cannot be achieved without strong city leadership (IDE-JETRO, 2015). Even if a mayor is eagerly committed, projects cannot be sustained if another mayor with different priorities is elected. Furthermore, it is indispensable to be supported by the local council and citizens. Even in Kitakyushu, in a public awareness survey, citizens attach the least priority on international cooperation (IDE-JETRO, 2015). Continuous support from leaders, local politicians, and citizens are key for sustaining international cooperation. At the same time, national-level financial support by an agency like JICA and the Ministry of Environment is crucial under severe financial conditions of municipalities.

2. Regional Cooperation for Environmental Sustainability

1) Inter-Municipal Cooperation (IMC)

As observed earlier, international municipal cooperation is, mostly, structured as a bilateral city-to-city cooperation, implemented by either a single city or consortium by a city collaborated with private sectors.

Inter-Municipal Cooperation (IMC), however, is when “two or more municipalities agree to work together on any of the tasks assigned to them in order to gain mutual benefits.” (UNDP, 2010). Usually, neighboring domestic municipalities cooperate among themselves. The purposes vary depending on the needs, including solid waste management and water supply. Given decentralization and globalization, inter-municipal associations are organized, and IMC has become prevalent worldwide.

Many municipalities in Europe and the US, for instance, adapt IMC for certain purposes for efficient public management and provision of public services. Municipalities in East European countries have been supported to start IMC. UNDP has launched a project in 2006 to 2012 to support municipalities such as in Montenegro, Moldova, and Ukraine through training programs (UNDP, n.d.). The Council of Europe also organizes roundtables and regional conferences to promote and support IMC activities.

2) Inter-municipal Cooperation in Japan

Japanese municipalities have also organized such associations and have played a significant role in modern Japan to improve environmental problems. Fundamentally, associations are in charge of specific activities for member municipalities and provide services to citizens. Thus, international cooperation by them is rare except for the case of Clean Authority of TOKYO (CAT23), an association of 23 cities in Tokyo.

In Japan, environmental cooperation among several municipalities can be seen under the framework of “local public cooperatives” (*chihou kokyo dantai no kumiai*). Several municipalities organize groups to cooperate on specific issues to improve efficiency. There are several organizations categorized within the local public cooperatives. CLAIR (Council of Local Authorities for International Relations) defines local public cooperatives as “organizations established by two or more local authorities to deal with issues more efficiently and effectively addressed by multiple rather than single local authorities” (2010, p8).

Japanese local governments can be classified into two types under the current Local Autonomy Law: “ordinary local public entities” and “special local public entities.” Local public cooperatives are categorized in special local public entities as shown below (Table 8-2).

Local public cooperatives work for different purposes including waste disposal, sanitation, firefighting, community development, and disaster prevention (Muto, 2010, p.236). Among them, the ratio of partial cooperatives aimed for environmental issues such as waste disposal is high (see Table 8-3). In 2016, the total number of administrative works of local public cooperatives was 11,562, and the number categorized in environment and sanitation was 2,100, around 18%³. Among the administrative works for environment and sanitation, the number of partial cooperatives is 1,310, occupying over 60% of public entities. Considering the number of municipalities (around 1,700 municipalities) in Japan, the role of partial cooperatives in environmental protection is vital.

Table 8-2: Classification of local governmental body in Japan

Local Govern	ordinary local public entities	Prefectures Municipalities (cities, towns, villages)
-----------------	-----------------------------------	---

³ Some cooperatives have multiple purposes so that the numbers are duplicated.

ment	special local public entities	Local public cooperatives	Typologies of local public cooperatives Established as different corporations: 1) Partial cooperatives <i>(ichibu jimmu kumiai)</i> 2) Wide-area cooperatives <i>(koiki rengo)</i> No need to establish different corporations: Conference <i>(kyogikai)</i> , Jointly set-up Committee <i>(kikan tou no kyodo itaku)</i> , etc.
		Special wards (23 cities in Tokyo)	
		Others (Property wards, Local development corporations)	

Source: CLAIR (2010), MIC (2016)

Table3: Purposes of special public entities in Japan

Purpose	Number of Public Entities	Number of Partial Cooperatives	ratio of partial cooperatives
Area Development Plan	149	95	63.8%
Promotion of Primary Industry	372	166	44.6%
Promotion of Secondary Industry	24	17	70.8%
Promotion of Thirdly Industry	49	27	55.1%
Transportation Facility	69	17	24.6%
Land Preservation	9	3	33.3%
Welfare	1,625	687	42.3%
Environment and Sanitation	2,100	1,310	62.4%
Education	491	139	28.3%
Housing	10	4	40.0%
Urban Planning	47	18	38.3%
Disaster Prevention	1,352	821	60.7%
Others	5,265	423	8.0%
Total	11,562	3,727	32.2%

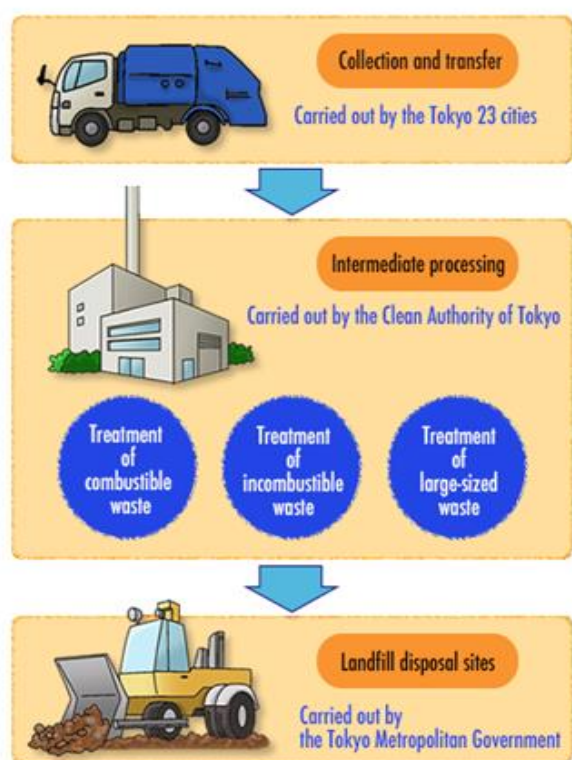
Source: MIC (2016)

Many of them run waste disposal facilities invested and maintained by member

municipalities of the cooperative. Although partial cooperatives possess the know-how and skills, as earlier explained, only CAT23 has participated in environmental international cooperation. The next section highlights a case study on international environmental cooperation by CAT23.

3) Case study: Clean Authority of Tokyo (CAT23)

Figure 4: Roles of Clean Authority of Tokyo



Source: CAT23 (n.d.)

CAT23, established in 2000, is a partial cooperative which consists of 23 cities (special ward or *ku*) in Tokyo Metropolitan Government. The waste management service which used to be implemented by the 23 cities was transferred to the partial cooperative. They oversee the intermediate processing including treatment of combustible waste, incombustible waste, and large-size waste (see Picture 2). Each city collects the waste in their respective area and transfers it to the CAT23 facilities depending on the type of waste. Within the 23 cities are located 19 combustible, 2 incombustible, and 1 large-size facility as of April of 2018 (CAT23, n.d.).

The annual budget of JFY2018 is approximately 71,940,000 thousand Yen; a reduction of 2.2%

from the previous fiscal year (CAT23, 2018). The CAT23 executive body consists of the president, vice-president, and several departments including the one in charge of international cooperation. The president is selected from the mayors of the 23 cities. For the legislative body, it consists of the mayors. The president (as of September 2018) is a mayor of Arakawa City and is keen to work for international cooperation (CAT23, 2012).

According to the management plan of CAT23 in JFY2015, they attempted to cut human resources by 30% as compared to JFY2005 (1,356 employees) by outsourcing. They cut 25.1% by 2015 and hold 1,015 employees (as of JFY2015), though maintaining

the knowledge of senior staff is a concern (CAT23, 2015a).

From the 20th century until the 1950s, the issues of waste management were concentrated on sanitation against pandemics. After entering the era of rapid economic growth, Tokyo faced the need for the drastic waste management reform to adapt to the waste increase due to social and economic change. However, there was a public movement against constructing a new landfill site by neighboring communities. As a result, garbage collection vehicles needed to travel long distances. This caused problems such as bad smells, especially, in Koto City, where all the waste from the 23 cities were collected and disposed of. A dispute, declared as “Tokyo waste war,” occurred between Koto City and Sugunami City for development of a new landfill site in 1971. After the dispute, the 23 cities built a consensus to treat the waste within each city (CAT23, n.d.).

As technology progressed, new innovative facilities for incineration, gasification, ash melting, and waste plastic thermal recycling was gradually introduced (CAT23, n.d.). At the same time, city efforts on public education for recycling enhanced community-based waste collection. They also attempted to encourage public participation and in-depth communication with residents, especially, in case of new facility constructions. Implementation of new technology and public awareness education has made Tokyo successful in their waste management policy and well-known in the world. CAT23 was nominated as a finalist of “The 2015 Circular Economy Award” in the category of cities and regions at the World Economic Forum.

International Cooperation

CAT23 began international cooperation activity in 2011 by collaborating with governments of 23 cities. They annually receive many foreign visitors including high-level officials, as well as officials from national and local governments worldwide. In 2010, they received around 3,500 visitors; 769 from China and 259 from South Korea. Asian country visitors are increasing (CAT23, 2012).

According to the basic policy of CAT23 international cooperation, the external purpose lies mainly on contributing to environmental problems in developing countries. They, also, expect to be visible in the world as a key player for building a circular economy. The internal purposes focus on capacity building of staffs. As senior staff decreases, it is a challenge to maintain waste management skills. By working on international cooperation, they expect to accumulate know-how including the renewal of intermediate processing or introducing a new system, and teaching them to younger staff for capacity development (CAT23, 2012, pp:5-6).

Usually, municipalities reconstruct waste treatment facilities every few decades, so

it is hard to preserve know-how to pass on to staffs. However, CAT23 can accumulate know-how since they are in charge of the construction of all the sites located in the 23 cities and regularly construct the facilities (CAT23, 2012).

According to the basic policy for international cooperation designated in 2012, CAT23 has four types of international cooperation: 1) international contribution type, 2) consultation type, 3) O&M (Operation and Maintenance) type, and 4) Investment and Business Operation type.

Table 8-4: Basic Policy for International Cooperation by CAT23

		Vision for 10 years (2012-2021)	Main activities from 2012 to 2017 (in total)
Development of International Cooperation Projects	1) international contribution type	Build trusts and friendships through solving the waste and environmental problems by technical cooperation and human exchange	<ul style="list-style-type: none"> • Participation to the international conferences (Regional 3R Forum in Asia and the Pacific, World Cities Summit) • Receiving trainees (trainees from the programs by JICA, METI, MoE, Okayama Uni., etc) • Dispatch the specialists (Thailand, Brazil, China, Turkey, Saudi Arabia, Malaysia, Myanmar, Vietnam) • MoU (Russia, Indonesia)
	2) Consultation type	Contribute to the Japanese industrial policies by actively participate in the waste management e.g. FS through PPP	<ul style="list-style-type: none"> • Feasibility Studies (Malaysia, Vietnam, Brazil, Kazakhstan, Russia, Indonesia, Turkey) • Inter-municipal projects (Jakarta and Moscow)
	3) O&M type	Continue research under discussions and considerations	<ul style="list-style-type: none"> • Study group of international cooperation
	4) Investment and Business Operation type		
Improvement of implementation system		Attempt to improve the implementation system to sustain the above activities	

Source: Made by authors, based on CAT23 (2012)

The international contribution type attempts to build trustworthy relationships with partnering cities and countries through technical cooperation and interaction between CAT23 staffs and the partners. Consultation type mainly deals with feasibility studies through Public Private Partnership (PPP). O&M type as well as investment and business operation type, which are business-oriented, is currently limited to organizing study groups with members from academic and business communities.

As seen in Table 8-5, most of the activities are concentrated on international

contribution type. CAT23 receives many trainees from programs by different organizations such as JICA; the Ministry of Trade, Economy, and Industry, Japan (METI); MoE, and universities.

One example of CAT23 international cooperation is the “Partnership Building with Local Residents on Waste Management in Malaysia” project initiated under the JICA Grassroots Technical Cooperation Project. They cooperated with Kuala Lumpur City (KL), Malaysia, to deepen public understanding of waste treatment from JFY2013 to JFY2015. They organized a training program for the residential associations from KL and cities in Tokyo (Shinjuku, Sumida, Koto, Setagaya, Arakawa, and Nerima). Residential associations from KL visited Tokyo and learned the activities by residential groups. After going back to KL, they created an action plan to tackle their issues by applying the points learned in Tokyo. Residential associations in Tokyo also visited KL for a follow up on the action plan (CAT23, n.d.).

CAT23 created “Tokyo Model” and explained it to visitors to promote their knowledge and skills in a comprehensive package. The “Tokyo Model” combines technology, service provision system, and local community involvement (Hongo, 2016, P.21). It compiles the waste treatment system and its strength in Tokyo. It shows the development process of waste disposal since the early 1900s via a comprehensive model overview starting from waste emission until final disposal through the process of recycling, collection, transportation, and incineration. It also describes the cooperation scheme for foreign national and local governments (CAT23, 2015b).

As observed in the “Tokyo Model,” CAT23, rather than just focusing on their intermediate processing work as a partial cooperative, also promotes international cooperation by sharing knowledge comprehensively. They provide waste management experience in Tokyo. The entire waste management process including public education for recycling, public participation on location determination, and final disposal are all included.

CAT23 has big city counterparts such as Jakarta. However, it has not shared experiences on operating inter-municipal cooperation intensively with local governments in other countries.

Conclusion

This study attempted to illustrate the significant role of international municipal cooperation for environmental sustainability of cities. The main actor of the cooperation is a single municipality. However, it was explained that regional cooperation, especially,

partial cooperatives, contributes significantly to environmental improvement in Japan. CAT23 is a case of international cooperation by such association, and their activities are widely recognized among countries and cities in the developing world. It is also remarkable that they are one of a kind in Japan so far. There could be several reasons for the existence of leadership or adequate financial and human resources to afford such activities. The potentials and strengths of regional cooperation on international environmental cooperation should be further investigated.

Nonetheless, it would likely increase the need for cities in developing countries to learn from cases of regional cooperation. For instance, sanitary landfill in Bali, Indonesia, has been used by some local governments. The incineration plant in Phuket, Thailand, accept household waste generated in surrounding areas, based on the contract between Phuket Municipality and other local government. There might be possibilities that associations like partial cooperatives can share know-how that a single city does not possess, especially the know-how for governance and legislative schemes for establishment and management. Not only environmental skills but also administrative and management skills have been accumulated over the years in Japan to strengthen the potential to be involved in future international cooperation projects.

It might be hard to start international cooperation due to lack of experience, and barriers of human and financial resources. Additionally, international cooperation takes time. Like the case of Kitakyushu City, building a relationship with partnering cities takes a long time before starting the real cooperation projects. Capacity development of staff is also crucial. Following CAT23, if other cooperatives start cooperating, it is necessary to have support from organizations like JICA and progress from there. If national governments and municipalities in ASEAN countries get motivated, the Japanese partial cooperative cases would be a good for consideration.

ii The first sister-city relationship was between Nagasaki and Saint Paul in the United States (Menju, 2009).

ii Local governments include prefecture, municipality, and partial cooperative (association of regional cooperation). The year indicates the starting year of project so that some have not finished yet at moment in JFY 2018. Special scheme for revitalization of local economy (chiiki Keizai kasseika tokubetsu waku) in JFY 2013 is not included.

iii Others: 32 local governments (prefectures, municipalities, and partial cooperatives) implemented less than 4 projects during JFY 2013-2017. Each project lasts for 2-3 years. Thus, the projects from JFY2017 will end in JFY 2019-2020.

Reference

- ASEAN (2015). *ASEAN Statistical Yearbook (2015)*, Chapter1. P.7.
http://asean.org/storage/2012/05/ASEAN-Statistic-Yearbook-2015_r.pdf
- Bontenbal, M. (2013). Differences in Learning Practices and Values in North-South City Partnerships: towards a Broader Understanding of Mutuality, *Public Administration and Development*, 33: 85-100.
- Bontenbal, M. (2009). Strengthening Urban Governance in the South through City-to-City Cooperation: Towards an Analytical Framework. *Habitat International* 33: 181-189.
- Council of Local Authorities for International Relations (CLAIR) (2010), *Local Government in Japan*.
<http://www.jlgc.org.uk/en/pdfs/LocalGovernmentInJapan2010.pdf>
- Clean Authority of TOKYO (n.d.) *Kokusai kyoroku jigyou no torikumi ni tsuite* (International cooperation projects).
<http://www.union.tokyo23-seisou.lg.jp/kokusai/main.html>
- Clean Authority of TOKYO (2018). *Heisei 30 nendo yosan no aramashi* (Overview of JFY 2018 budget).
- Clean Authority of TOKYO (2015a). *Keiei Keikaku* (Management Plan).
- Clean Authority of TOKYO (2015b). *Tokyo Model –Toshi gomi shori jigyou koudoka no rekishi to tsuyomi-* (Tokyo Model –the history and strengths of upgrading of urban waste disposal-).
- Clean Authority of TOKYO (2012). *Tokyo 23 ku seisou jigyou no kokusai kyoryoku ni kansuru kihon hoshin* (basic policy on international collaboration of Tokyo's 23 cities waste management).
http://www.union.tokyo23-seisou.lg.jp/seiso/documents/kihon_hoshin.pdf
- Ewijk, E van. and Baud, I. (2009). Partnerships between Dutch municipalities and municipalities in countries of migration to the Netherlands; knowledge exchange and mutuality, *Habitat International*, 33 (2009): 218-226.
- Hewitt, W.E. (2004). Partnership as Process: Municipal Co-operation for International Development. *Canadian Journal of Development Studies/ Revue canadienne d'études du développement*, 23:2, 225-247.
- Hewitt, W.E. (2002). The administrative impact of international municipal cooperation on Canadian cities and towns: an assessment. *Canadian Public Administration*, vol. 42 (3): 312-330.
- Hongo, T. (2016). Circular Economy Potential and Public–Private Partnership Models in Japan, in Anbumozhi,V. and J. Kim (eds.), *Towards a Circular Economy: Corporate*

- Management and Policy Pathways. *ERIA Research Project Report 2014-44*: 17-29.
http://www.eria.org/RPR_FY2014_No.44_Chapter_2.pdf
- IDE-JETRO (2015). “Chihou jichitai ni yoru kokusai kankyo kyoryoku (*International Environmental Cooperation by Local Municipalities*)”, *Ajiken World Trend*, vol.235, pp: 2-14.
- Ishinabe, N. (2010). Analysis of international city-to-city cooperation and intercity networks for Japanese national & local governments. *IGES Discussion Paper*:
https://pub.iges.or.jp/pub_file-17/download
- Japan International Cooperation Agency (JICA). (n.d.) *Kusanone gijutu kyoryoku jigyou* (Grassroots Technical Support Projects)
<https://www.jica.go.jp/partner/kusanone/what/index.html>
- Johnson, H. and Wilson, G. (2009). Learning and mutuality in municipal partnerships and beyond: a focus on northern partners. *Habitat International*, 33(2): 210-217.
- Kitakyushu-shi (n.d.), *Kitakyushu-shi no kankyo kokusai senryaku (International Environmental Strategies of Kitakyushu City)*.
- Kitakyushu City and IGES (2018), *Kitakyushu City the Sustainable Development Goals Report*.
https://pub.iges.or.jp/system/files/publication_documents/pub/policyreport/6569/Kitakyushu_SDGreport_EN_201810.pdf
- Kitakyushu International Techno-cooperative Association (KITA) (n.d.),
<http://www.kita.or.jp/english/kita/index.html>
- Kitakyushu-shi kankyo syuto kenkyukai (2008), *Kankyo shuto Kitakyushu shi* (Environmental capital: Kitakyushu City), *Nikkan kogyo shimbun*ya.
- Menju, T. (2009) “Global jidai no jichitai no kokusaika senryaku heno teigen”(Advocacy for internationalization of municipalities in the era of globalization), *SRI*, No. 97, Japan Center for International Exchange.
<http://www.jcie.or.jp/japan/others/inthenews/contribution/2009/sri200909no97.pdf>
- Ministry of the Environment (MoE) (n.d.), *Web Portal for Low Carbon Development in Asia*.
<https://www.env.go.jp/earth/coop/lowcarbon-asia/english/project/index.html>
- Ministry of the Environment (MoE) (2016). *The Joint Crediting Mechanism (JCM): Feasibility Study through City-to-City Collaboration*.
https://www.env.go.jp/earth/coop/lowcarbon-asia/english/project/data/jcm_pamphlet_03.pdf
- Ministry of Internal Affairs and Communications (MIC) (2016), *Chihou kokyo dantai kan no jimmu no kyodo syori no jokyō shirabe* (Survey on collective treatment among local

public entities)

http://www.soumu.go.jp/main_content/000454692.pdf

Ministry of Foreign Affairs (MOFA) (2016), *Shimai toshi igai no teikei risuto 2016 nen 9 gatsu* (List of collaboration except the sister-cities, as of September 2016) .

https://www.mofa.go.jp/mofaj/gaiko/local/action/pdfs/except_world03.pdf

Muto, K. (2010). Intergovernmental Relations in Japan, *Public administration in East Asia: Mainland China, Japan, South Korea, and Taiwan*, Evan M. Berman, M. Jae Moon, Heungsuk Choi (eds.) , Chapter11, Taylor and Francis Group, LLC.

Naito, H. (2014). Kitakyushu-shi ni okeru cyugoku tono kankyo kokusai kyoryoku to kankyo business no keiken to kongo no doukou (*Experiences of Kitakyushu City's international environmental cooperation and environment business with China and its trend*), *Gendai Cyugoku*, 88.

Nakamura, H., Elder, M., and Mori, H. (2011). The Surprising Role of Local Governments in International Environmental Cooperation: the Case of Japanese Collaboration with Developing Countries. *Journal of Environment & Development*, 20(30): 219-250.

Takayanagi, A. (2004) Jichitai kokusai kyoryoku no kanousei to kadai (Possibilities and challenges of municipal international cooperation), *Jichitai Kokusaika Forum* (Forum on internationalization of municipalities), May 2004, pp:2-5.

UNDP (n.d.) *Project Info*.

https://info.undp.org/docs/pdc/Documents/MKD/00044193_Fact%20Sheet%20-%20Inter%20Municipal%20Cooperation.pdf