



## International Regimes in Sister City Partnerships: An Analysis of Sustainable Development Goals (SDGs) Adoption in Bandung-Kawasaki Collaboration

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### ABSTRACT

This study examines the Sustainable Development Goals (SDGs) as an international regime, focusing on their role in shaping the Bandung–Kawasaki sister city partnership. The collaboration emphasizes joint efforts in waste management, water resource management, and air quality improvement. This research raises this question: “How do the SDGs influence the formation of the sister city partnership between the two cities?” Using a qualitative method and drawing on Martha Finnemore and Kathryn Sikkink’s Norm Life Cycle theory, the study finds that the rules, norms, and principles embedded in SDG Goals 11 and 12 prompted the city government to collaborate with Kawasaki in adopting this regime to address Bandung’s environmental challenges, particularly severe trash management issues. Through this partnership, Bandung seeks to leverage Kawasaki’s expertise and technology to advance its sustainable development agenda. Using the Bandung–Kawasaki partnership as a case study, this research contributes to shedding light on the role of SDGs as an international regime.

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## INTRODUCTION

Bandung in West Java, Indonesia and Kawasaki in Japan established sister city cooperation in 2015 to address environmental challenges and support the adoption of sustainable practices in the two cities. This cooperation enabled the two cities to work together to improve air quality, promote energy efficiency, advance sustainable transportation technologies, and develop solid and liquid waste management systems. This sister city partnership sought to combine Kawasaki’s technological strengths with Bandung’s local insights to create effective and sustainable environmental solutions (Sabati, 2024).

A sister city is a long-term partnership between two cities in different countries to foster cultural, educational, economic, and occasionally political exchanges. This partnership supports cultural exchange and encourages mutual understanding through various cultural activities, such as student visits, tourism programs, and art festivals. It also facilitates educational collaboration through school partnership, language initiatives, and joint university projects. Sister city projects also give economic benefits by stimulating trade, business ties, and investments between countries. Additionally, they enable cooperation in governance and technical fields by sharing effective practices in areas such as infrastructure, healthcare, and environmental management (Bilder, 1989; Cremer et al., 2001). Bandung established a sister city partnership with Kawasaki to realize a sustainable development. First introduced in 1987, the concept of sustainable development describes development that satisfies the needs of the current generation without hindering the ability of future generations to fulfill their own needs. Most sustainability standards address issues across three key dimensions: economic, environmental, and social (Boar et al., 2020; Setyowati et al., 2024).

Bandung and Kawasaki formed the sister city partnership upon realizing that both cities share similar environmental challenges. Kawasaki acknowledged that Bandung faces environmental challenges similar to those Kawasaki had also experienced. These similar experiences brought the two cities together to frequently engage in international environmental forums to address their shared



concerns. Their interaction helped build mutual understanding and a strong, lasting connection. Over time, their relationship fostered trust and opened the door to collaboration. Kawasaki then expressed its intent to assist Bandung to develop a more environmentally conscious community, with the goal of promoting the development of a low-carbon society in the city (Siregar & Rizqullah, [2022](#)).

Bandung-Kawasaki sister city partnership was established through paradiplomacy. Bandung carried out paradiplomacy to form sister city collaboration with Kawasaki. Also known as parallel diplomacy, paradiplomacy means the actions and capabilities of sub-national or regional governments to engage in international cooperation based on their own strategic interests. This concept illustrates how cities, provinces, or federated states participate in global diplomatic activities in a manner comparable to national governments. Paradiplomacy, however, remains a relatively recent trend in governance across Asia, including Indonesia (Mukti et al., [2020](#)). Paradiplomacy contributes to the establishment of sister city partnerships around the world.

Several scholars have examined the sister city project between Bandung and Kawasaki. Most existing research tried to observe the effectiveness of this partnership. Siregar & Rizqullah ([2022](#)) argued that the partnership was successful, emphasizing its contribution to strengthening Bandung's human resources and enhancing the city's waste management system. Similarly, Hakiem et al. ([2025](#)) highlighted the partnership's role in building human resource capacity, arguing that it improved the ability of Bandung's civil servants to address environmental problems. Sabati ([2024](#)) likewise affirmed the effectiveness of the collaboration, arguing that it made achievements such as better waste and wastewater management, improved air quality, advancements in energy management, and the introduction of transportation technologies. Other studies, like Laoli & Dermawan ([2025](#)), examined the formation of the partnership, presenting it as an example of paradiplomacy. However, their work relied predominantly on secondary sources, with minimal primary data, which weakened the strength of their arguments. Their discussion of paradiplomacy also remained relatively shallow. They also overlooked the challenges involved in implementing the partnership. These shortcomings are the gaps that this study seeks to fill.

In this study, the Sustainable Development Goals (SDGs) are examined as an international regime. Employing a qualitative method that combined extensive interviews with literature reviews, this research found that the SDGs functioned as such a regime, inspiring and guiding the establishment of the Bandung-Kawasaki sister city partnership. Accordingly, this research raises the question: "How do the SDGs influence the formation of the sister city partnership between the two cities?" Drawing on Martha Finnemore and Kathryn Sikkink's Norm Life Cycle theory, this study contends that the Bandung-Kawasaki partnership was shaped by the norms, principles, and rules embedded in the SDGs. Specifically, Goals 11 and 12 prompted the city government to team up with Kawasaki in adopting this regime to address Bandung's environmental challenges, particularly severe trash management issues. Through this partnership, Bandung seeks to access Kawasaki's expertise and technology to advance its sustainable development agenda. By viewing the SDGs as an international regime, this study offers a distinctive perspective that sets it apart from prior research on the Bandung-Kawasaki partnership.

The research has four main parts. First, it reviews the concepts of paradiplomacy and international regimes, and the theory of Norm Life Cycle. Second, it analyzes how Bandung performed paradiplomacy to form the Bandung-Kawasaki sister city partnership. Third, it examines how the SDGs influenced the decision of the two cities to establish this partnership. Fourth, it identified challenges in the implementation of paradiplomacy behind the Bandung-Kawasaki sister city partnership.

## METHOD

This study uses a qualitative approach to examine the Sustainable Development Goals (SDGs) as an international regime within the sister city partnership between Bandung, West Java, and Kawasaki, Japan. Qualitative research, as described by Hennink et al. (2020), seeks to understand phenomena within their context, explain behaviors and beliefs, identify processes, and explore the experiences of people. Similarly, John W. Creswell highlights that qualitative research emphasizes a deep understanding of social phenomena by focusing on meaning, context, and characteristics. This method aims to explore and comprehend how individuals or groups interpret social and humanitarian issues (Ariningtyas, 2025; Rahmadita & Shiddiqy, 2025). We chose this method because we perceive the integration of the SDGs into the Bandung-Kawasaki sister city partnership as a context-dependent phenomenon.

Consequently, we considered it crucial to understand and explain how these international regimes operate, guiding both cities in adopting them through their sister city collaboration. To implement this approach, we collected secondary data by reviewing diverse literature, gathering and analyzing information from books, scholarly articles, reports, and news reports. We also conducted interviews and observations in July and August 2025 to get primary data. We then triangulated all the primary and secondary data. For the interviews, we traveled to Bandung and talked to:

- 1) Yuliandri Rahadiyanto, M.Si., Head of Research and Development at Bandung Development Planning and Research Agency, on July 10, 2025.
- 2) Christine Mugia Restu, S.IP., Head of Foreign Cooperation Team, Cooperation Division at Bandung Administration, on July 11, 2025.
- 3) Ira Ekawati, S.S., from Cooperation Division at Bandung Administration, on July 11, 2025.
- 4) Fizarita, M.T., Head of the Environmental Pollution Rehabilitation and Prevention Division at Bandung Environment Agency, on August 15, 2025.
- 5) Dr. Widyarini Weningtyas, Transportation Engineering lecturer at the Bandung Institute of Technology (ITB), on July 10, 2025.
- 6) Dr. Russ Bona Frazila, Transportation Engineering lecturer at the Bandung Institute of Technology (ITB), on August 15, 2025.
- 7) Dr. Anni Rochaeni, Environmental Engineering lecturer at Pasundan University, on August 15, 2025.
- 8) Dr. Sudarmanto Budi Nugroho, principal policy researcher at Institute for Global Environmental Strategies (IGES), Japan, on August 22, 2025.

## RESULT AND DISCUSSION

### Conceptual and Theoretical Frameworks

This study employs the concepts of paradiplomacy and international regimes, utilizing Martha Finnemore and Kathryn Sikkink's Norm Life Cycle theory to explain why Bandung engaged in paradiplomacy to form the sister city partnership with Kawasaki. This section, therefore, will first explain paradiplomacy, international regimes, and the Norm Life Cycle theory to help readers understand why this concepts and theory are well-suited to answer the aforementioned research question.

#### *Paradiplomacy*

International relations between countries are frequently carried out using diplomatic approaches. Diplomacy is a governmental decision-making process that involves dialogue or negotiation to enhance bilateral ties (Simanjuntak, 2023). Diplomacy, therefore, has an important position in

international relations (Shabirah et al., [2025](#); Soplanit & Effendi, [2024](#)). Diplomacy has various types, including paradiplomacy or parallel diplomacy. Eppler et al. ([2024](#)) defines paradiplomacy as the participation of non-central governments in international relations by establishing either permanent or temporary connections with foreign public or private actors, with the purpose of advancing any foreign aspect of their constitutional competences.

Cornago ([2015](#)) meanwhile describes paradiplomacy as diplomatic activities carried out by regional or local governments like cities and provinces, either independently or semi-independently from their central governments, with an objective of reaching their own interests in political, economic, cultural, or environmental areas at the international level. Paradiplomacy involves sub-national bodies engaging in international relations through formal or informal interactions with public or private entities overseas, to promote socioeconomic, cultural, political, or other external interests within their constitutional domains (Cornago, [2015](#)).

Sub-national bodies engage in the international stage to strengthen their international relations, triggered primarily by these driving forces: globalization and democratization. As globalization advances, democratization fosters decentralization. Decentralization encourages regional actors to take more active roles in the global economy. This decentralization then promotes the democratization of foreign policy, increasing local government's awareness and interests to engage in international affairs. Therefore, the decision-making process in foreign policy becomes more inclusive, involving multiple stakeholders in a globalized world. Globalization is expressed through paradiplomacy, where local governments participate in international activities, intertwined with decentralization and territorial politics. Nationalism emerges as a key element at this junction, influencing the rise of paradiplomacy. Paradiplomacy has close connection to identity, especially concerning nation-building, which drives regional interests and political boundary formation. In summary, identity serves as a fundamental component of paradiplomacy (Effendi, [2022](#)).

Identity distinguishes paradiplomacy from one local government to another. Identity serves as a core element of paradiplomacy because it fosters a collective consciousness that shapes shared interests and legitimizes paradiplomacy. Within the framework of nationalism, some local governments employ paradiplomacy as a tool for identity building to pursue autonomy. Moreover, paradiplomacy actively seeks to reinforce or create regional identity. Through international engagements, local governments project regional identity as a form of presence and a symbol of their self-recognition as international actors. In essence, identity can either be the driving force behind paradiplomacy or its ultimate objective (Effendi, [2022](#)). Identity is therefore one of domestic factors behind the launch of paradiplomacy. Other domestic factors are decentralization and nationalism. These factors heighten local governments' awareness and drive to develop foreign relations. Paradiplomacy is also influenced by international factors, such as economic globalization and supranational institutions. These bodies encourage local governments to participate in foreign affairs. Local governments implement paradiplomacy through a variety of methods, including establishing representative offices, joining international organizations, exchanging personnel, signing agreements, sending trade and cultural delegations, and fostering cooperation with local governments abroad (Effendi, [2022](#)). Among these international cooperations, sister city partnerships serve as a notable example.

Eppler et al. ([2024](#)) view paradiplomacy not as a single type of political action by substate actors beyond the state, but as a spectrum of political practices. We describe this spectrum as layers of paradiplomacy. The first layer, the 'policy layer,' involves the representation of specific interests to foreign entities—mainly where substate bodies actively seek to influence policy decisions abroad. The second layer encompasses international territorial cooperation, where regions collaborate across multiple domains, such as science or culture, often sharing best practices and expertise. Since

paradiplomacy fundamentally involves representing regional interests alongside central governments, participation in transregional networks by substate actors is also a form of paradiplomacy, supporting internal policy objectives through international channels. The third layer consists of cultural activities that express an identity distinct from the central states, potentially signaling political autonomy but stopping short of separatism, with its main goal of strengthening identity and motivations within the functional space.

Paradiplomacy can be summarized as a form of political communication pursued to gain economic, cultural, political, or other advantages, largely driven by the autonomous actions of regional governments cooperating with foreign governmental and non-governmental partners. Subnational actors engage on the international stage in two primary manners. First, they collaborate within networks to address regional and global issues such as climate change. Second, they establish bilateral relationships that range from project-specific collaborations to enduring, comprehensive bilateral cooperation agreements (Sundqvist & Jerdén, [2024](#)).

### *International Regimes*

Paradiplomacy is also influenced by international regimes. International regimes serve as an international factor behind the launch of paradiplomacy. This regime encourages local governments to participate in foreign affairs. International regimes refer to a set of explicit and implicit principles, norms, rules, and decision-making procedures that guide interactions in international relations. These frameworks shape the expectations of actors, aligning their behavior based on the established principles, norms, rules, and procedures. This concept dates back to the Westphalia Agreement in 1648, when European leaders convened to establish peace and then make regulations across the continent (Sari et al., [2022](#)). International regimes govern how countries behave in various areas like trade, security, and environment. They act as framework for facilitating cooperation and resolving conflicts among nations, promoting effective governance in this increasingly interconnected world (Maulana & Yuliantoro, [2024](#); Ulung, [2023](#))

Puchala & Hopkins ([1982](#)) describe international regimes as frameworks where actors' expectations align around commonly accepted rules, norms, principles, and procedures. Regimes, therefore, serve to limit and organize the behaviors of the actors, influencing which issues gain or lose attention, determining which actions are acceptable or unacceptable, and shaping the timing, manner, and possibility of conflict resolution. Puchala & Hopkins ([1982](#)) stress that regimes are inherently subjective. This subjectivity means that regimes exist mainly as actors' understandings, expectations or beliefs about what constitutes legitimate, appropriate or ethical behaviors within the framework of the shared norms, principles, rules, and procedures.

Norms refers to shared expectations of appropriate behavior held collectively by actors within international regimes. They guide behavior even when not formally established as law. Principles represent fundamental beliefs or truths that serve as the foundation of the regimes and shape its overall goals, direction, and orientation. They act as a guiding philosophy for the formation and interpretation of both norms and rules. Rules are specific instructions or prohibitions for behavior that are explicitly stated and often formally codified. They direct what actions are allowed, required, or forbidden within the regime. Procedures refer to established methods or processes for making decisions, enforcing rules, and managing interactions within the regimes. They define how decisions are made, how compliance is monitored, and how disputes are resolved (Krasner, [1982](#)).

Krasner ([1982](#)) further explained key differences between norms and principles versus rules and procedures. Principles and norms serve as the fundamental defining elements of a regime. While a regime can have numerous rules and decision-making procedures that align with the same principles

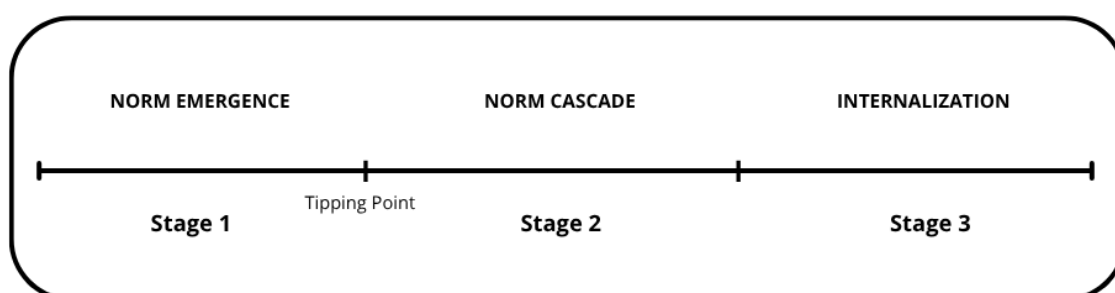
and norms, any modifications to these rules and procedures represent changes within the regime itself. This shows that the core principles and norms remain unchanged. However, changes to the principles and norms indicate a change of the regime as a whole. When the principles and norms are abandoned, it either leads to the emergence of a new regime or the disappearance of the regime in that particular issue area.

Puchala & Hopkins (1982) elaborated that every regime involves a group of elites who are functional actors. Typically, national governments are the primary official participants in most international regimes. However, international, transnational, and even subnational organizations can also play legitimate and practical roles. In a more operational sense, the real participants are often bureaucratic entities or individuals who act as components of the “government” within an international subsystem. They do so by creating, enforcing, or adhering to the norms. These actors and their bureaucratic roles are interconnected through international networks of activity and communication, which together govern specific issue-areas by sustaining regimes.

International regimes exist in every distinct issue-area of international relations where consistent patterns of behavior can be observed. These regularities imply the presence of underlying principles, norms, or rules. Such behavioral patterns may emerge from the dominance of a powerful actor or a coalition, rather than from collective agreement. Still, the existence of a regime can be identified when the prevailing norms and decision-making processes align with the values and interests of the dominant actors. A regime doesn't have to reflect or serve the shared or individual interests of all its participants. Conversely, a regime that lacks strong support from key actors or is contested among them may fail to consistently influence behavior. Yet, even in such cases—where a regime is emerging or undergoing change—the presence of some norm-based conduct is enough to indicate that a regime exists, however fragile it may be (Puchala & Hopkins, 1982).

#### *Norm Life Cycle theory by Martha Finnemore and Kathryn Sikkink*

The Norm Life Cycle theory by Martha Finnemore and Kathryn Sikkink provides a framework for explaining why and how international regimes are adopted, by focusing on the role of norms—shared expectations about appropriate behavior among actors in the international system. Their theory highlights how ideas, values, and identity shape international behavior. It helps explain how non-state actors influence state behavior and why norms, such as human rights, environmental standards, and anti-corruption, become globally accepted. In the Norm Life Cycle theory, they describe the process of how the norms emerge, spread, and become internalized. According to the theory, the process has three stages: norm emergence, norm cascade, and norm internalization. In the norm emergence stage, norm entrepreneurs convince key states to accept new norms. During the norm cascade stage, these states adopt the new norms and then persuade others to follow. The motivations of becoming norm followers include pressures to conform, the desire for international legitimacy, and leaders' wish to enhance their self-esteem. In the norm internalization stage, the adopted new norms become ingrained and accepted as common sense (Finnemore & Sikkink, 1998).



**Figure 1. Norm Life Cycle**

Source: Finnemore &amp; Sikkink (1998)

Brown (2020) elaborates on the Norm Life Cycle theory by explaining that norms originate because they are promoted by norm entrepreneurs. These norms then spread until they reach a critical mass of states. After reaching a tipping point, the norm rapidly cascades. The tipping point means that enough states have adopted the norm. This cascading is largely driven by socialization, which refers to the process of individuals or states acquiring a social identity and adopting the norms, values, and behaviors appropriate to their role. In international relations, socialization happens when a state or society conforms to the norms and behaviors of the international community (Mcgowan, 2023). Once internalized, norms become accepted as normal and are no longer questioned. However, not all norms complete this cycle or reach the tipping point, due to resistance that slows their spread (Brown, 2020). The diffusion of norms occurs not only through internalization but also because states and actors seek legitimacy, conformity, and esteem within their social groups (Blondeel et al., 2019).

The tipping point marks the transition between Stage 1 (norm emergence) and Stage 2 (norm cascade), indicating the moment when a norm moves from initial development to gaining widespread support. It represents the phase where a sufficient number of states or influential actors adopt a new norm, triggering its accelerated and broader spread. This acceptance of a new norm is often driven by the efforts of norm entrepreneurs. Norm entrepreneurs mean individuals or groups who actively promote and initiate new norms. These actors have vital position in the early stages of norm development because they advocate for specific behaviors or standards they believe should be embraced by others within the international or social context (Finnemore & Sikkink, 1998).

	<b>Stage 1</b> Norm emergence	<b>Stage 2</b> Norm cascade	<b>Stage 3</b> Internalization
<i>Actors</i>	Norm entrepreneurs with organizational platforms	States, international organizations, networks	Law, professions, bureaucracy
<i>Motives</i>	Altruism, empathy, ideational, commitment	Legitimation, reputation, esteem	Conformity
<i>Dominant Mechanism</i>	Persuasion	Socialization, institutionalization, demonstration	Habit, institutionalization

**Figure 2. Stage of Norms**  
Source: Finnemore & Sikkink (1998)

## Paradiplomacy in Bandung-Kawasaki Sister City

Sister city partnerships are usually established through official agreements by local governments, though they are sometimes initiated by grassroots community efforts. These relationships are designed to be long-term and not limited to a single project. Instead, they encourage a broad spectrum of cooperative activities aimed at building mutual respect and friendship. Sister city partnership facilitates not only the usual exchange visits by public officials but also other common forms of interaction, such as athletic competitions, musical and theatrical performances, cultural events, joint worship services, language instruction, food festivals, trade exhibitions, and exchanges of letters, publications, students, veterans, and professionals. These partnerships can also involve sharing technical expertise or offering aid during crises. When a developed city is paired with a less-developed one, the exchange often involves a one-way flow of resources, knowledge, and assistance. There is no

strict model for how these relationships should operate. Each pair must continually adapt and define their collaboration based on their specific needs and strengths (Zelinsky, [1991](#)).

Sister city partnerships are not established quickly or without thought. They typically require an extended period of dialogue and relationship-building, often taking several months or even years before a formal agreement is finalized. There is a general expectation that the participating cities will be relatively similar in size and, more crucially, capable of forming a strong and lasting bond. Successful partnerships are built on compatibility, which often stems from shared or complementary interests. The interests can be economic, cultural, ideological, historical, or recreational (Zelinsky, [1991](#)).

In the Bandung–Kawasaki partnership, the central focus is environmental. Bandung's serious waste management problems served as the main impetus for the partnership. This partnership was established through a series of formal agreements. The collaboration began with a Letter of Intent (LoI) signed on July 7, 2015, by Bandung Mayor Ridwan Kamil and Kawasaki Mayor Norihiko Fukuda. This LoI outlined a program focused on waste management and human resource development. However, paradiplomacy between the two cities had already taken place prior to this, with communication occurring before 2013 (Nugroho, interview, 22 August 2025). The Institute for Global Environmental Strategies (IGES), an international research institute based in Hayama, Japan, helped bridge the communication between the two cities (Weningtyas, interview, 10 July 2025; Frazila, interview, 15 August 2025).

The LoI was then followed by the signing of a Memorandum of Understanding (MoU) on February 18, 2016. This MoU broadened the partnership to five areas: solid waste management, wastewater management, air quality management, energy management, and transportation technology. In 2019, both cities agreed to renew their cooperation, formalizing through a new MoU signed on February 6, 2020. However, the scope was reduced to three areas: waste management, water environment management, and air quality management. They focused on the three scopes only because they sought to align with the national-level Citarum Harum policy. This policy is a joint initiative between Indonesia's Ministry of Environment and Japan's Ministry of the Environment to rehabilitate the polluted Citarum River. Under this new MoU, Bandung committed to supporting the central government in cleaning tributaries of the Citarum River within its jurisdiction, with technical assistance from Kawasaki (Ekawati, interview, 10 July, 2025).

Under the sister city partnership, the two cities committed to establishing a comprehensive partnership aimed at addressing urban environmental challenges through collaborative efforts. This partnership encompasses the transfer and adaptation of advanced environmental technologies, the development and capacity-building of human resources, and the systematic exchange of knowledge and best practices. Furthermore, the MoU emphasizes the importance of fostering strong linkages between academic and research institutions in both cities to promote joint studies, innovation, and applied research. The areas of collaboration include, but are not limited to, solid waste management, wastewater treatment, air quality monitoring and control, sustainable energy management, and the advancement of transportation technologies, all of which are critical to achieving long-term urban sustainability and resilience.

In improving the water environment in Bandung, for example, the Bandung and Kawasaki governments collaborated on curbing water pollution caused by tofu wastewater and laundry effluents. This initiative served as a follow-up action by the Bandung government to the Citarum Harum program. Stretching 270 kilometers, the Citarum River was heavily polluted, primarily due to household waste and discharge from textile factories, despite its vital role in sustaining the lives of at least 27 million people in West Java and Jakarta. Under the Bandung–Kawasaki Sister City project, the

Bandung government sought to succeed the Citarum Harum project by reducing water pollution in tributaries of the Citarum River, such as Cipamokolan River. This project enabled the Bandung government to make Bandung Kawasaki Gesuidou (BKG) project, develop the Cipamokolan River Wastewater Masterplan, and formulate manual guidelines for managing wastewater from tofu industries and laundry activities (Ekawati, interview, 11 July 2025). In formulating the project, guidelines, and masterplan, the Bandung administration teamed up with its counterpart in Kawasaki, with the funding provided by Japan's Ministry of Environment (Restu, interview, 11 July 2025).

The proposal of creating a sister city partnership between Bandung and Kawasaki was originally offered by the Kawasaki administration in 2013, with focus on environmental collaboration. The offer was first directed to the Bandung Environmental Agency (Restu, interview, 11 July 2025). This agency then extended the offer to Bandung Mayor Ridwan Kamil, who then welcomed it for several compelling reasons. First, both cities shared similarities in demography, geography, socio-cultural makeup, and experiences similar urban growth. Second, Bandung recognized Kawasaki's proven track record in urban planning as a valuable model to help tackle its own mounting urban challenges, particularly those driven by rapid population expansion. Third, Kamil saw this collaboration as essential to realizing his vision of transforming Bandung into a living laboratory for sustainable city development. To him, this laboratory carried deeper significance because it could reinforce Bandung's potential role as a hub connecting Asia and Africa under the spirit of the historic Asia-Africa Conference (Rahadiyanto, interview, 10 July 2025).

When Kawasaki proposed the partnership, Bandung was facing significant waste management challenges, with increasing volumes of garbage piling up across the city. In response, the Kawasaki government offered transfer of technology and knowledge to help Bandung address these issues, particularly through improvements in several municipal waste disposal facilities. The goal was to strengthen Bandung's waste management system by leveraging Kawasaki's proven expertise in urban waste handling and sustainable disposal solutions. Bandung accepted the proposal because of Kawasaki's strong reputation as one of Japan's leading industrial cities, particularly known for its success in improving environmental quality, managing industrial waste, and implementing eco-friendly technologies (Rahadiyanto, interview, July 10, 2025).

The sister city partnership facilitated the technology transfer through a business-to-business scheme. The technology transfer included biodigester and incinerator units. The incinerator units, furnaces designed to burn waste into ash, were granted to Bandung Islamic University (UNISBA) and Indonesia Education University (UPI). This grant aimed to allow both universities to examine the technology, evaluate its suitability for Bandung's context, and adapt its components for potential local production. In addition to equipment, Kawasaki also shared the transfer of knowledge, sharing expertise through training programs conducted in both Bandung and Kawasaki. These programs gave Bandung officials the opportunity to visit Kawasaki, observe Japan's approach to sustainable development, particularly in waste management, and learn about policies, operational practices, advanced waste processing facilities, and technical standards implemented locally. Meanwhile, Bandung's representatives shared their own urban challenges and solutions, fostering a mutual exchange of insights. This cross-learning helped both cities identify effective strategies tailored to their respective needs. One tangible result of these training sessions was the launch of Kang Pisman, an acronym for *kurangi* (reduce), *pisahkan* (sort), and *manfaatkan* (utilize). This waste-management initiative was inspired by Kawasaki's "reduce, reuse, recycle" model (Restu, interview, 11 July 2025).

Kawasaki was able to understand Bandung's environmental challenges because of a lengthy paradiplomacy carried out by the Bandung administration under the leadership of Mayor Ridwan Kamil. Paradiplomacy refers to diplomatic activities conducted by sub-national governments, such as cities and provinces, either independently or semi-independently from their national governments,

aiming to reach their own political, economic, cultural, or environmental interests internationally. In essence, paradiplomacy involves sub-national entities engaging in international relations through formal or informal contacts with foreign public or private organizations, to promote socioeconomic, cultural, political, or other external matters within their constitutional domains (Cornago, [2015](#)). The contacts between Bandung and Kawasaki took place through various international events the two cities joined, such as Asia-Pacific Eco-Business Forum.

The Asia-Pacific Eco-Business Forum is a regional platform focused on developing sustainable development, eco-technology, and low-carbon strategies. Initiated primarily by city governments, especially Kawasaki City, and supported by international organizations like United Nations Environment Program (UNEP) and the Economic and Social Commission for Asia and the Pacific (ESCAP), the forum convenes policymakers, industry leaders, researchers, and environmental professionals from around the world. This forum aims to facilitate the exchange of innovative environmental and energy technologies, encourage urban-industrial collaboration, and strengthen public-private partnerships in support of the Sustainable Development Goals (SDGs). First launched by Kawasaki City in 2004, the forum has been held annually as part of a broader initiative in cooperation with UNEP's International Environmental Technology Centre (IETC) to foster sustainable development and environmental technology sharing.

The Asia-Pacific Eco-Business Forum became a platform for paradiplomatic engagement by the Bandung administration in Kawasaki. Bandung consistently participated by sending delegates to the forum. For Bandung, this forum mattered because it provided opportunities to learn from the experiences and best practices of other Asia-Pacific cities in implementing sustainable development strategies. It also enabled Bandung to build networks and partnerships to address its own sustainability challenges. In 2014, for example, Bandung was represented by Ayu Sukenjah and Eric M. Atthauriq in the 10th Asia-Pacific Eco-Business Forum in Kawasaki. Mayor Ridwan Kamil delegated them to represent Bandung in the forum (Restu, interview, 11 July 2025). In the forum, Sukenjah, the Head of Environmental Rehabilitation Division at the Bandung Environment Agency, shared environmental management in Bandung. She presented both the environmental issues faced by the city and the initiatives taken to address them, such as the development of eco-villages (Sukenjah, [2014a](#)). Through this forum, Sukenjah was able to establish communications with key figures like Norihiko Fukuda, Mayor of Kawasaki, and Akira Ogihara, Head of the Project and Research Section at the Kawasaki Environment Research Institute. By initiating this forum, Kawasaki aimed to support cities in developing countries, such as Bandung, in building sustainable urban models that harmonize environmental and industrial development. Fukuda said:

“The City of Kawasaki was plagued by pollution. In the 1960s and 1970s, in particular, the city agonized over tackling pollution issues that affected the air, rivers, and ocean. It is for this reason that Kawasaki has actually made advances in environmental technology. The City of Kawasaki aims to take these superior environmental technologies to the next level and contribute to the global community. I believe this forum will prove to be an opportunity for the City of Kawasaki to leverage its environment technologies to develop case studies in which we are able to contribute to the improvement of the global environment (Kawasaki Government, [2014](#)).”

Ayu Sukenjah continued her paradiplomatic initiatives by participating in the 11th Asia-Pacific Eco-Business Forum in Kawasaki in 2015. On this occasion, she highlighted the aerial environmental challenges Bandung was facing, which included a water crisis, a shortage of green open spaces, a sharp decline in rainwater absorption areas, decreasing underground water reserves and surface water levels, as well as the increasing spread of temporary flooding and water puddles in densely populated areas. Through her presentation, the Bandung administration aimed to encourage forum participants to collaborate in developing swift and innovative solutions to these pressing issues.

As part of her paradiplomatic engagement, Sukenjah also outlined the Bandung government's initiatives to address the aerial environmental problems. These included the launch of a campaign to create one million biopore infiltration holes, the construction of numerous shallow wells, and the expanding of green open spaces. The city sought to increase green space coverage from less than 13 percent in 2013 to 23 percent by 2018. To achieve this, Bandung implemented several programs: revitalizing over 100 existing city parks, constructing a new thematic park each month, repurposing unused private land as public green spaces, promoting urban gardening and farming in the suburban areas, and requiring hotels and malls to incorporate rooftop gardens, vertical greenery, increased tree planting, and dedicated green open spaces (Sukenjah, [2015](#)).

The Bandung government also undertook large-scale development of infiltration wells to recharge aquifers, prevent land subsidence, store water for the dry season, and reduce flooding and water pooling. The government established three types of infiltration wells: shallow infiltration wells, deep infiltration wells, and flood infiltration wells, with each designed with specific characteristics and functions. For instance, flood infiltration wells measure 1 meter by 1 meter by 2 meters and can be installed in narrow residential areas and public spaces. These wells, which serve as early-stage flood control infrastructure, can ease the pressure on the city's drainage system. In 2014, Bandung had 22,620 infiltration wells, with a target to construct an additional 8,774 wells between 2014 and 2015 (Sukenjah, [2015](#)).

The Bandung government also launched the "Million Biopore Movement" with the goal of creating one million biopore rain absorption holes. By 2013, the city had already constructed 267,734 holes across 30 districts and 141 sub-districts, with the participation of 50,000 volunteers. The government took this initiative based on the belief that simple, cost-effective technologies can have a significant impact when applied widely and quickly by all segments of society, from government officials and private sector workers to students. The city considered this movement important because biopore absorption holes helped absorb rainwater, reduce surface puddles and temporary flooding, increase subsurface water reserves, prevent soil erosion, and reduce carbon emissions (Sukenjah, [2015](#)). Bandung's commitment to sustainability, communicated through its paradiplomacy, was emphasized by Mayor Ridwan Kamil. He stated: "A great city is led by a good person, inhabited by happy citizens, and respectful of natural resources and the environment (Sukenjah, [2015](#))."

Bandung's paradiplomatic efforts continued when officials from the Kawasaki administration visited Bandung and met with Mayor Ridwan Kamil, a meeting facilitated by the Japan International Cooperation Agency. In January 2015, both parties gathered at Bandung City Hall to discuss a potential collaboration focused on developing biodigester technology to address the city's waste management challenges. Kamil expected this technology to convert the substantial volume of daily waste in Bandung, which was estimated at 15,000 to 16,000 tons a day, into usable energy, with an objective of providing additional power for street lighting and other municipal needs (Kompas, [2015](#)). He envisioned installing the equipment from neighborhood units to markets and even across the city. Ridwan Kamil then followed up the meeting by visiting Kawasaki in February 2016 to finalize the cooperation, aiming to accelerate its implementation (Riadi, [2016](#)). The partnership surrounding biodigester technology played a pivotal role in the initiation of the Bandung-Kawasaki sister city partnership.

Ayu Sukenjah's participation in the Asia-Pacific Eco-Business Forum in Kawasaki highlighted the significant role that civil servants played in Bandung's paradiplomacy. However, Bandung's engagement in paradiplomacy was not limited to the Environmental Rehabilitation Agency. Other municipal bodies, including the Bandung City Cooperation Agency and the Development Planning, Research, and Development Agency (Bappelitbang), were also actively involved. These agencies were responsible for shaping environmental policies and integrating emission reduction goals into the city's

broader development strategies. Bandung adopted a cross-sectoral approach, involving various departments to support its sustainability agenda.

Through paradiplomacy, environmental agencies from Bandung and Kawasaki collaborated to develop low-carbon strategies to tackle shared environmental challenges. Their joint efforts resulted in innovative initiatives aimed at reducing greenhouse gas emissions—such as promoting renewable energy, improving energy efficiency, and advancing sustainable waste management. Kawasaki further underscored the role of the municipal government, private sector, and civil society in implementing environmental initiatives (Laoli & Dermawan, 2025). The Bandung-Kawasaki sister city partnership illustrates how municipal governments can leverage paradiplomacy and engage non-state actors to pursue environmental goals on a global level.

Paradiplomacy played a key role in fostering a shared understanding between Bandung and Kawasaki regarding their common environmental challenges, particularly carbon emissions. In Bandung, the highest carbon emissions come from the transportation and waste management sectors, whereas in Kawasaki, the industrial sector is the largest emitter (Laoli & Dermawan, 2025). This common concern about emissions created a foundation for cooperation between the two cities, facilitated by paradiplomacy. Paradiplomacy of the two cities have been maintained since 2006 through various joint projects, such as the United Nations Environment Program (UNEP)-International Environmental Technology Center (IETC) Eco Town Project. This Osaka-based global initiative spearheaded by IETC of UNEP promotes the development of “eco-towns”, -- integrated, sustainable industrial areas that apply environmentally sound technologies (ESTs) to manage waste, resources, and pollution. This project enabled Bandung and Kawasaki to exchange knowledge and strategies for addressing environmental problems. In 2012, Kawasaki extended help to Bandung during their participation in the UNEP-IETC Eco Town Project, recognizing that Bandung’s environmental issues mirrored those Kawasaki had faced in 1967.

Paradiplomacy between Bandung and Kawasaki actively engaged various non-state actors, such as the Institute of Technology Bandung (ITB) and the Institute for Global Environment Strategies (IGES), an international research institute based in Hayama, Japan, focused on sustainable development policy research in Asia and the Pacific. Representing their respective city governments, ITB and IGES collaborated to create a feasibility study for establishing a low-carbon society under the Bandung-Kawasaki sister city initiative. This study pinpointed key challenges, issues, and opportunities, leading to the launch of the Waste Management Support Project Toward a Sustainable Resource Recycling Society in Bandung. As part of their sister city partnership, this project enabled joint efforts in Bandung to improve the management of solid waste, wastewater, air quality, energy, and transportation technologies. The collaboration aimed to promote sustainable waste management through the 3Rs (reduce, reuse, recycle), enhance Bandung’s capacity for sorting recyclable and non-recyclable waste, and strengthen the local government’s ability to develop and implement a comprehensive waste management master plan (Siregar & Rizqullah, 2022).

### **Adoption of SDGs through Bandung-Kawasaki Sister City**

Employing Martha Finnemore and Kathryn Sikkink’s Norm Life Cycle theory, we argue that the Bandung administration formed the sister city partnership with Kawasaki because the city sought to get Kawasaki’s assistance in applying sustainable norms, principles, and rules contained in Sustainable Development Goals (SDGs) to address the issues of trash and waste management in Bandung. For the local government, the norms, principles, and rules are important because the city perceives SDGs as an international regime. By making the partnership with Kawasaki, the Bandung government intended to bring the sustainable norms and principles into local practice, with the objective of transforming Bandung into a sustainable city. This process reflects the ‘norm cascade’ stage in Martha

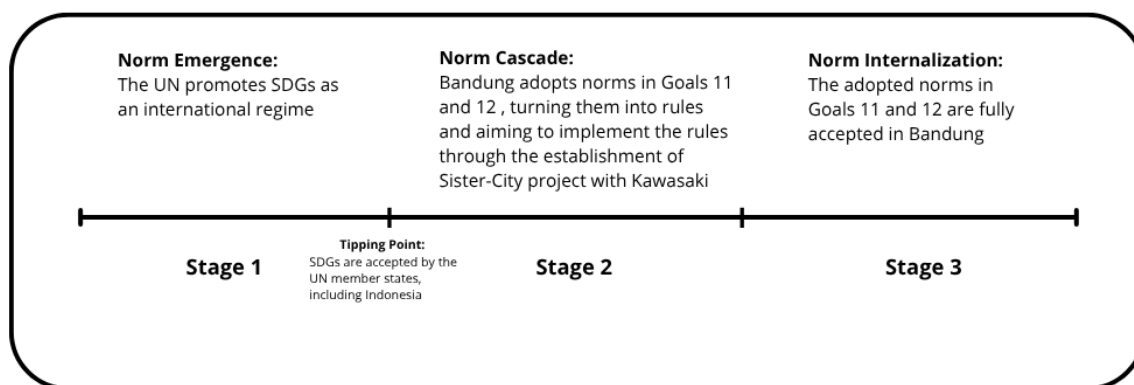
Finnemore and Kathryn Sikkink's Norm Life Cycle theory. According to this theory, the life cycle of norm involves three stages: norm emergence, norm cascade, and norm internalization. In norm emergence, norm entrepreneurs convince key states to accept new norms. During norm cascade, these states adopt the new norms and then persuade others to follow. The motivations of becoming norm followers include pressures to conform, the desire for international legitimacy, and leaders' wish to enhance their self-esteem. In the norm internalization, the adopted new norms become ingrained and accepted as common sense (Finnemore & Sikkink, [1998](#)).

Bandung looked to Goal 11: Sustainable Cities and Communities and Goal 12: Responsible Consumption and Production as the foundation for forming the sister city partnership with Kawasaki, perceiving these Goals as international regimes to adhere to. As international regimes, the Goal 11 and Goal 12 contain norms, principles, and rules, which the Bandung administration sought to implement through its partnership with Kawasaki. Goal 11 has four key principles: sustainability, resilience, inclusiveness, and participatory governance. The principle of sustainability emphasizes norms, such as promoting resource efficiency, developing sustainable infrastructure, and reducing pollution. The principle of resilience highlights norms related to strengthening urban areas against disasters, economic disruptions, and environmental changes. The principle of inclusiveness stresses the importance of guaranteeing access to affordable basic services like water, sanitation, and transportation for all, including marginalized and vulnerable groups. The principle of participatory governance encourages norms that foster community engagement in urban planning, management, and monitoring.

Goal 12 includes five key principles: sustainability, efficiency, circularity, responsibility, and accountability. The sustainability principle focuses on norms that encourage adopting practices to reduce environmental harm, protect ecosystems, and conserve biodiversity by minimizing waste and pollution. The efficiency principle underlines norms about promoting energy-saving technologies, optimizing production processes, and supporting sustainable supply chains. Circularity emphasizes norms that advocate for recycling, reusing, and recovering materials, decreasing reliance on landfills, and turning waste into valuable resources. The responsibility principle stresses the need to implement sustainable policies, enforce environmental regulations, disclose sustainability efforts, and promote corporate social responsibility. The waste management and reduction principle highlights norms urging the development of national and local waste management plans, encouraging waste separation, and ensuring the safe handling of hazardous waste.

The Bandung government intended to implement the norms and principles of the Goals 11 and 12 in Bandung by translating them into rules, such as the issuance of mayoral regulations like Regulation No. 1023 Year 2016 on Green Building Construction. To implement the norms, principles, and rules, the city established the sister city partnership with Kawasaki. By forming this partnership, the government expected its counterpart in Kawasaki to help address environmental challenges in Bandung to realize the Goals 11 and 12. A rapid increase in Bandung's population caused the city to face problems with air pollution, solid waste management, and wastewater systems. For instance, Bandung produced around 1,500 tons of waste daily, with 52 percent being organic. Of this, households contributed approximately 983 tons (65.6 percent), markets 282 tons (18.8 percent), and streets 83 tons (5.6 percent). Over 70 percent of Bandung's municipal solid waste ended up in landfills, but the city lacked facilities for methane fermentation and large-scale incineration of organic waste. Waste management planning remained insufficient. Uncontrolled solid waste management contributed to 17,000 ton CH<sub>4</sub> per year in total carbon emission (Sukenjah, [2016](#)). Transportation sector in Bandung also contributed to carbon emission. The city saw the growth in vehicle traffic volume by 10-15 percent per year. The number of vehicles in the city totaled 1.4 million units in 2014, with 72 percent of them being motorcycles and 23 percent being cars (Sukenjah, [2016](#)). This combination of limited infrastructure and poor planning contributed to increased carbon emissions.

Bandung's aerial plan was originally designed in 1920 to support a population of 100,000. However, by 2014, the population had ballooned to 2.4 million, leading to numerous problems affecting both people and the environment. Issues included land use conflicts, high population density, crises in natural resources such as fresh and underground water supply, and a shortage of green open spaces. The population growth increased the demand for housing, which in turn caused changes in land use. For example, North Bandung was converted into a residential area, despite being designated as a critical water catchment area that should be protected. This land-use change compromised the ecological functions of the forest, which were vital not only for water preservation but also for producing fresh air and reducing air pollution (Sukenjah, [2015](#), [2016](#)).



**Figure 3. The Norm Life Cycle of SDGs**

Source: own design

In the Norm Life Cycle of SDGs as an international regime, the adoption of norms and principles embedded in the Goals 11 and 12 occurred in the norm cascade phase (Stage 2). Bandung sought to adopt the regime through the establishment of sister city partnership with Kawasaki. The SDGs emerged due to the influence of the United Nations as a norm entrepreneur. The UN used its position as a norm entrepreneur to promote the SDGs as an international regime (Stage 1). Norm entrepreneur means an individual or group that actively promotes and initiates new norms. These actors play a crucial role in the early phases of norm development because they advocate for particular behaviors or standards they believe should be adopted by others in the international or social environment (Finnemore & Sikkink, [1998](#)). In the case of the SDGs, the term “others” here refer to state members of the UN, including Indonesia. Under the influence of the UN, Bandung established the sister city partnership with Kawasaki to meet the Goals 11 and 12. By collaborating with Kawasaki, Bandung expected the transfer of technology and knowledge to address environmental challenges in the city. The Bandung administration expected this technology transfer to help the city speed up sustainable development.

The technology transfer Bandung sought included Kawasaki's biodigester technology. Through the sister city partnership, Mayor Ridwan Kamil sought to acquire these advanced systems to better manage Bandung's growing organic waste problem. Kawasaki agreed to donate four high-capacity biodigesters, and Ridwan Kamil envisioned a broader plan to deploy at least 30 units across Bandung's 30 districts. He emphasized that Kawasaki's biodigesters were far more advanced than domestic alternatives because they were capable of producing both gas and electricity. They were also designed to handle organic waste from an entire district because they had bigger capacity (Perdana, [2015](#)). The Bandung-Kawasaki partnership illustrated how Ridwan Kamil approached the SDGs not just as abstract global goals, but as international regimes, with actionable principles to guide practical, local environmental policy under his administration.

The importance of sustainable development has drawn the attention of the Bandung administration since 2006. In 2006, Bandung became one of pilot projects for Eco-town program to address the environmental issues in Asia-Pacific. The Eco-town program, an initiative focusing on creating environmentally friendly urban settings, targeted cities in the Asia-Pacific with significant environmental issues. Under this project, Bandung had to adapt the Eco-town framework to fit local contexts, which involved planning, regulations, programs, and activities. Through this initiative, Bandung had the chance to forge eco-partnerships with other Asia-Pacific cities like Penang in Malaysia, Dalian in China, and Kawasaki in Japan. This partnership allowed Bandung to collaborate and share knowledge with those cities. The city's eco-town efforts then concentrated primarily on waste management by applying the "Eco-Town 3R" strategy: reuse, reduce, and recycle (Sukenjah, 2014a). Bandung's early involvement since 2006 indicates a proactive approach in aligning local development with global sustainability agendas as international regimes.

The Bandung-Kawasaki sister city partnership, which focuses on cooperation in waste management, air quality improvement, and water management, aligns with SDGs 11 and 12. Target 11.6 in Goal 11 calls for reducing the adverse per capita environmental impact of cities by enhancing air quality and municipal waste management. This partnership works toward the Target 11.6 by enhancing Bandung's municipal waste management, reducing open dumping and landfill dependency, and supporting Bandung's transition toward a cleaner, healthier, and more resilient city. To improve Bandung's municipal waste capacities, for example, the sister city partnership facilitated the adoption of Japanese waste management technology. The transfer of Japanese technology through this partnership also directly supports SDG 12, particularly Target 12.5, which seeks to reduce waste through prevention, reduction, recycling, and reuse. This partnership facilitates Bandung to adopt sustainable waste treatment systems, such as biodigesters, promotes public education and behaviour change around waste sorting, recycling, and composting, and promoting a circular economy model that aligns waste handling with efficient resource use.

The United Nations played part in influencing the adoption of the norms and principles in the Goals 11 and 12 carried out by the Bandung government because the UN had a key role in promoting SDGs as an international regime. SDGs were officially launched on September 25, 2015, during the United Nations Sustainable Development Summit at the UN Headquarters in New York City. All 193 member states of the UN, including Indonesia, adopted the SDGs, reflecting a unified global commitment to sustainable development. In alignment with this international agenda, the Bandung government sought to apply the SDGs, particularly Goals 11 and 12, through its sister city partnership with Kawasaki. Bandung demonstrated its commitment to this initiative by signing the MoU with Kawasaki government in 2016.

The adoption of the SDGs by the member states of the UN marks the tipping point in the evolution of the SDGs as an international regime. According to Finnemore & Sikkink (1998) in their Norm Life Cycle Theory, a tipping point refers to the stage within the norm cascade when a critical number of states or key actors embrace a new norm, prompting its wider and more rapid diffusion. It signifies the shift from the norm emergence stage (Stage 1) to the norm cascade stage (Stage 2), where the norm gains momentum through broader acceptance. Indonesia accepted the SDGs because it had become socially expected and legitimate in the international community. The SDGs replaced the Millennium Development Goals (MDGs), which Indonesia had previously committed to in 2000. By adopting the SDGs, Indonesia continued its international development commitments with a broader and more inclusive framework.

The SDGs evolved into an international regime endorsed by all UN member states. Indonesia underwent the adoption because it contributed to maintaining international credibility and attracting development cooperation. In the Norm Life Cycle Theory, what the Indonesian government did

exemplified “conformity”. Conformity refers to complying with global norms to show adaptation to their social environment (Finnemore & Sikkink, [1998](#)). By aligning with the behaviors of other states in the UN, Indonesia satisfied a psychological need to belong within the international community. To maintain its standing in the UN, the Ministry of National Development Planning (Bappenas) then worked to synchronize national development strategies with the SDGs, showing how the central government sought to embed this international regime domestically during the norm cascade phase. This stage shows that the adoption of SDGs is top-down, with the central government driving the action. In this cascade stage, President Joko Widodo not only rolled out Presidential Decree 59/2017 to support the implementation of the SDGs, but also developed the national SDG roadmap and introduced the National SDGs Action Plan. The president also instructed local governments to make local action plans to embed the SDGs at the local level. The Indonesian government used the pre-existing governance system originally created developed to implement the MDGs to meet the SDGs. The country’s prior experience with integrating MDGs into national development strategies significantly influenced its approach to implementing the SDG process (Morita et al., [2020](#)).

Under the influence of the UN, Bandung established the sister city partnership with Kawasaki to meet the SDGs, particularly Goals 11 and 12. By collaborating with Kawasaki, Bandung expected the transfer of technology to address environmental challenges in the city. The Bandung administration expected this technology transfer to help the city speed up the development of eco-city and eco-villages. During Mayor Ridwan Kamil's tenure, Bandung aimed to apply the concepts of eco-city and eco-village to address the rapid urban growth in the city. According to Ayu Sukenjah, the Head of Bandung Environmental Rehabilitation Division, this swift population increase had led to several environmental issues, including problems with solid waste management, wastewater systems, and air pollution. The city’s air quality was further worsened by its location, surrounded by mountains that form a large bowl, trapping pollutants within Bandung (Kawasaki Government, [2014](#)). The eco-city concept integrates economic, environmental, and social factors in the planning and execution of projects, programs, and policies to achieve sustainable management of Bandung. The mayor envisioned this approach as a means to transform Bandung into a green and sustainable city. As part of the eco-city initiatives, the local government promoted green activities such as urban cycling, urban farming, rooftop gardens, renewable energy use, and sustainable solid waste management. Meanwhile, the eco-village concept focused on creating urban villages that offered diverse housing options and lifestyles centered on sustainability, innovation, and strong community bonds. The eco-village model emphasized adapting to local culture, practicing organic farming, minimizing water use, encouraging decentralized, community-driven solutions, and using renewable energy sources like solar and biomass (Sukenjah, [2014b](#)).

The Bandung administration established its first eco-village in the Tamansari-Cihampelas area, calling it Bandung Ecovillage #1. This pilot initiative introduced a bicycle-sharing system, enhanced mass rapid transit facilities, and constructed a skywalk to promote sustainable transportation. In implementing the programs, the city launched “car free day” and free school bus service among other things. Sukenjah said:

“The car free day initiative has been met with great enthusiasm. Additionally, specific areas have been designated as “clean emission zones,” where only authorized low-carbon gas vehicles are allowed entry. The introduction of free school bus services, as part of efforts to alleviate traffic congestion, has been positively received by parents who no longer need to drive their children to and from school. These measures have also contributed effectively to the reduction of greenhouse gas emissions (Kawasaki Government, [2015](#)).”

To support sustainable solid waste management, the village created a recycling center and installed an underground waste collection system designed to facilitate cleaner and greener waste handling. For waste processing, the ecovillage planned to utilize plasma gasification technology, which converts organic waste into synthetic gas and electricity. Additionally, the village intended to

build multiple biodigesters as part of a waste-to-energy program, with plans to expand the biodigester system at the regional level (Sukenjah, [2014b](#)). To acquire these biodigesters, Bandung needed Kawasaki's support, according to Ridwan Kamil. The mayor explained that Kawasaki's biodigesters were far more advanced than local options because they were capable of producing both gas and electricity. They were also designed to manage organic waste from an entire district because they had bigger capacity (Perdana, [2015](#))

Ridwan Kamil also aimed to implement a sustainable drainage system in Bandung Ecovillage #1, incorporating features such as source control, permeable pavements like pervious concrete, stormwater detention, infiltration, and evapotranspiration. The village planned to expand urban food production through an Urban Farming Program that included roof gardens. These roof gardens would offer multiple benefits, including food supply, temperature regulation, improved hydrology, architectural enhancement, and recreational spaces. The village would use energy-efficient LED street lighting, which is more effective than traditional lighting, and also adopt solar-powered streetlights. The photovoltaic (PV) technology supported efforts to address climate change, reduce local air pollution, and conserve resources (Sukenjah, [2014b](#)). To implement this low-consumption renewable energy technology, alongside urban farming, integrated wastewater treatment, and sustainable solid waste management, Bandung sought Kawasaki's expertise, leveraging the city's proven experience in realizing green city initiatives.

### **Challenges in Paradiplomacy behind Bandung-Kawasaki Sister City**

Bandung and Kawasaki utilized paradiplomacy to forge a sister city partnership. Through this approach, the two cities formalized their cooperation by signing a Letter of Intent in 2015 and then a Memorandum of Understanding in 2016. The paradiplomacy maneuver continued when the two cities decided to extend the partnership by signing the new MoU in 2020. However, despite this achievement, the process of building the partnership was not without its challenges. These challenges arose not only during the formation of the partnership, but also throughout its implementation. This research found that the implementation phase presented greater challenges than the formation stage.

In the formation stage, the challenge involved defining the areas of cooperation. In the MoU between Bandung and Kawasaki in 2016, both cities agreed on five fields of collaboration: solid waste management, wastewater management, air quality management, energy management, and transportation technologies. Reaching this consensus was not straightforward, as each city initially proposed areas that did not always align with the other's priorities (Rahadiyanto, interview, 10 July 2025). The difficulty lay in reconciling these differences until both parties settled on the five agreed scopes, thanks to the Institute for Global Environment Strategies (IGES), an international research institute based in Hayama, Japan. During this process, IGES played a crucial role as an intermediary, helping facilitate communication and acting as a matchmaker in paradiplomacy carried out by the two cities (Nugroho, interview, 22 August 2025).

Meanwhile, in the implementation stage, the first challenge lay in determining how the agreement could be operationalized. This was evident in the difficulties of translating the provisions of the MoU into concrete actions. For example, Article II of the MoU signed in 2016 emphasized the transfer of environmental technologies as a key objective. Yet, this goal proved difficult to realize (Rahadiyanto, interview, 10 July 2025). A notable case was the biodigester. Mayor Ridwan Kamil assured that the sister city partnership would result in Kawasaki delivering a biodigester to Bandung to address its waste management issues. In practice, however, the biodigester never arrived. The process was far more complex than anticipated, as the Kawasaki-based private company responsible for supplying the technology had no intention of providing it free of charge (Weningtyas, interview, 10 July 2025). This revealed a misalignment of expectations: while Bandung expected the technology

as a grant, the Kawasaki companies treated it as a commercial product. Furthermore, the companies refused to clearly communicate that the technology was not intended to be donated.

Even if Kawasaki's private companies had been willing to donate the technology, transferring the product to Bandung would still have faced obstacles. Indonesia imposed strict requirements for the acceptance of donated goods, including compliance with the Domestic Component Level (TKDN) policy. This policy serves as a government mechanism to assess and require the proportion of domestic goods, services, and labor incorporated into a product or project. Under these rules, technology granted from abroad could not be accepted in Indonesia if it lacked any locally manufactured components. TKDN policy requires at least 40 percent of a technology's components be produced domestically. Additionally, the financial burden of covering the high shipping costs for transporting such equipment from overseas further complicated the process, making the transfer even less feasible. Bureaucratic red tape also added layers of complexity because donated goods cannot be sent directly to municipal governments. Instead, multiple approvals are required from national-level institutions, such as the Ministry of Environment, the Ministry of Finance, and the Customs Office. These combined challenges made the realization of such donations highly difficult (Restu, interview, 11 July 2025).

Even if these barriers were overcome and the donated technology successfully delivered, there remained no guarantee that the equipment would be suitable for local conditions or capable of addressing Bandung's specific urban problems. The challenge, therefore, lay in ensuring that foreign assistance was aligned with the actual needs of local communities. This task was particularly complex in Bandung, given the city's highly diverse social and economic characteristics (Rahadiyanto, interview, 10 July 2025). Even when the technology proved functional, other challenges arose because the city government often was required to procure complementary equipment or spare parts, which were frequently prohibitively expensive. Consequently, technology transfers through grants often functioned less as genuine development assistance and more as commercial entry strategies. Foreign companies first introduced their products through initial donations and subsequently marketed related components or services. A case in point was the incinerator units provided by a Kawasaki-based company to Bandung Islamic University (UNISBA) and Indonesia Education University (UPI). While the units were initially donated free of charge, their operation generated further needs that the company sought to fulfill through additional sales. The Kawasaki-based company leveraged the functionality of the donated incinerators in UNISBA and UPI to establish a market for its other products. This created financial difficulties for the Bandung administration, as the costs proposed by the company were misaligned with regional budgetary capacities (Restu, interview, 11 July 2025).

At the government-to-government level, Bandung and Kawasaki were able to formalize cooperation through a sister city agreement and the signing of a Memorandum of Understanding (MoU) was motivated by a shared commitment to addressing environmental challenges. However, at the business-to-business level, commercial motives became increasingly visible. These motives transformed technology transfers into a vehicle for market expansion. These conflicting interests between public-oriented environmental goals and profit-driven corporate strategies emerged as a critical barrier in the practical implementation of the Bandung–Kawasaki sister city partnership.

Another challenge lay in the uncertainty over whether the transfer of technology and knowledge envisioned in the sister city partnership could be readily adopted and applied. A case in point was the effort to procure biodigesters. Mayor Ridwan Kamil sought to leverage the Bandung–Kawasaki sister city partnership to get biodigester from Kawasaki. However, his initiative faced internal disagreement within Bandung's municipal administration because not all government agencies supported the plan. Several offices expressed doubts about the social acceptability of the technology and anticipated possible community resistance. Therefore, the planned procurement of a biodigester also generated

challenges inside the Bandung administration. Several agencies expressed concern over whether the technology would be socially acceptable and anticipated potential public resistance. These concerns were rooted in the nature of the biodigester. The biodigester, which processed organic waste, including human feces, into liquid fertilizer, was predicted to trigger objections from local communities because feces were considered *najis* (ritually unclean) under Islamic teachings. Consequently, proposals to locate the biodigesters at the Ciwastra and Cicabe disposal sites were opposed. A subsequent proposal to place the facility at the Bandung Institute of Technology (ITB) was likewise rejected by some faculty members. They feared that the frequent passage of trucks transporting organic waste would disrupt academic activities, diminish the comfort of surrounding communities, and harm the activities of the National Nuclear Energy Agency (BATAN) (Weningtyas, interview, 10 July 2025; Frazila, interview, 15 August 2025).

In addition to issues of location and potential rejection by the public, financing posed another obstacle. The procurement of the biodigesters was intended to be funded equally by Bandung and Kawasaki on a 50:50 basis. While Kawasaki reportedly secured funding from the Japanese central government, Bandung had yet to determine the source of its share. Debate arose over whether the costs should be covered by the regional budget (APBD) or private companies. This uncertainty was exacerbated by the absence of a clear legal framework governing budgeting related to the procurement of granted technology from abroad (Frazila, interview, 15 August 2025).

The technology transfer in energy management and transportation, outlined in the 2016 MoU between Bandung and Kawasaki, also failed to materialize. Plans to procure electric buses and establish an automated parking system could not be implemented due to difficulties in applying MRV (Measurable, Reportable, Verifiable). MRV, short for Measurement, Reporting, and Verification, is a framework used to assess and document environmental data, particularly with regard to greenhouse gas emissions and climate mitigation. For example, even determining the actual forecast of passenger demand for the electric buses proved to be a challenge (Frazila, interview, 15 August 2025). Similarly, the proposal to introduce smart LED street lighting also failed. Since the LEDs were entirely manufactured in Japan, the plan conflicted with Indonesia's TKDN policy, which requires at least 40 percent of technology components to be locally sourced (Restu, interview, 11 July 2025; Ekawati, interview, 11 July 2025).

The Bandung–Kawasaki sister city partnership facilitated knowledge transfer, yet translating this knowledge into practice proved challenging in Bandung. As part of the collaboration, both cities developed manual guidelines for managing wastewater generated by tofu production and laundry businesses, aiming to reduce river pollution from these industries. The guidelines were disseminated through outreach activities that involved tofu and laundry business owners. During these sessions, the Bandung government urged participants to establish wastewater treatment facilities (IPAL) to prevent direct disposal of waste into rivers. However, no business owners implemented the initiative due to several challenges, particularly limited space and financial capacity (Fiziarita, interview, 15 August 2025). For tofu producers, the high construction costs of IPAL made compliance especially burdensome. The construction costs ranged from Rp 160 million to Rp 748 million, depending on waste volume (Rochaeni, interview, 15 August 2025).

Although Bandung has developed manual guidelines for wastewater management, the city still lacks regulations on specific waste quality standards (*baku mutu*). For instance, there are no defined limits for the concentration of laundry effluents permitted to be discharged into rivers. The lack of limit creates uncertainty for business owners. In contrast, Yogyakarta has already established *baku mutu* for laundry wastewater. As part of the Bandung–Kawasaki sister city partnership, officials from Bandung visited Yogyakarta to study how these standards were formulated, with the visit serving as a benchmarking effort. In Bandung, business owners are encouraged to build IPAL to align with *baku*

*mutu* requirements. However, the absence of formal regulations continues to pose a challenge (Rochaeni, interview, 15 August 2025).

Another challenge stems from the lack of incentives and dedicated support from the central government for local administrations in carrying out sister city partnerships. The lack of incentives often renders such collaborations little different from conventional international cooperation. This was also the case for Bandung in its partnership with Kawasaki. While the agreement symbolically positioned Bandung and Kawasaki as “sisters,” the sense of sisterhood was not fully realized in practice. For instance, Bandung faced numerous bureaucratic hurdles from the central government when seeking technology transfer from Kawasaki. Securing approval required navigating multiple ministries and legislative bodies, a process that was both time-consuming and complex. The central government also provided no regulatory incentives to facilitate investment, leaving Bandung without preferential mechanisms to attract capital from Kawasaki. As a result, pursuing investment through the sister city framework proved indistinguishable from conventional international channels. Consequently, the partnership did not automatically grant Bandung easier access to benefits from its “sister city” (Rahadiyanto, interview, 10 July 2025). These conditions highlight a structural paradox in Indonesia’s paradiplomacy: while local governments are encouraged to engage internationally, their capacity to realize tangible outcomes remains heavily constrained by central government control and the absence of enabling regulatory frameworks.

The central government demanded the local administrations to establish sister city partnerships with foreign counterparts. However, once these partnerships were realized, no corresponding incentives were provided (Rahadiyanto, interview, 10 July 2025). The Bandung–Kawasaki partnership illustrates this dynamic. Despite Bandung’s formal status as Kawasaki’s “sister city,” the arrangement did not grant the city independent channels of communication. All correspondence and follow-up actions related to the implementation of their partnership had to be passed through the central government. This dependency was obvious. When the two cities sought to renew their partnership and extend their MoU, for example, the Bandung government was unable to negotiate directly with the Kawasaki government. Instead, Bandung had to navigate central government procedures to secure approval for the extension, such as seeking recommendation from the Home Ministry (Ekawati, interview, 10 July 2025). This case underscores the structural limitations of paradiplomacy in Indonesia, where local governments remain constrained by the state’s centralized foreign policy framework. The restriction not only delays the responsiveness and continuity of city-to-city cooperation but also raises questions about the effectiveness of decentralization in enhancing local autonomy in international engagement.

## CONCLUSION

This study found that Bandung established a sister city partnership with Kawasaki because of the influence of Sustainable Development Goals (SDGs) as an international regime. The Bandung administration considered it important to adopt norms and principles in the Goals 11 and 12, particularly those emphasizing sustainability, resilience, and responsibility. The norms and principles were then translated into rules through mayoral regulations. These rules became the basis for the Bandung government to adopt the norms and principles and then establish a sister city partnership with Kawasaki. Based on Martha Finnemore and Kathryn Sikkink’s Norm Life Cycle theory, the adoption of SDGs through Bandung–Kawasaki sister city partnership reflected a norm cascade stage. In this stage, Bandung sought to incorporate the norms and principles in Goals 11 and 12 into local governance. Bandung expected the adoption of the SDGs to help the city address environmental challenges across the city. This expectation then motivated Bandung to launch paradiplomacy to establish the sister city partnership with Kawasaki. Bandung recognized Kawasaki for its experiences in implementing sustainability. The Bandung administration expected transfer of technology and

knowledge from Kawasaki to improve waste management, air quality improvement, and water management in Bandung.

This research contributes to demonstrating the role of the SDGs as an international regime in shaping the Bandung–Kawasaki sister city partnership. While this study emphasizes the adoption of the SDGs within the partnership, it does not provide an in-depth analysis of how the collaboration is implemented or how effective it has been in supporting Bandung’s pursuit of sustainable development across different sectors, such as culture, education, and the economy. The limited examination of the partnership’s contribution to sustainable progress in these areas highlights a gap that future studies should address.

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## REFERENCES

- Ariningtyas, S. A. P. (2025). Development failure in low-income countries: The complexity of multidimensional poverty in Mozambique. *BHUVANA: Journal of Global Studies*, 3(1), 48–66. <https://doi.org/10.59408/bjgs.v3i1.214>
- Bilder, R. B. (1989). The role of states and cities in foreign relations. *The American Journal of International Law*, 83(4), 821–831. <https://doi.org/10.2307/2203306>
- Blondeel, M., Colgan, J., & Van de Graaf, T. (2019). What drives norm success? Evidence from anti-fossil fuel campaigns. *Global Environmental Politics*, 19(4), 63–84. [https://doi.org/10.1162/glep\\_a\\_00528](https://doi.org/10.1162/glep_a_00528)
- Boar, A., Bastida, R., & Marimon, F. (2020). A systematic literature review: Relationships between the sharing economy, sustainability and Sustainable Development Goals. *Sustainability*, 12(17), 6744. <https://doi.org/10.3390/su12176744>
- Brown, S. (2020). The rise and fall of the aid effectiveness norm. *European Journal of Development Research*, 32(4), 1230–1248. <https://doi.org/10.1057/s41287-020-00272-1>
- 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. *The American Journal of Economics and Sociology*, 60(1), 377–401. <http://www.jstor.org/stable/3487956>
- Effendi, T. D. (2022). Ideational factors in the paradiplomacy activities of Indonesian cities. *Journal of Global and Area Studies*, 6(3), 241–268. <https://doi.org/10.31720/jga.6.3.11>
- Eppler, A., Hüttmann, M. G., & Rowe, C. (2024). More cooperation than conflict despite no ‘third level’? Understanding the dynamics of paradiplomacy towards the EU in Bavaria and Baden-Württemberg. *Territory, Politics, Governance*, 12(10), 1–20. <https://doi.org/10.1080/21622671.2024.2369111>
- Finnemore, M., & Sikkink, K. (1998). International norm dynamics and political change. *International Organization*, 52(4), 887–917. <https://doi.org/10.1162/002081898550789>
- 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. <https://uk.sagepub.com/en-gb/eur/qualitative-research-methods/book262465>
- Kawasaki Government. (2014). *Final report of the 10th Asia-Pacific Eco-Business Forum in Kawasaki*. <https://eri-kawasaki.jp/english/eco-business-forum/3625/>
- Kawasaki Government. (2015). *Final report of the 11th Asia-Pacific Eco-Business Forum in Kawasaki*. <https://eri-kawasaki.jp/english/eco-business-forum/5145/>

- Kompas. (2015). Biodigester untuk mengolah sampah. <https://rumahpengetahuan.web.id/biodigester-untuk-mengolah-sampah/>
- Krasner, S. D. (1982). Structural causes and regime consequences: Regimes as intervening variables. *International Organization*, 36(2), 185–205. <https://doi.org/10.1017/S0020818300018920>
- Laoli, R., & Dermawan, W. (2025). A sustainable city: A parallel diplomacy study of Bandung towards Kawasaki in handling carbon emissions. *Intermestic: Journal of International Studies*, 9(2). <https://doi.org/10.24198/intermestic.v9n2>
- Maulana, M. A., & Yuliantoro, N. R. (2024). Donald Trump's foreign policy: Withdrawal from international regimes and organizations. *Intermestic: Journal of International Studies*, 8(2), 527–552. <https://doi.org/10.24198/intermestic.v8n2.7>
- McGowan, E. (2023). Norm-taker or norm-shaper: Is China socialising into norms of intervention? *E-International Relations*. <https://www.e-ir.info/2023/09/11/norm-taker-or-norm-shaper-is-china-socialising-into-norms-of-intervention/>
- Morita, K., Okitasari, M., & Masuda, H. (2020). Analysis of national and local governance systems to achieve the Sustainable Development Goals: Case studies of Japan and Indonesia. *Sustainability Science*, 15(1), 179–202. <https://doi.org/10.1007/s11625-019-00739-z>
- Mukti, T. A., Fathun, L. M., Muhammad, A., Sinambela, S. I., & Riyanto, S. (2020). Paradiplomacy policies and regional autonomy in Indonesia and Korea. *Jurnal Hubungan Internasional*, 9(2), 193–204. <https://doi.org/10.18196/hi.v9i2.8931>
- Perdana, P. P. (2015). Jepang berikan empat mesin pengolah sampah organik untuk Bandung. *Kompas.com*. <https://regional.kompas.com/read/2015/01/07/13503741/Jepang.Berikan.Empat.Mesin.Pengolah.Sampah.Organik.untuk.Bandung>
- Puchala, D. J., & Hopkins, R. F. (1982). International regimes: Lessons from inductive analysis. *International Organization*, 36(2), 245–275. <https://doi.org/10.1017/S0020818300018932>
- Rahmadita, N. M., & Shiddiqy, M. A. A. (2025). The implications of Myanmar's military coup on Thailand's security situation. *BHUVANA: Journal of Global Studies*, 3(1), 27–47. <https://doi.org/10.59408/bjgs.v3i1.216>
- Riadi, T. J. H. (2016). "Jatuh hati" pada biodigester, Ridwan Kamil terbang ke Jepang. *Pikiran Rakyat*. <https://www.pikiran-rakyat.com/bandung-raya/pr-01249132/jatuh-hati-pada-biodigester-ridwan-kamil-terbang-ke-jepang?page=all>
- 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>
- Sari, V. Y., Nugrahaningsih, N., & Nuzulian, U. (2022). Implementasi rezim internasional dalam menangani conflict-related sexual violence di Tigray. *Intermestic: Journal of International Studies*, 7(1), 154–170. <https://doi.org/10.24198/intermestic.v7n1.8>
- Setyowati, K. D. A., Fitriyanti, A. A., & Marsingga, P. (2024). Peran UN Women dalam isu ketidaksetaraan gender di Pakistan. *BHUVANA: Journal of Global Studies*, 2(1), 31–67. <https://doi.org/10.59408/bjgs.v2i1.122>
- Shabirah, S., Setiawan, A. P., Oktavianto, F., Albiansyah, A., & Saputro, D. (2025). China's role in the United Nations in addressing climate change during the Xi Jinping era. *BHUVANA: Journal of Global Studies*, 3(1), 84–107. <https://doi.org/10.59408/bjgs.v3i1.217>
- Simanjuntak, T. R. (2023). Diplomasi maraton Indonesia terhadap isu Rakhine State. *BHUVANA: Journal of Global Studies*, 1(1), 77–93. <https://doi.org/10.59408/bjgs.v1i1.101>
- 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>
- Soplanit, M. G., & Effendi, I. (2024). Diplomasi maritim Indonesia dalam ADMM-Plus experts' working groups on maritime security tahun 2023. *BHUVANA: Journal of Global Studies*, 2(2), 172–201. <https://doi.org/10.59408/bjgs.v2i2.197>
- Sukenjah, A. (2014a). Environmental management in Bandung City, Indonesia. In *10th Asia-Pacific Eco-Business Forum*. <https://eri-kawasaki.jp/english/eco-business-forum/3607/>
- Sukenjah, A. (2014b). Environmental management in Bandung City, Indonesia. [Conference paper].
- Sukenjah, A. (2015). Reducing aerial environmental burden. In *11th Asia-Pacific Eco-Business Forum*. <https://eri-kawasaki.jp/english/eco-business-forum/5161/>

- Sukenjah, A. (2016). Reducing environmental burden in Bandung City. In *12th Asia-Pacific Eco-Business Forum*.
- Sundqvist, G., & Jerdén, B. (2024). Paradiplomacy and international conflict: Disengagement from China by Swedish local governments. *Asia Europe Journal*, 22(1), 1–21. <https://doi.org/10.1007/s10308-024-00703-2>
- Ulung, A. K. (2023). Pengaruh sanksi Amerika Serikat terhadap kepatuhan Indonesia pada rezim hak asasi manusia (HAM) di Timor Timur. *Jurnal Ilmiah Multidisiplin*, 2(2), 1–10. <https://doi.org/10.56127/jukim.v2i02.504>
- Zelinsky, W. (1991). The twinning of the world: Sister cities in geographic and historical perspective. *Annals of the Association of American Geographers*, 81(1), 1–31. <https://doi.org/10.1111/j.1467-8306.1991.tb01676.x>