

A Comparative Analysis of the Kang Pisman Movement and the BKG Project in the Bandung–Kawasaki Sister City Partnership

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Abstract

- Purpose** : This study aims to compare the implementation of the Kang Pisman movement and the Bandung–Kawasaki Gesuido (BKG) Project in Bandung within the Bandung–Kawasaki sister city partnership.
- Method** : This study employs a qualitative method using thematic analysis. Data were collected through interviews, observation, and a literature review.
- Results** : The study finds that the Kang Pisman and the BKG Project employ different mechanisms for transferring, adapting, and localizing Kawasaki environmental knowledge and practices in Bandung. These differences are reflected in their focus, objectives, approaches, educational strategies, and expected outcomes. Kang Pisman focuses on solid waste management, while the BKG Project focuses on wastewater management. Kang Pisman promotes waste reduction, separation, reuse, and recycling, whereas the BKG Project aims to strengthen technical knowledge and public awareness of wastewater management. Kang Pisman adopts a more bottom-up approach, while the BKG Project tends to employ a more top-down approach. Kang Pisman seeks to develop waste-conscious lifestyles and garbage-free areas, whereas the BKG Project aims to improve government capacity and public awareness of wastewater management.
- Conclusion** : This study presents an empirical contribution by demonstrating that the same sister city partnership can generate different modes of knowledge transfer depending on the actors, target groups, type of environmental problems, and implementation mechanism. This study gives a theoretical contribution to paradiplomacy literature by showing that paradiplomacy can facilitate the transfer, adaptation, and localization of environmental knowledge, values, and practices between city governments.

Keywords: Paradiplomacy; Subnational Government; Environmental Issues; Sustainability; SDGs

1. Introduction

The Bandung–Kawasaki sister city partnership is a form of city-to-city cooperation between Bandung, West Java, and Kawasaki, Japan, aimed at addressing environmental challenges to promote sustainable development in both cities. Established in 2015, the partnership seeks to accelerate progress in air quality improvement, energy efficiency, transportation technology, and liquid waste management systems. Through this collaboration, Kawasaki shares its experience and technological expertise to assist Bandung in addressing pressing environmental problems,

particularly solid waste and wastewater management issues (Laoli & Dermawan, 2025; Setiawan et al., 2025).

By definition, a sister city is a long-term partnership between two cities from different countries to promote cooperation across various sectors, including culture, education, politics, the environment, and economic development (Reskiyah & Pusvitasary, 2026). In the cultural sphere, for example, these partnerships seek to establish mutual understanding through cultural exchange and activities, such as student visits and art festivals. In education, sister city partnerships enable collaboration through school partnerships and joint university projects. In economy, sister city partnerships facilitate two cities to collaborate to stimulate trade, strengthen business ties, and boost investment. With sister city arrangements in place, two cities from different countries can also share effective technical practices in various areas ranging from healthcare, infrastructure, to environmental management (Bilder, 1989; Cremer et al., 2001).

The Bandung-Kawasaki sister city partnership has been implemented through two main programs: the Kang Pisman movement and the Bandung-Kawasaki Gesuido (BKG) Project. Kang Pisman was implemented from 2017 to 2020, while the BKG Project has been carried out from 2023 to 2026. Kang Pisman, which stands for *Kurangi, Pisahkan, Manfaatkan* (Reduce, Separate, and Utilize), encourages local communities to reduce, separate, and reuse waste as part of efforts to create cleaner and waste-free areas in Bandung. In contrast, the BKG Project focuses on improving wastewater management by strengthening the knowledge and skills of Bandung's government officials and local communities. This study compares the two programs to examine how they address waste-related problems in Bandung and how Kawasaki environmental knowledge and practices are transferred through the partnership. Therefore, this study asks: "How were Kawasaki environmental knowledge and practices transferred, adapted, and localized through the Kang Pisman movement and the BKG Project within the Bandung-Kawasaki sister city partnership?"

The Bandung-Kawasaki sister city partnership has been examined in several studies, with most of which focusing on the formation of the partnership. Existing literature (Laoli & Dermawan, 2025; Sabati, 2024; Siregar & Rizqullah, 2022; Ulung et al., 2025) shows that paradiplomacy played an important role in establishing the sister city partnership between Bandung and Kawasaki. Paradiplomacy refers to diplomatic activities conducted by regional or local governments, such as cities and provinces, either independently or semi-independently from their central governments, with the objective of pursuing their own political, economic, cultural, or environmental interests at the international level (Cornago, 2015; Oddone, 2023; Schiavon, 2019). Despite the growing body of literature on the role of paradiplomacy in establishing the Bandung-Kawasaki sister city partnership, existing studies provide limited empirical evidence on how the partnership has been implemented, particularly regarding how environmental knowledge and practices have been transferred from Kawasaki to Bandung. Previous studies tend to examine the partnership at the institutional level, while paying less attention to the processes through which knowledge, practices, and cultural values are transferred to local governments and communities. This study addresses this gap by shifting the analytical focus from the formation of the partnership to its implementation and by comparatively examining the Kang Pisman movement and the BKG Project as two different mechanisms of waste management cooperation.

Analyzing the implementation of the Bandung–Kawasaki sister city partnership is important for understanding how effective the partnership has been, particularly in benefiting local communities. Previous studies have debated whether sister city partnerships can provide direct and meaningful benefits to local communities. Aurelivia (2025) and Siregar & Rizqullah (2022) found that the Bandung–Kawasaki partnership has produced tangible benefits, particularly by strengthening the capacity of the staff of Bandung administration in waste management. However, Hakiem et al. (2025) disagreed, finding that the partnership has had a limited direct impact on local communities although it strengthened the capacity of Bandung's civil servants in addressing environmental challenges. Building on these findings, this study seeks to analyze how the Bandung–Kawasaki sister city partnership has benefited local communities, particularly through the transfer of Kawasaki environmental knowledge and practices from Kawasaki to Bandung, and how this transfer has contributed to efforts to address waste management challenges in Bandung.

The novelty of this study lies in its comparative analysis of two different implementation programs within the same sister city partnership. Rather than treating the Bandung–Kawasaki partnership as a single cooperation framework, this study compares the Kang Pisman movement and the BKG Project to identify similarities and differences in how waste management knowledge, practices, and values are transferred, adapted, and implemented in Bandung. This comparison also allows the study to examine whether the transfer of knowledge and practices through sister city cooperation produces different outcomes when it targets community-based solid waste management, as in Kang Pisman, and government- and community-based wastewater management, as in the BKG Project.

Theoretically, this study contributes to the literature on paradiplomacy and sister city partnerships by moving beyond the establishment and institutionalization of subnational cooperation to examine the mechanisms of cultural and knowledge transfer. It argues that sister city partnerships can function not only as diplomatic instruments for building institutional relations but also as channels for transferring and adapting local knowledge and cultural practices across borders. By examining environmental knowledge and practices as an element transferred through paradiplomacy, this study provides a more implementation-oriented understanding of how sister city partnerships can generate local capacity and community-level benefits. The comparative findings may also help explain why the transfer of cultural practices produces different outcomes depending on the actors involved, the type of knowledge transferred, and the local context in which the practices are implemented.

2. Method

This study employs a qualitative method to examine how Kawasaki environmental knowledge and practices were transferred, adapted, and localized through the Kang Pisman movement and the BKG Project within the Bandung–Kawasaki sister city partnership. Qualitative methods aim to understand phenomena within their contexts, explain behaviors and beliefs, and identify underlying processes (Gonzalez-Ocantos, 2020; Hennink et al., 2020). With this qualitative method in place, a comparative analytical framework was developed to examine the two initiatives across twelve dimensions, including focus, objectives, actors, target groups, transfer mechanisms, localization process, and expected outcomes. Thematic coding was used to identify recurring

patterns within each case, after which the findings were compared across two initiatives. Data were collected through interviews, observations, and a literature review. The literature review draws on journal articles, books, official reports, and news reports. The data were analyzed through thematic analysis. Semi-structured interviews were conducted between July and August 2025 with the following informants:

- a. Yamauchi Takehisa, Deputy Manager of International Projects Promotion Unit, Waterworks and Sewerage Bureau, Kawasaki.
- b. Yuliandri Rahadiyanto, Head of Research and Development, Bandung Development Planning and Research Agency.
- c. Christine Mugia Restu, Head of the Foreign Cooperation Team, Cooperation Division, Bandung Administration.
- d. Ira Ekawati, from Cooperation Division, Bandung Administration.
- e. Asep Nandar, a teacher at elementary school SDN 079 Kopo Pajagalan, Bandung.
- f. Fizarita, Head of the Environmental Pollution Rehabilitation and Prevention Division, Bandung Environment Agency.
- g. Widyarini Weningtyas, Transportation Engineering lecturer, Bandung Institute of Technology (ITB).
- h. Anni Rochaeni, Environmental Engineering lecturer, Pasundan University.
- i. Sudarmanto Budi Nugroho, Principal Policy Researcher, Institute for Global Environmental Strategies (IGES), Japan.

3. Result

Kang Pisman movement

Kang Pisman, an acronym for *Kurangi, Pisahkan, Manfaatkan* (Reduce, Separate, and Utilize), emphasizes community engagement in managing waste at the source. The movement incorporates waste reduction, separation, reuse, and recycling practices as part of efforts to develop garbage-free areas in Bandung. Launched by the Bandung government in 2017, Kang Pisman emerged in response to persistent solid waste management challenges. Rather than directly replicating the conventional 3R model of reduce, reuse, and recycle, Kang Pisman incorporates elements of the 3R principles into a locally adapted framework that emphasizes reduction, separation, and utilization of waste. Through the movement, the city government educated residents to sort waste and collect reusable or recyclable materials with economic value. Reuse and recycling can contribute to reducing the volume of waste transported to landfills (Adibowo & Wibiksana, 2020).

The implementation of Kang Pisman was supported by the Garbage-Free Areas Program, which received funding from the Japan International Cooperation Agency (JICA) through the Grant Assistance for Grassroots Projects. According to Sudarmanto (interview, August 25, 2025), the Bandung government obtained this support in the context of its cooperation with Kawasaki under the Bandung-Kawasaki sister city partnership. The funding supported the development of garbage-free areas in Bandung, with six community units (RW) initially selected as pilot areas. These pilot areas were intended to serve as a basis for expanding the program to other communities.

Within the Bandung-Kawasaki sister city partnership, Kang Pisman functions as a community-based initiative through which waste management practices are promoted at the

household level. The Bandung government appointed the Bandung Environment and Sanitation Agency (DLHK) as the lead institution. Kang Pisman consists of three main components:

- a. *Kurangi* (Reduce) focuses on minimizing the use of plastic and other non-biodegradable materials, such as plastic bags, straws, and disposable cutlery. This effort encourages the replacement of single-use items with reusable alternatives, including cloth or woven shopping bags, refillable bottles, and reusable tableware.
- b. *Pisahkan* (Separate) emphasizes sorting waste according to its type: organic, inorganic, and hazardous and toxic materials. Waste separation facilitates more effective management by preventing organic waste, such as food scraps and perishable materials, from mixing with inorganic waste, such as plastic bottles and bags.
- c. *Manfaatkan* (Utilize) involves managing both organic and inorganic waste so that it can be reused, for example by converting organic waste into compost and repurposing inorganic waste, such as plastic bottles, into flower pots or other useful items (Adibowo & Wibiksana, 2020).

Through these three components, Kang Pisman promotes waste management practices at the community level. To support implementation, DLHK established two teams: the Waste-Free Area Assistance Team and the Waste Management Team. The assistance team focuses on community education and monitoring behavioral changes following training, while the waste management team processes organic waste into compost, thereby supporting reuse and recycling practices (Adibowo & Wibiksana, 2020). The program also involved collaboration with local NGOs and the Japan-based research institute, the Institute for Global Environmental Strategies (IGES) (Sudarmanto, interview, August 25, 2025).



Figure 1. The Practice of Kang Pisman in Bandung
[Source: Instagram Account of Kang Pisman]

Kang Pisman therefore represents a Bandung government-initiated movement that addresses solid waste at its source, particularly at the household and community levels. Its implementation involves cooperation among government institutions, communities, and other organizations to promote more sustainable waste management practices. As shown in Figure 1, rather than simply

focusing on waste collection and disposal, the movement seeks to encourage residents to incorporate waste reduction, separation, and utilization into their everyday routines. In this sense, Kang Pisman seeks to institutionalize waste-conscious practices as part of community life (Adibowo & Wibiksana, 2020).

The Kang Pisman movement also reflects the influence of Kawasaki environmental practices within the Bandung–Kawasaki sister city partnership. According to Restu (interview, July 11, 2025), Kawasaki introduced waste-management practices associated with the 3R approach to its Bandung counterpart through the sister city partnership. Bandung subsequently adapted these principles into the locally recognizable Kang Pisman movement. Thus, the transfer did not involve direct replication of a Kawasaki program but rather the adaptation of selected environmental principles to Bandung's local context.

One Japanese concept that provides a useful cultural reference for understanding this process is *mottainai*. *Mottainai* is commonly used to express regret when something valuable is wasted or discarded. The concept emphasizes respect for resources and encourages people to use them carefully. It can be reflected in everyday practices such as buying only what is needed, finishing meals, using leftovers, and avoiding unnecessary consumption (Sirola et al., 2019). The concept has also been associated with practices of reuse and the careful circulation of usable goods, such as *osagari* (Turistiati, 2019).

The relationship between *mottainai*, 3R principles, and Kang Pisman can therefore be understood in terms of cultural values, environmental principles, and local adaptation. *Mottainai* represents a cultural value emphasizing the avoidance of unnecessary waste and careful use of resources, while the 3R approach provides practical principles for reducing, reusing, and recycling materials. In Bandung, these principles were translated into the locally recognizable *Kurangi, Pisahkan, Manfaatkan* framework. The *kurangi* component corresponds to efforts to minimize waste at its source, while *pisahkan* and *manfaatkan* emphasize the sorting and subsequent reuse or processing of materials. This process illustrates how environmental knowledge and values associated with Kawasaki practices can be adapted and localized within the Bandung context.

Bandung-Kawasaki Gesuido (BKG) Project

After the implementation of the Kang Pisman movement, Bandung and Kawasaki introduced the Bandung–Kawasaki Gesuido (BKG) Project as another environmental initiative within their sister city partnership. While Kang Pisman focuses on addressing solid waste problems in Bandung, the BKG Project aims to support the city in tackling wastewater management issues. The BKG Project seeks to strengthen the capacity of Bandung's government officials, teachers, and local communities to address wastewater-management challenges through the transfer of knowledge and practices from Kawasaki. This knowledge draws on Kawasaki's experience and practices in wastewater and environmental management. The BKG Project was initiated by the Kawasaki government, which approached the Bandung government through the Japan International Cooperation Agency (JICA). Kawasaki submitted the BKG proposal to JICA. After reviewing the proposal and approving funding for the project, JICA facilitated communication between Bandung and Kawasaki to follow up on the project until Bandung formally agreed to its implementation (Takehisa, interview, August 18, 2025). The BKG Project illustrates how paradiplomacy enables

subnational governments to cooperate directly in addressing shared environmental challenges and to exchange knowledge and practices.

The transfer process is carried out through a series of training programs conducted in both Kawasaki and Bandung. Bandung looks to Kawasaki as a partner for knowledge transfer because Kawasaki has demonstrated successful experiences in overcoming its own wastewater crises and achieving sustainable development (Takehisa, interview, August 18, 2025). Through the BKG Project, the Kawasaki government shares its experience and practices in wastewater and environmental management with stakeholders in Bandung.

The Kawasaki government found that wastewater problems in Bandung are largely caused by low public awareness of the environmental risks associated with disposing of waste into waterways such as rivers and drainage channels. Although Bandung already has a wastewater treatment plant (IPAL), most households are not connected to it. Therefore, some households discharge used cooking oil, laundry wastewater, and food-processing effluents into drainage channels or rivers rather than disposing of them through appropriate wastewater-management systems. These types of waste are difficult to treat and contribute significantly to water pollution. Consequently, rivers in Bandung are polluted not only by solid waste but also by liquid household waste (Takehisa, interview, August 18, 2025).

Under this Bandung–Kawasaki sister city cooperation, the BKG project was used by the Kawasaki government to reduce the direct disposal of household wastewater into waterways in Bandung. The project introduced Kawasaki's wastewater management practices and environmental education approaches to raise awareness of environmental risks and aim to encourage more responsible behavior among residents (Takehisa, interview, August 18, 2025). Kawasaki draws on its own experience in addressing severe wastewater pollution during the 1960s, a situation comparable to Bandung's current conditions. Long-term public engagement played a crucial role in resolving these challenges. Combined with sustained community participation, Kawasaki's environmental knowledge and practices enabled the rehabilitation of the heavily polluted Tamagawa River. Under the sister city partnership, the Kawasaki government has undertaken two key initiatives. First, it assisted the Bandung government in developing an educational video with an animated icon to raise public awareness about the importance of river protection. Second, it provided training programs to enhance the technical capacity and skills of Bandung government staff (Ulung et al., 2026).

As part of the implementation of the Bandung–Kawasaki sister city partnership, the Kawasaki government helped the Bandung Environment Agency produce an educational video titled *Petualangan Si Jalu* (The Adventure of Si Jalu). *Si Jalu*, an abbreviation of *Siap Jaga Lingkungan* (Ready to Protect the Environment), is aimed at children to raise awareness of environmental protection from an early age. This video teaches children about protecting rivers and managing waste properly. The animation was created by local artists in Bandung, while the content and educational materials presented in the video were provided by the Kawasaki government. Kawasaki guided Bandung on the key information that should be included in the video (Takehisa, interview, August 18, 2025).

Si Jalu is the name of the main character featured in the video. The character is an animated green suckermouth catfish, which was chosen for its natural ability to help clean waste in fish tanks

and rivers. According to the project's explanation, the character was inspired by the fish's perceived association with maintaining water cleanliness in rivers and fish tanks. The video specifically targets children because the project emphasizes environmental education from an early age and seeks to introduce environmentally responsible practices during childhood. By introducing environmental values early, the program seeks to promote long-term awareness of environmental protection. This use of educational videos to raise children's environmental awareness reflects the Japanese government's approach, which emphasizes environmental education from early childhood (Takehisa, interview, August 18, 2025).



Figure 2. Video of *Petualangan Si Jalu*
[Source: photo by Asep Nandar]

As illustrated in Figure 2, to emphasize local identity, *Si Jalu* wears an *iket* Sunda, a traditional Sundanese headcloth commonly associated with Bandung. The idea for using an animated character was inspired by the Kawasaki government, which uses animated figures as educational tools to attract children and introduce environmental protection and waste management from an early age. Kawasaki uses characters such as Wotan, a blue character representing water, and Kappy, a green character inspired by a Japanese legendary figure associated with protecting rivers. This approach inspired the Bandung Environment Agency to develop *Si Jalu* and incorporate the character into an educational video. The video uses simple and engaging stories about wastewater problems in Bandung and explains practical ways to address them, making the environmental messages easier for children to understand (Takehisa, interview, August 18, 2025).

Bandung's adoption of animated characters in environmental education illustrates the transfer and localization of environmental practices associated with Kawasaki. The development of *Si Jalu* demonstrates that the knowledge transferred through the sister city partnership was not simply replicated but adapted to Bandung's cultural and educational context. The use of an animated character, inspired by Kawasaki's approach but redesigned using local cultural elements such as the *iket* Sunda, also illustrates how environmental communication practices can be localized during the process of knowledge transfer

The *Petualangan Si Jalu* video has been screened in elementary schools across Bandung. For example, it was shown at SDN 079 Kopo Pajagalan in February 2025 and at SDN 249 Asta Anyar in

November 2025. The participants were fourth-grade students. Fourth graders were selected because, in Kawasaki, students who participate in similar environmental education programs are also at the fourth-grade level. These two schools were chosen due to their proximity to rivers. The screenings were intended not only to introduce students to proper waste management practices but also were intended to encourage them to directly apply what they learned by observing the nearby rivers (Takehisa, interview, August 18, 2025).

The screening of the *Petualangan Si Jalu* video was conducted as part of the Domestic Wastewater Management Seminar for Bandung Residents, a training program designed to increase public awareness of proper organic wastewater management. The program was jointly organized by the Bandung and Kawasaki governments under the sister city partnership and involved residents living around the participating school. Their involvement was considered important because the BKG team found that many residents were still unaware of how everyday activities could affect river water quality. For example, some residents washed greasy cooking utensils directly in sinks or poured used cooking oil into them, allowing the waste to enter drainage systems and eventually pollute rivers. This problem was particularly evident among street vendors, including fried-food sellers, who often lacked knowledge about appropriate ways to dispose of used cooking oil (Nandar, interview, July 11, 2025).

In addition to the educational video, the Kawasaki government introduced stakeholders in Bandung to the application of Nudge Theory in waste and wastewater management. Within the BKG Project, Nudge Theory was presented as a behavioral approach that could be used to encourage environmentally responsible practices. Through a series of training programs, the Kawasaki government demonstrated how Nudge Theory could be implemented in waste and wastewater management. These trainings were conducted in stages, beginning with Bandung municipal officials. After completing the initial training, these officials disseminated the knowledge to teachers and community members, who were then tasked with conveying nudge-based approaches to local residents (Takehisa, interview, August 18, 2025).

In the BKG Project, the Kawasaki government introduced the application of Nudge Theory as a behavioral approach to addressing wastewater-management challenges and engaging local communities. Developed by Richard Thaler and Cass Sunstein, the theory explains how people's choices can be influenced through small changes in the way choices are presented, rather than through strict regulations or formal policies. A "nudge" refers to a subtle change in the decision-making environment that encourages people to adopt certain behaviors while still allowing them to make their own choices. In this way, nudges can encourage more desirable behaviors without restricting individual freedom or relying on coercion (Otaki et al., 2022).

The application of nudge-based interventions in Japan provides a broader context for understanding why this approach was incorporated into the BKG Project. Otaki et al. (2022), for example, examined a nudge that visualized water as a public good and found that it effectively encouraged household water conservation in Tokyo, particularly among low-consuming households. Participants exposed to this intervention reduced their water usage, demonstrating that simple behavioral cues can contribute meaningfully to addressing urban water resource challenges. The successful application of nudge-based interventions in Japan contributed to the broader institutionalization of behavioral approaches in environmental policy. Japan's Ministry of the

Environment established its first nudge unit in 2015, followed by the establishment of the Behavioral Sciences Team (BEST) in 2017 (Murayama et al., 2023). BEST aims to promote voluntary behavioral change through personalized approaches that respect individual values while preserving freedom of choice (BEST, 2019, p. 5).

Building on earlier cooperation, the Kawasaki government trained Bandung municipal officials in how to apply Nudge Theory in practice. For example, as shown in Figure 3, on August 20, 2025, Kawasaki held training sessions for staff of Bandung's city-owned water company, Tirtawening. During the training, Kawasaki demonstrated how nudge techniques are used in everyday waste management. One example was a brightly colored cigarette disposal box that asked, "What makes you upset?" with two answer options, "Losing a girlfriend/boyfriend" and "Losing a job." Smokers "voted" by placing their cigarette butts into one of the slots. Another example displayed the phrase "I hate Monday" with "Yes" and "No" options. These designs used humor, curiosity, and visual appeal to encourage proper cigarette disposal in an interactive way. Through this training, the BKG Project enabled Bandung's administrative staff to learn practical and transferable nudge-based methods from Kawasaki. The training also covered the water cycle and the current state of wastewater management, both onsite and offsite. Participants learned about common challenges, such as the widespread use of septic tanks that do not meet proper standards in many households, as well as strategies to address these problems. The example illustrates that the transfer involved not only general knowledge about wastewater management but also practical behavioral-intervention techniques that Bandung officials could potentially adapt to local settings.



Figure 3. BKG Project training session at the Tirtawening Headquarters
[Source: photo by A. Kurniawan Ulung]

Knowledge transfer under the BKG Project occurred through training activities conducted in both Bandung and Kawasaki. Bandung civil servants visited Kawasaki to directly observe its wastewater management practices, while Kawasaki officials subsequently provided training and technical guidance in Bandung. In Kawasaki, they saw how wastewater treatment plants (IPAL) are integrated into daily waste management practices and why these facilities have been effective in addressing wastewater issues. Kawasaki expects Bandung officials to apply these lessons in

Bandung and to share their knowledge with the wider community, especially small and medium enterprises (SMEs). SMEs are a key target of the project because they contribute significantly to wastewater pollution. For example, tofu producers and laundry businesses often discharge untreated wastewater into rivers, worsening water quality in Bandung (Ekawati, interview, July 11, 2025).

Since 2023, Bandung and Kawasaki have conducted at least twelve training sessions, consisting of three sessions in Kawasaki and nine in Bandung. The first training in Kawasaki took place from July 22 to 27, 2023. During the program, Bandung officials learned about Kawasaki's wastewater treatment system and its multi-stakeholder approach to improving water quality, which emphasizes community participation. They also visited wastewater treatment facilities to observe these practices directly. Before this training, Kawasaki officials visited Bandung in June 2023 to assess two pilot areas of the BKG Project: Nyengseret in Astanaanyar District and Pasirluyu in Regol District. In Nyengseret, they examined wastewater facilities, pipeline networks, and the condition of the Citepus River. In Pasirluyu, they observed the Cikapundung River and nearby wastewater treatment facilities. Both rivers are tributaries of the Citarum River.

The knowledge gained through the BKG Project was subsequently shared with other groups in Bandung. Bandung government officials who participated in the training were involved in similar training sessions for elementary school teachers, with support from Kawasaki officials. The purpose was to pass the knowledge gained from Kawasaki to teachers, who could then share it with students and local residents. For example, on November 19, 2024, Bandung and Kawasaki officials jointly trained teachers at SDN 079 Kopo Pajagalan in Nyengseret. The school was selected because it is located near the Citepus River. Following the training, teachers were expected to apply and share the knowledge with their students and residents living around the school (Ekawati, interview, July 11, 2025).



Figure 4. BKG Project training session at Grandia Hotel
[Source: photo by A. Kurniawan Ulung]

In 2025, the Bandung and Kawasaki governments expanded the program by involving a larger number of teachers. On August 26, 2025, as illustrated in Figure 4, they organized a training session

at the Grandia Hotel in Bandung, which attracted more than 50 teachers from 30 elementary schools to participate. The training discussed how poor household waste management affects Bandung's water cycle. Although the city has the Bojongsoang wastewater treatment plant (IPAL) and most households have septic tanks, many residents still dispose of organic waste directly into rivers. The IPAL operates as an offsite wastewater treatment system, while septic tanks serve as an onsite system. However, many septic tanks are poorly constructed and uncertified, resulting in leaks. Some households also connect pipes directly to rivers, allowing wastewater to flow into waterways. Consequently, preventing household waste from entering rivers and drainage systems remains a major challenge in Bandung (Fiziarita, interview, August 15, 2025).

The BKG Project addresses this challenge by involving elementary school teachers in environmental education. This involvement aims to equip teachers to teach their students about proper waste disposal and encourage responsible waste-management practices. This approach emphasizes early education because children are still developing their behaviors and can learn new habits through their teachers. Because students encounter teachers regularly in the school environment, teachers can serve as important intermediaries in communicating environmental knowledge and practices. During the training, the BKG team introduced Nudge Theory and demonstrated how it could be applied in schools to encourage students to dispose of waste properly without using pressure or strict rules. Through this approach, teachers were equipped to guide students toward more responsible waste management practices (Takehisa, interview, August 18, 2025).

4. Discussion

Analytical Comparison between the Kang Pisman Movement and BKG Project

Based on the results presented in this study, the comparison between Kang Pisman and the BKG Project can be structured around focus, objectives, actors, mechanisms of knowledge transfer, target groups, implementation approach, and outcomes. The key difference is that Kang Pisman is primarily a community-centered solid waste management movement, whereas the BKG Project is a knowledge and capacity-building program focused on wastewater management. Despite this difference, both initiatives represent how Kawasaki environmental-management knowledge, values, and practices can be transferred and localized within the Bandung-Kawasaki sister city partnership.

Table 1. Comparison of Kang Pisman and BKG Project

Aspect	Kang Pisman Movement	BKG Project
Implementation period	2017 – 2020	2023 – 2026
Main Focus	Solid waste management	Wastewater management
Main objective	Promote waste reduction, separation, reuse, and recycling	Improve wastewater management through knowledge transfer, capacity building, and public awareness

Main approach	Community-based movement and behavioral change	Knowledge transfer, technical training, and behavioral education
Main actors	Bandung government, IGES, communities	Bandung and Kawasaki governments, civil servants, teachers, and local stakeholders
Main target groups	Households and local communities	Government officials, teachers, students, and communities
Japanese environmental practices transferred	The concept of Mottainai and 3R principles	Wastewater-management practices, environmental education approaches, and Japanese applications of Nudge Theory
Transfer mechanism	Adoption and localization of 3R principles through a community-based program	Training, study visit, technical knowledge transfer, educational materials, and behavioral intervention
Localization in Bandung	Japanese 3R principles were adapted into the locally recognizable <i>Kurangi, Pisahkan, and Manfaatkan</i> movement.	Kawasaki approaches were adapted through <i>Petualangan Si Jalu</i> video, teacher training, and Nudge theory-based environmental education
Community involvement	Direct and central to the program. Households are encouraged to practice 3R principles every day	More indirect and mediated through government officials, teachers, and educational activities
Educational strategy	Community education	Formal training, workshops, educational video
Intended outcomes	Development of a waste-conscious lifestyle and garbage-free areas	Improved capacity among government officials and increased public awareness of wastewater management

This study demonstrates the differences between Kang Pisman and the BKG project in transferring Kawasaki environmental knowledge and practices in the implementation of the Bandung-Kawasaki sister city partnership in Bandung. Kang Pisman represents a more bottom-up form of knowledge and practice transfer because it focuses on communities as the primary actors. It places communities at the center of waste management because the implementation of the movement depends substantially on households' adoption of reducing, separating, and utilizing waste every day. The program therefore seeks to transform waste management into a lifestyle and social norm. In contrast, the BKG project represents a more top-down form of knowledge and practice transfer because it initially focuses on strengthening the capacity of the Bandung administration's staff through training sessions, workshops and study visits. Since 2023, the two governments have conducted at least twelve training sessions, including three in Kawasaki and nine in Bandung. The project expects Bandung officials who received training to disseminate their knowledge to teachers, students, and the wider communities.

Another major difference revolves around how Kawasaki environmental knowledge and practices are localized in Kang Pisman and the BKG project. In Kang Pisman, localization occurs primarily through the transformation of the Japanese 3R principles into the locally recognizable Kurangi, Pisahkan, Manfaatkan program. This program reflects the Japanese cultural concept of *mottainai*, which emphasizes the importance of avoiding unnecessary waste and making careful use of resources. The transfer did not simply copy a Kawasaki program. Instead, Japanese 3R principles were translated into a locally appropriate program using Indonesian language and local social practices, resulting in Kang Pisman. In the BKG project, localization is more visible in the adaptation of Kawasaki environmental education method. For example, Kawasaki's use of animated characters inspired Bandung to create *Si Jalu*, a locally designed character wearing an *iket* Sunda. The educational *Petualangan Si Jalu* video was influenced by Kawasaki, but the character and presentation were adapted into Bandung's cultural context.

The comparison between Kang Pisman and the BKG Project shows that Kawasaki environmental knowledge and practices are transferred through different mechanisms within the Bandung-Kawasaki sister city partnership. Kang Pisman primarily represents the transfer of environmental values and norms through community-based behavioral change, while the BKG Project represents the transfer of knowledge and behavioral approaches through capacity building and multi-level education. Both programs are influenced by Kawasaki waste management practices, but Bandung did not simply replicate them. Instead, Kawasaki waste management practices were adapted and localized to fit the local context. This finding shows that sister city partnerships function not only as platforms for institutional cooperation between two cities from different countries, but also as mechanisms through which environmental knowledge, values, and practices are translated into locally relevant forms.

Empirical and Theoretical Contributions

The Bandung-Kawasaki sister city partnership has been examined by several scholars. Siregar & Rizqullah (2022) examined its impact on the environmental sector and found that the partnership contributed to strengthening Bandung's human resources and enhancing their capacity to manage and address waste-related issues. Aurelivia (2025) similarly reported that the partnership improved waste management skills in Bandung and contributed to addressing the city's waste problems. Hakiem et al. (2025) found that the partnership played an important role in strengthening the capacity of Bandung's civil servants to address environmental challenges. The partnership facilitated the transfer of knowledge and technology, enabling Bandung to learn from Kawasaki and develop more structured and systematic environmental policies. These existing studies share a common finding: the Bandung-Kawasaki sister city partnership has contributed to improving the capacity of Bandung's human resources to address waste management issues. However, they provide limited empirical evidence on how the partnership actually worked to achieve these outcomes. While these studies demonstrate that the partnership was beneficial, they do not sufficiently explain the mechanisms through which its benefits were transferred and implemented in Bandung. Addressing this gap, this study makes an empirical contribution by demonstrating how the Bandung-Kawasaki sister city partnership operated through two concrete programs: the Kang Pisman movement and the BKG project.

Another empirical contribution presented by this study is its finding that the Bandung-Kawasaki sister city partnership facilitated the transfer of knowledge rather than the transfer of technology reported in existing studies. Hakiem et al., p. (2025, p. 22), for example, argued that the sister city partnership facilitated valuable technology transfer from Kawasaki to Bandung through programs related to waste management, air quality control, and water conservation, with the aim of developing sustainable environmental solutions in Bandung. This study clarifies Hakiem et al.'s finding by demonstrating that the intended transfer of technology was never realized in the Bandung-Kawasaki sister city partnership, despite the two cities' initial intention to pursue technology transfer during the formulation of the partnership. The transfer of technology failed to become a reality because of several factors, such as bureaucratic hurdles, suitability and sustainability concerns, conflicting interests, and lack of central government support (Ulung et al., 2025). Therefore, the partnership was implemented primarily through knowledge transfer. This transfer of knowledge facilitated the introduction and adaptation of Kawasaki waste management practices in Bandung. Such knowledge transfer was realized through the Kang Pisman movement and the BKG project.

The comparative analysis of Kang Pisman and BKG project provides empirical evidence of how Kawasaki environmental knowledge and practices were transferred in practice. This comparative analysis makes this study different from previous studies, which have largely discussed the establishment of the Bandung-Kawasaki sister city partnership. This study demonstrates that the transfer took place through concrete programs, such as Kang Pisman and the BKG project, rather than through formal agreement. Kang Pisman incorporated the 3R principles and the value of *mottainai* into a locally oriented waste management movement, while the BKG Project facilitated the transfer of wastewater management knowledge through training, workshops, study visits, and the application of Nudge Theory. These activities provided practical channels through which environmental knowledge and practices were communicated and implemented in Bandung.

The comparison of Kang Pisman and the BKG Project further demonstrates that the transfer of environmental knowledge and practices can take different forms within the same sister city partnership. Kawasaki environmental practices were not transferred through a single, uniform mechanism. In Kang Pisman, the 3R principles were translated into *Kurangi, Pisahkan, Manfaatkan*, with local communities as the primary target. In contrast, the BKG Project initially targeted government officials through training and study visits. The officials who participated in these activities were subsequently expected to disseminate the knowledge they acquired to teachers, students, and local communities. These findings demonstrate that the mode of knowledge transfer depends on the program, the actors involved, the target groups, and the particular environmental issues being addressed.

Another important empirical contribution of this study is the finding that Bandung did not simply copy Kawasaki waste management practices in this sister city partnership. The Japanese 3R concept, for example was transformed into the locally recognizable Kang Pisman movement. In the BKG project, Kawasaki's use of animated environmental characters inspired Bandung to develop *Si Jalu*, but the city government gave the character a local identity by incorporating the *iket* Sunda. This

finding shows that international cooperation does not always result in direct replication. Instead, transferred practices can be adapted, translated and reshaped to reflect local culture and conditions.

This study also makes a theoretical contribution by showing that the transfer of environmental knowledge and practices in a sister city partnership is not necessarily a one-way process in which one city provides knowledge and another simply receives and implements it. In the context of Bandung-Kawasaki sister city partnership, for example, Kawasaki provides the initial knowledge, principles, and practices, but Bandung does not simply imitate them. Instead, Bandung interprets and adapts these practices before implementing them in the local context. Therefore, the transfer of knowledge and practices in sister city partnerships can be understood as a process of adaptation and localization rather than imitation. This finding contributes to extending Kevin O'Toole's conceptualization of the associative phase in the development of sister city partnerships. O'Toole (2001) explains that, in the associative phase, sister city initiatives seek to strengthen international friendship, facilitate cultural exchange, and increase global awareness. These three objectives are evident in the Bandung-Kawasaki sister city partnership. However, O'Toole's conceptualization of the associative phase does not explicitly explain how transferred cultural practices are adapted and implemented in the local context. The process of adaptation and local implementation identified in this study therefore contributes to a more nuanced understanding of the associative phase. This study shows that adaptation and localization can become an additional process in the associative phase of sister city cooperation.

This study argues that knowledge and practice transfer in sister city partnerships involves not only international friendship and cultural exchange but also the adaptation and localization of transferred practices. In the Bandung-Kawasaki case, Bandung is not merely a passive recipient of Kawasaki environmental culture. Instead, Bandung actively interprets, reshapes, and adapts Kawasaki waste management practices according to its own cultural and local context. This finding suggests that local governments involved in sister city partnerships should be understood not only as recipients of foreign knowledge and practices but also as active agents who participate in constructing how such practices are translated into local context.

This study also makes a theoretical contribution by extending the scope of paradiplomacy from relationship-building to knowledge and practice transfer. Existing paradiplomacy literature (Kuznetsov, 2015; Mori, 2023; Nadya et al., 2023) often focuses on why subnational governments engage internationally and how they establish international partnerships. In the context of the Bandung-Kawasaki sister city partnership, previous studies (Laoli & Dermawan, 2025; Sabati, 2024; Siregar & Rizqullah, 2022; Ulung et al., 2025) similarly emphasize the role of paradiplomacy in establishing and developing the partnership between Bandung and Kawasaki. Amid the existing literature on Bandung-Kawasaki sister city partnership, this study presents three contributions concerning mechanisms, local agency, and localization. First, regarding mechanisms, the study demonstrates that paradiplomacy facilitates knowledge transfer through training, study visits, educational materials, and intergovernmental interaction. Second, regarding local agency, the findings show that knowledge transfer is mediated by local actors rather than simply received and replicated. Local actors actively interpret, adapt, and incorporate transferred knowledge into local practices according to their local context. Thus, while paradiplomacy enables transnational knowledge transfer, local actors shape how such knowledge and practices are interpreted and

implemented. Third, regarding localization, the study demonstrates that sister city cooperation can produce locally adapted practices rather than direct institutional replication. The Bandung-Kawasaki case therefore shows that paradiplomacy extends beyond the establishment of international partnerships to include the transfer, adaptation, and localization of knowledge and practices.

5. Conclusion

This study finds that the Bandung-Kawasaki sister city partnership facilitated the transfer of Kawasaki environmental knowledge and practices through different mechanisms. Kang Pisman employed a community-centered approach to solid waste management, while the BKG Project relied primarily on government-led capacity building and subsequent dissemination through teachers and communities. In both cases, transferred practices were not simply replicated but interpreted and adapted to Bandung's local context. The findings therefore indicate that local actors play an active role in mediating transnational knowledge transfer. Theoretically, the study extends the understanding of paradiplomacy and sister city cooperation by demonstrating that subnational international cooperation can function as a mechanism for the transfer, adaptation, and localization of environmental knowledge and practices. However, this study does not comparatively assess the effectiveness of the Kang Pisman and the BKG Project in achieving their respective objectives. Future research could address this limitation by comparing the effectiveness of the two initiatives in achieving their objectives and addressing waste-management challenges in Bandung.

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7. References

- Adibowo, R., & Wibiksana, I. G. (2020). Empowerment of Reuse, Reduce and Recycle Programme (Kang Pisman) in Bandung. *The 3rd International Conference on Business, Economics, Social Sciences, and Humanities 2020*.
- Aurelivia, K. P. (2025). Faktor Pendorong Kota Bandung Melakukan Kerja Sama Sister City dengan Kota Kawasaki Jepang pada Tahun 2017-2020. *Global Insights Journal*, 2(2). <https://doi.org/10.36859/gij.v2i2.3222>
- BEST. (2019). *The Behavioral Sciences Team Annual Report (FY 2017 and FY 2018)*. www.env.go.jp/earth/ondanka/nudge.html
- Bilder, R. B. (1989). The Role of States and Cities in Foreign Relations. *The American Journal of International Law*, 83(4), 821-831.
- Cornago, N. (2015). Paradiplomacy as International Custom: Sub-National Government and the Making of New Global Norms. In *Global Norms in the Twenty-First Century* (pp. 67-81). Cambridge Scholars Press. <https://doi.org/10.5848/csp.0828.00005>

- Cremer, R. D., De Bruin, A., & Dupuis, A. (2001). International Sister-Cities: Bridging the Global-Local Divide. *American Journal of Economics and Sociology*, 60(1).
- Gonzalez-Ocantos, E. (2020). Designing Qualitative Research Projects: Notes on Theory Building, Case Selection and Field Research. In L. Curini & R. Franzese Jr (Eds.), *SAGE Handbook of Research Methods in Political Science and International Relations*. SAGE.
- Hakim, F. N., Argenti, G., & Gustianti, N. A. (2025). Bandung and Kawasaki: A Partnership In Environmental Issue. *JURNAL TRIAS POLITIKA*, 9(1), 14-26. <https://doi.org/10.33373/jtp.v9i1.6924>
- Hennink, M., Hutter, I., & Bailey, A. (2020). *Qualitative Research Methods*. SAGE Publications.
- Kuznetsov, A. S. (2015). *Theory and Practice of Paradiplomacy*. Routledge.
- Laoli, R., & Dermawan, W. (2025). A Sustainable City: A Parallel Diplomacy Study of Bandung towards Kawasaki in Handling Carbon Emissions. *Journal of International Studies E-ISSN.2503-443X*, 9(2), 0-00. <https://doi.org/10.24198/intermestic.v9n2>
- Mori, H. (2023). Intermediary Structure of Paradiplomacy: Examining Sister-City Links in Japan. *Australian Journal of International Affairs*, 77(5), 509-527. <https://doi.org/10.1080/10357718.2023.2251901>
- Murayama, H., Takagi, Y., Tsuda, H., & Kato, Y. (2023). Applying Nudge to Public Health Policy: Practical Examples and Tips for Designing Nudge Interventions. *International Journal of Environmental Research and Public Health*, 20(5). <https://doi.org/10.3390/ijerph20053962>
- Nadya, A., Mahendra, Z. F., & Yahya, M. M. (2023). Strategizing Sister City Partnerships: Paradiplomacy, Bilateral Relations, and Sustainable Cooperation in Indonesia. *Journal of Paradiplomacy and City Networks*, 2(1), 46-57. <https://doi.org/10.18196/jpcn.v2i1.35>
- Oddone, N. (2023). Paradiplomacy. In *Oxford Research Encyclopedia of International Studies*. Oxford University Press. <https://doi.org/10.1093/acrefore/9780190846626.013.797>
- Otaki, Y., Iwatani, S., Honda, H., & Ueda, K. (2022). Using Nudges for Water Demand Management: A Field Experiment for Water Conservation. *PLOS Water*, 1(10). <https://doi.org/10.1371/journal.pwat.0000057>
- O'Toole, K. (2001). Kokusaika and Internationalisation: Australian and Japanese Sister City Type Relationships. *Australian Journal of International Affairs*, 55(3), 403-419. <https://doi.org/10.1080/1035771012009524>
- Reskiyah, E. S., & Pusvitasary, V. (2026). Constrained Paradiplomacy: South Sulawesi-Ehime Sister Province Cooperation, 2019-2025. *BHUVANA: Journal of Global Studies*, 4(1), 1-32. <https://doi.org/10.59408/bjgs.v4i1.267>
- Sabati, C. L. (2024). Evaluating the Impact of Sister City Cooperation between Bandung and Kawasaki on Environmental Sustainability. *Journal of Paradiplomacy and City Networks*, 3(1), 54-66. <https://doi.org/10.18196/jpcn.v3i1.45>
- Schiavon, J. A. (2019). *Comparative Paradiplomacy*. Routledge. www.routledge.com/Federalism-Studies/book-series/ASHSER1258
- Setiawan, Y., Ulung, A. K., Saputro, P. B., Yuliana, S. P., & Deni. (2025). Evaluating the Effectiveness of the Bandung-Kawasaki Sister City Program in Advancing Circular Economy and Empowering MSMEs in Urban Sustainability Contexts. *Islamic Business and Management Journal*, 8(2). <https://ejournal.unida.gontor.ac.id/index.php/>

- Siregar, N. A. S., & Rizqullah, M. F. S. (2022). Sister City Partnership of Bandung and Kawasaki in the Environmental Sector during 2017-2020. *Journal of Paradiplomacy and City Networks*, 1(2), 98–111. <https://doi.org/10.18196/jpcn.v1i2.23>
- Sirola, N., Sutinen, U. M., Närvänen, E., Mesiranta, N., & Mattila, M. (2019). Mottainai!-A practice theoretical analysis of Japanese consumers' food waste reduction. *Sustainability (Switzerland)*, 11(23). <https://doi.org/10.3390/su11236645>
- Turistiati, A. T. (2019). Islamic Values in Mottainai Philosophy and Osagari Tradition in Japan. *IBDA` : Jurnal Kajian Islam Dan Budaya*, 17(2), 214–225. <https://doi.org/10.24090/ibda.v17i2.3244>
- Ulung, A. K., Saputro, P. B., & Setiawan, Y. (2025). International Regimes in Sister City Partnerships: An Analysis of Sustainable Development Goals (SDGs) Adoption in Bandung-Kawasaki Collaboration. *MUKADIMAH: Jurnal Pendidikan, Sejarah, Dan Ilmu-Ilmu Sosial*, 9(2), 600–622. <https://jurnal.uisu.ac.id/index.php/mkd/article/view/11565>
- Ulung, A. K., Saputro, P. B., & Setiawan, Y. (2026). An Analysis of the Effectiveness of the Bandung-Kawasaki Gesuido (BKG) project within a Sister City Partnership Framework. *Jurnal Ilmiah Dinamika Sosial*, 10(1), 1–16. <https://doi.org/10.38043/jids>

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